Quantitative history of society and economy: some international studies

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Quantitative sozialwissenschaftliche Analysen
von historischen und prozeß-produzierten Daten

Herausgegeben von

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Konrad H. Jarausch, Wilhelm H. Schröder (eds.)

QUANTITATIVE HISTORY OF SOCIETY AND ECONOMY

Some International Studies

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Quantitative History of Society and Economy:
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CONTENTS

Introduction

In spite of the proliferation of quantitative methods within history since the 1950s, the first two-day program on quantification at the International Congress of Historical Sciences only took place during the August 1985 meeting in Stuttgart. Promising beginnings fifteen years earlier at the Moscow Congress languished until a Commission for the Application of Quantitative Methods in History (INTERQUANT) was founded during the 1980 conference in Bucharest. Pulling together several initiatives of East European Historians (V. Liveanu), the German QUANTUM group, and the quantitative methods committee of the American Historical Association, this commission set out to initiate a multilateral international dialogue on quantitative methods. In subsequent conferences at Washington (USA) in 1982 and at Bellagio (Italy) in 1984 a number of leading quantifiers from Europe, the United States and the Third World met in order to discuss common problems as well as to share solutions [1]. This cross-national dialogue culminated in four sessions at the Stuttgart Congress, devoted to the impact of quantitative methods upon historical research, social inequality in comparative perspective, the transition from agrarian to industrial society and the implications of the microcomputer revolution.

Since the high quality of the presentations generated considerable interest, the commission decided to make some of the best contributions available in print. While some topical oral discussions were too informal to be reproduced (the session on micros, organized by M. Thaller with papers by Robert McCaa and Don K. Rowney) and one provocative piece was already committed elsewhere [2], the papers collected in this volume offer a broad cross-section of the kind of work done by quantitative historians world-wide. Certainly accidents of travel funds, visa permissions or personal health play a role in selecting who actually participates in a scholarly meeting. But an International Congress of Historical Sciences is sufficiently prestigious (taking place only every fifth year) to attract some of the leading historians. Hence the following essays represent selections from the first three sessions, ranging from Poland through Scandinavia and Germany to France or the United States all the way to Japan. The topical coverage includes Latin America as well. Without pretense to completeness, this anthology therefore offers glimpses of advanced quantitative work in social as well as economic and political history. The contributions em-

1) Konrad H. Jarausch, ed., "Quantitative History in International Perspective," special issue of Social Science History 8 (1984): 123 ff. and the same with W. H. Schroeder, eds., "The Transformation of European Society," special issues of Historical Social Research, Nos. 33 and 34 (1985).

2) J. Morgan Kousser's reconceptualization of American political history in light of rational decision theory has been submitted to the American Historical Review.

ploy a variety of approaches and techniques which intentionally reflects the diversity and vigor of quantitative work in different national settings [3].

Recent attacks on quantitative methods by partisans of anthropological methods, by Western Marxists or proponents of *Alltagsgeschichte* render it imperative to start with the current debate on quantification. Drawing on the experience of a half-decade of international discourse, Konrad Jarausch tries to distinguish national styles of quantification, thereby offering a brief synopsis of quantitative work world-wide [4]. Instead of once again refuting groundless charges, Charles Tilly takes a more profitable approach of reflecting on the relationship between quantitative methods and the central questions of the respective historical discipline. The following cluster of papers on social inequality probes one central question of social history in comparative perspective in order to exemplify both the essential necessity of quantitative analysis as well as its limitations if taken alone. Hartmut Kaelble provides a historiographical and conceptual framework which is then applied in a variety of spatial (Sweden, Poland and the U.S.) as well as temporal (18th to 20th centuries) settings. The final half of the volume centers more loosely on social, economic and political transitions to "modernity", if one is allowed to use that ambiguous term. It is less homogeneous, since its purpose is to include the best current work suggested by scholars themselves, thereby providing open access to the Congress. Nonetheless, the session was quite successful since some of the papers are technically sophisticated (Schroeder/Best, Yamaguchi), while others address fresh topics (Tulchin, Komlos) and others yet suggest a research agenda for quantifiers in countries where there has been little work so far (Dopico). Patrice Bourdelais manages to draw them all together, somehow.

The preceding dialogue within the Comission (INTERQUANT) and the Stuttgart discussions underline the importance and profitability of international cooperation among quantifiers. Since national academic cultures differ considerably, quantitative historians can take heart from the successes of their colleagues elsewhere, if they are under fire at home. Moreover, on concrete questions of methods, an exchange of ideas across frontiers sometimes yields surprising new solutions, since an obstacle which seems insurmountable in one context may long have been scaled in another. While working conditions may differ and cultural frames of reference may be distinct, innovative historians everywhere are confronting similar challenges during the late 1980s: First, there is the microcomputer revolution, which makes available not only word-processing which is far superior to the typewriter, but also data-basing (outdating the trusty card-file) and powerful statistical tools (downsized mainframe packa-

3) For a complete listing of the Stuttgart program cf. Historical Social Research 33 (Spring 1985), pp. 120 - 141.

4) This piece originally appeared in Historical Methods 18 (1985): 13 - 19.

ges such as SPSS, and now also SAS) [5]. Second, there is the increasing avalanche of mass data, be it still in word-form or in statistical guise. Governments, businesses and private institutions are producing more and more records such as personnel files, budget figures and so on which are no longer amenable to philological investigation, but cry out for formalized analysis [6]. And finally there are the core questions of the historical discipline, which have been answered many times and are yet proving somehow elusive. While many topics (such as the causes of World War One) may well be beyond quantitative investigation, increasing numbers of other issues (involving the daily lives and deaths of millions) definitely are amenable to formalized analysis [7]. Quantitative history will retain its vigor and once again move forward, if it can meet these challenges creatively. To facilitate such a *relance quantitative*, quantifiers ought to intensify their cooperation across frontiers.

Konrad H. Jarausch and Wilhelm H. Schroeder

5) This was the consensus of the microcomputer session at Stuttgart.

6) Konrad H. J a r a u s c h, "Historische Auswertung von Massendaten," paper delivered at the East German Academy of Sciences on February 5, 1986. Cf. also the same with M. T h a l l e r and G. A r m i n g e r, Quantitative Methoden in der Geschichtswissenschaft. Eine Einführung in die Forschung, Datenverarbeitung und Statistik (Darmstadt, 1985).

7) See the special issues of the Journal of Interdisciplinary History, edited by T. Rabb and I. Rotberg on the "New Histories" (1981) and of Historical Methods, edited by P. Smith on "History and Epistemology" (1984/5).

I. THE STATE OF THE DEBATE

(Inter)national Styles of Quantitative History

Konrad H. Jarausch *)

Quantitative historians are gradually becoming aware of the "international dimension" of their enterprise. Much of the pioneering work in the application of quantitative methods was done in the United States and by American historians, as A. Bogue recently recalled [1]. But a series of bilateral conferences between U. S. and Soviet historians or West German scholars [2], the translation project of the *Annales,* as well as some multilateral meetings among leading quantitative historians [3] indicate a slow rise in the awareness of and interest in quantitative work in other countries. Some of this new concern is a matter of tracing American influences beyond U. S. frontiers, especially among those foreign colleagues who at one time or other participated in the North American debate (through visiting lectures, guest professorships, and the like). But looking at quantitative history beyond the American sphere reveals a double paradox: while much of the hardware (IBM) and software (SPSS, SAS) tends to be identical, their applications elsewhere differ considerably from U. S. patterns. Moreover, related historical questions can and do lead to distinctive scholarly approaches and answers in other countries. Divergent historiographical traditions, contrasting modes of disciplinary institutionalization, and separate cultural, ideological, and political agendas can influence the content and application of a common historical method. Instead of one homogeneous, U. S. - inspired quantitative history, there seem to be emerging a number of competing national styles.

*) This paper is a revised version of an essay that first appeared in the special issues on quantitative history and theory, edited by P. S m i t h, in: Historical Methods 18 (Winter 1985): 13 - 19.

1) A. G. B o g u e, Clio and the Bitch Goddess: Quantification in American Political History (Beverly Hills, 1983), 17ff, 51ff, 137ff, and 203ff.

2) I. D. K o v a l c h e n k o and V. A. T i s h k o v, Quantitative Methods in Soviet and American Historiography (Moscow, 1983) published in Russian; and J. C l u b b and E. K. S c h e u c h (eds.), Historical Social Research: The Use of Historical and Process-Produced Data (Stuttgart, 1980).

3) Konrad H. J a r a u s c h (ed.), Quantitative History in International Perspective, special issue of Social Science History 8 (1984): 123ff; together with W. H. S c h r o e d e r (eds.), The Transformation of European Society, special issues of Historical Social Research, Nos. 33 and 34 (1985).

In some ways the differences between national variants of quantification are predictable. After all, the source materials available in diverse countries are quite distinctive. Despite some high-level jet-setting, the structures and rewards of national scholarly communities are still fairly separate. Moreover, intellectual priorities among countries differ considerably even within the same language area [4]. In other ways the distinctions are somewhat surprising. Are not quantitative historians everywhere struggling with similar problems, such as funding and recognition? Are they not divided within countries according to ideology or methodology (degree of theory orientation)? Do they not face the same technological challenges (microcomputers) regardless of their national location [5]? Certainly there are substantial commonalities in method and current concerns. But the responses of quantitative historians also differ according to nationality, thereby adding another layer of diversity to their temperamental, methodological, or practical differences. Moreover, these nascent national styles also complicate the international dialogue among quantifiers. While there is much exchange on specific questions, it appears to be more difficult to harmonize broader research designs across frontiers. Lifting discrete findings with scant attention to their argumentative context can be intellectually hazardous. The differences in national styles, therefore, have interpretive as well as practical implications.

The oldest and most influential form of quantification outside the United States is the French *Annales* school. Founded by M. Bloch and L. Febvre in 1929 in a new journal of that name, it attempted to break the dominance of event-oriented political history through concentration on "economic and social history." This shift in subject matter and methodology was carried further by F. Braudel and E. Labrousse in the revised journal (*Annales: Economies, societes, civilisations,* 1946 ff) and continued by E. Le Roy Ladurie, F. Furet, and others as *nouvelle histoire* during the 1960s and 1970s. In contrast to the quickly turning political carousel of the Third and Fourth Republics, the Annalists were preoccupied with "structure and ... the long term. The very logic of such an undertaking inevitably meant working with figures and statistics." Nevertheless, J. Marczewski's attempt to promote economic modeling through national income accounts as *histoire quantitative* lost out to a more broadly based and less rigorous *histoire serielle.* Through a layering of multiple time

4) Val L o r w i n and J. M. P r i c e, The Dimensions of the Past: Materials, Problems and Opportunities for Quantitative Work in History (New Haven, 1972) concentrates on different national materials rather than on distinctive national styles.

5) The last general surveys from an Anglo-American point of view are T. K. R a b b, "The Development of Quantification in Historical Research," Journal of Interdisciplinary History 13 (1983): 591 - 601; and J. M. K o u s s e r, "The Revivalism of Narrative: A Response to Recent Criticisms of Quantitative History," Social Science History 8 (1984) 133ff.

series this statistically simple but documentarily complex serial history aimed at recreating the total history of a community. In countless *theses* French historians explored the economic (price) and demographic (family reconstitution) structure or *conjoncture* of a locality (town, *departement*), moving eventually to society, material culture, and mentality (*troisieme niveau*) [6].

In the 1960s, quantitative methods became the core of the *Annales* approach. One of the leading protagonists, Le Roy Ladurie, could suggest with typical hyperbole: "History that is not quantifiable cannot claim to be scientific." Despite their objectivist air, the Annalists also shared an ideological outlook, focused on "economism and the history of the masses." This progressive temper could be described as a generalized, but nonorthodox Marxist influence, recognizing "no enemies on the Left." Brilliant external (towards the social sciences) and internal (towards traditional historians) strategies enabled the *Annales* group to conquer the famous 6th section of the Ecole Pratique des Hautes Etudes (now reconstituted as the Centre de Recherches Historiques in the EHESS), and thereby to achieve a hegemonic position in French intellectual life. On the 50th anniversary of the journal's founding, Ladurie proclaimed that this dominance "is also gaining in the international historical community, whether in the English language ... the Latin countries or Poland and Hungary [7]."

Though internal and external acclaim seems to have elevated the Annalists above criticism, their hegemony is being challenged in the 1980s. As a perusal of any French university bookstore reveals, much political, biographical, military, and intellectual history is still being written (and read) outside of the paradigm of the *Annales*. Spectacular sales figures of *La Mediterranee* or *Montaillou* notwithstanding, the very exclusion by the *Annales* of popular subjects has guaranteed the survival of a vigorous traditional historiography (often underestimated by foreigners). Moreover, there is with maturity a growing criticism from within the *Annales* camp. The fourth generation of scholars finds fault with simplistic statistical procedures and a lack of theory. The effort to compile multiple series has often exhausted the energy of the researcher before the more complex processes of hypothesis formation and testing begin. Some of the former leaders themselves have grown tired of a surfeit of numbers and, like Ladurie, have embraced anthropological, qualitative research strategies to explore mentalities. The revival of the narrative, increasing skepticism of structu-

6) For an English language history of the Annales cf. G. G. Iggers, New Directions in European Historiography, 2nd ed. (Middletown, Ct., 1983). Cf. also J. Marczewski "Quantitative History," Journal of Contemporary History 3 (1968): 179 - 191; versus F. Furet, "Quantitative History," Daedalus 100 (1971): 151 - 167.

7) E. Le Roy Ladurie, "Motionless History," Social Science History 1 (1977): 115 - 136; The Territory of the Historian (Chicago, 1979); and "Les mousquetaires de la nouvelle histoire," Le Nouvel Observateur (1979): 58. Cf. also H. Coutau-Begarie, Le Phenomene "Nouvelle Histoire": Strategie et ideologie des nouveaux historiens (Paris 1983) for a French critique.

ral determinism, and impatience with the immobilism of long-range series among more recent historians are beginning to undermine the intellectual hold of the *Annales* group over the controlling heights of French historical scholarship. Raised on a generation of handbooks full of demographic and economic tables, history students are also rediscovering other, emphatic interests in the past. These rumblings within and without do not presage the immediate collapse of the *Annales,* but rather indicate that triumph engenders its own difficulties. Foreign quantitative historians should therefore look less enviously towards *la douce France*, since the slowness of change in its peasant/smalltown/clerical structures can rarely be duplicated outside. The *Annales* paradigm is, on balance, a highly successful national style of quantitative history - but not its sole, unproblematic incarnation [8].

In German-speaking countries, quantitative methods developed later and have yet to reach the same level of public acceptance. Statistical work began in the eighteenth century, and the publication of government series as well as the emergence of a school of historical economists made German scholars leaders in this field at the turn of this century. This tradition was cut off by the world wars and the Third Reich. The hesitant restoration of descriptive industrial and agrarian historical statistics in the 1950s needed powerful impulses from outside in the 1960s in order to develop into full-blown quantitave history in the 1970s. The change of general interest from diplomatic to social concerns (the development of a *Gesellschaftsgeschichte*) required new methods. The rehabilitation of the neighboring social sciences with their empirical and behaviorist orientation contributed to the adoption of some of their working tools. The influence of the French was less powerful in confronting their German colleagues with the possibilities of this kind of research than were the American pioneers of quantitative methods. Finally the availability of the technical resources in a comparatively wealthy country facilitated access to computing machinery. In the mid-1970s a group of young historians and sociologists at the University of Cologne founded in quick succession an organization (QUANTUM), a journal (*Historical Social Research*), and a publication series (*Historisch-Sozialwissenschaftliche Forschungen)*, which helped organize independent efforts into a respectable and dynamic enterprise. After fairly rapid initial gains, this development has recently slowed, since the overcrowding of the historical profession has prevented the establishment of most quantifiers in chairs and frozen them on lower levels of the hierarchy (as project assistants). At the same time the limi-

8) Coutau-Begarie, Le Phenomene "Nouvelle Histoire," pp. 317 - 320; and P. Bourdelais, "French Quantitativve History: Problems and Promises," Social Science History 8 (1984): 179 - 192. For a shrewd appraisal of the Annales contribution cf. also J. Hexter, "Fernand Braudel and the monde braudellien," Journal of Modern History, 43 (1972): 483ff.

tation of overall funding has made support for innovative projects more difficult [9].

Although it reaches only a minority of professional scholars, a peculiarly German version of quantitative history is also beginning to emerge. Due to the separate institutionalization of chairs or institutes for economic and social history, quantitative methods have spread most in these sectors. While there are relatively few demographic projects, it appears that social history with a quantitative bent is further developed than in France. On the whole German quantifiers also have considerably more interest in political developments: given the turbulent territorial and constitutional history of Central Europe since the Middle Ages, it is harder to shut out the political dimension completely [10]. German quantitative history also tends to be more theoretically oriented, since the Weberian influence still makes itself felt. Moreover the German notion of *Historische Sozialwissenschaft* is less behaviorist than American historical social science because the concept *Wissenschaft* means "systematic scholarship" rather than hard "science". Quantitative methods are generally used within the context of *Gesellschaftsgeschichte*, a broad conception of social history, which may not dominate the methodological arena to the same degree as the Annalists, but which is institutionalized with the most interesting historical journal of the Federal Republic [11]. Due to their late start, German quantifiers are often technically more sophisticated and open to international scholarly dialogue than their French counterparts. One interesting contribution is the "databank-oriented programming-system for historians, called "CLIO", which has been developed by Manfred Thaller [12]. Despite their smaller institutional success (due to the decentralization of academic structure), quantitative methods are producing innovative works in Germany. One indication of this vitality is the opening of a new Zentrum für historische Sozialforschung in Cologne in 1987.

9) K. H. J a r a u s c h, "Promises and Problems of Quantitative Research in Central European History," Central European History 11 (1978): 279 - 291; and H. B e s t, "Quantifizierende Historische Sozialforschung in der Bundesrepublik Deutschland," Geschichte in Köln 9 (1981): 121 - 157.

10) Exemplary surveys of the state of research are the annual volumes on Quantitative historische Forschung 1977. Eine Dokumentation der QUANTUM-Erhebung (Stuttgart, 1977ff). Cf. also W. B i c k, P. M ü l l e r and H. R e i n k e, "Quantitative History in Transition," Social Science Information 16 (1977): 694 - 714.

11) J. K o c k a, "Theories and Quantification in History," Social Science History 8 (1984): 169ff. Cf. also the essays by H. U. W e h l e r on Historische Sozialwissenschaft und Geschichtsschreibung (Göttingen, 1980); and the journal Geschichte und Gesellschaft (1975ff).

12) M. T h a l l e r, "Automation on Parnassus. CLIO - - A Databank Oriented System for Historians", Historical Social Research/Historische Sozialforschung 15 (1980): 40 - 65; and his historical software column in the journal Historical Social Research.

In the Soviet Union and to some degree in other Eastern European countries, a Marxist-Leninist approach to quantitative history has developed as well. Building on a long Russian tradition of statistical compilation in the cause of social reform, Soviet historians in the early 1960s became interested in applying mathematical and statistical methods to historical research. Western scholars were surprised to encounter sophisticated presentations by I. Kovalchenko and J. Kahk at the 1970 International Congress of Historical Sciences (Moscow) and at subsequent international meetings. Efforts at the Soviet Academy of Sciences, Moscow State University, the Estonian Academy of Sciences, etc., are being coordinated by a special committee within the Soviet National Committee of Historians. Because the overwhelming majority of Russians lived in the countryside and worked in agriculture until relatively recent times, the leading economic history topic is agrarian development. Less econometric than in the U. S., Soviet agricultural history tends to analyze the structure of the agricultural labor force, the introduction of capitalism into the countryside, and so on. A second large area of quantitative research in the Soviet Union deals with social history, such as the structure of the proletariat and its organizations or the composition of the Tsarist bureaucracy. While the statistical techniques are generally similar to Western procedures, they tend not to be documented as extensively, and modeling is directed more towards synthesis than towards hypothesis testing. Close collaboration with mathematicians has produced high standards in some areas (pattern recognition), although on the whole the thrust of quantification appears to be more descriptive than analytical. Given the basic Marxist assumptions of Soviet historiography, the ultimate aim cannot be to develop a general historical theory of human behavior, but to fill in details within the existing ideological canvas and to refine explanations of particular changes. A similar Marxist version of quantification is also emerging in East Germany, Poland, Romania and other Eastern European countries 13).

Because of the interpenetration of the Anglo-American academic communities, it is difficult to discern a separate British national style of quantitative history. While there is much exchange across the Atlantic, a common language of publication, etc., institutional career sequences are more distinctive than commonly realized, and journals as well as scholarly presses have different centers of gravity. Perhaps one should, therefore, think of British quantitative history as a variant of the Anglo-American pattern. Interest in quantitative methods began in the 1950s and reached considerable levels of sophistication by the 1970s, as the leading English-language text by R. Floud indicates. But the

13) D. K. Rowney (ed.), Soviet Quantitative History (Beverly Hills, 1984), especially the introduction by the editor; J. Kahk, "Quantitative Historical Research in Estonia: A Case Study in Soviet Historiography", Social Science History 8 (1984): 193 - 200; Kovalchenko and Tishkov, Quantitative Methods, 5 - 22; and T. Kuczynski, Wirtschaftsgeschichte und Mathematik (Berlin, 1985).

distribution of subject matter differs between the U. S. and England. With the Cambridge Group for Population Research, the British historians around E. A. Wrigley, P. Schofield, or P. Laslett became internationally famous pioneers of demographic history. Also in the independent chairs or departments of economic history, quantitative methods have spread quickly, even though a considerable segment of traditional work survived as well. But the leading quantitative efforts in political history were undertaken by American scholars (W. Aydelotte), and the "new social historians" (especially of radical persuasion like E. J. Hobsbawn or E. P. Thompson) remain skeptical of quantitative methods. Hence in Britain, quantifiers appear to be a respected group in some fields, but a distinctive minority in the profession. In the spring of 1986 Deian Hopkin and Peter Dently held a successful conference at the University of London which resulted in the organization of an "International Association for History and Computing". Prospects look therefore promising that this new impetus will become a focal point of quantitative efforts in the English speaking countries of Europe [14].

In the smaller Western European countries the situation is similar, since their academic communities are not large enough to produce an independent national style. Oriented largely towards Anglo-American debates, some creative scholars have been employing quantitative methods for two decades. The especially rich records of Scandinavia have allowed the creation of a massive social data base for the last two centuries, which encourages advanced work on social mobility, literacy, and family reconstitution. Technical standards are often quite high, and there is much interest in scholarly cooperation among economic and demographic historians.

In the Third World the position of quantitative history is more precarious. Precious computer time is rarely available to historians, the audience for quantitative work is limited, cultural bias militates against it, and documentary as well as sometimes political obstacles abound. Nonetheless, in Latin America an accomplished body of quantitative historical scholarship has crystallized in the last decade. Methods as well as methodologies are imported as technological transfers either from the *Annales* school in France or the econometricians in the U. S. Latin American historians have made impressive gains in the collection of historical statistics, as John Coatsworth shows in his paper, "Cliometrics and Mexican History," and they are beginning to make distinctive interpretive contributions as well. But in other Third World countries (and in some ways even in Japan), quantitative historians still seem to be struggling as individuals or isolat-

14) R. F l o u d, An Introduction to Quantitative Methods for Historians (London, 1973; 2nd ed., 1979). I have found no separate treatment of quantitative history in Britain. For the general context cf. the essay by K. B a k e r in Iggers, New Directions, and E. J. H o b s b a w m, "From Social History to the History of Society," Daedalus 100 (1971): 20 - 45. See also the "History and Computing" programm, March 21 - 23, 1986.

ed groups. The gap between enormous opportunities and limited accomplishments remains substantial 15).

About half a dozen styles of quantitative history (including American QUASSH -quantitative social science history) are producing divergent reactions to the common problems facing quantitative scholarship. The current mood of self-questioning among quantifiers, aware that the bloom is off and the first enthusiasm has cooled, takes on distinctive shapes in varying national contexts. A recent examination of the *Annales* school by Coutau-Begarie lists a number of criticisms such as "a reaction," "the illusion of scientificity," "the risk of immobilism contained in the *longue duree*," and "frequent anachronisms." But the author supports "a prudent and measured utilization," indicating that in France quantitative methods are so firmly entrenched that the debate revolves more around their intelligent application than around their elimination. In Germany the situation is more problematic. Lukewarm acceptance by leading social historians like J. Kocka, coupled with a paucity of convinced quantifiers in major positions, makes quantification vulnerable, even if it has become an integral part of many *Grossprojekte*. In Russia, D. Rowney sees quantitative methods as "confident, not tentative, scholarship." Verbal acceptance of quantification is high, even if one may question whether practicing quantitative historians constitute more than a tiny minority of the large Soviet historical profession. In Britain and in smaller Western European nations where more scholars actually use quantitative methods, there is greater ambivalence. On one hand, quantification seems so essential in some specialties that it goes without saying. But in the overall historical enterprise it appears to be somewhat in retreat, since skeptics, never quite convinced of its utility, are now happy to fall back on narrative modes with Lawrence Stone's trend-setting blessing. In the Third World, quantification still seems to be in its heroic age—confronting larger-than-life obstacles and promising superhuman intellectual rewards, since the basic numerical outlines of development still have to be sketched in 16). This rapid survey of non-American styles of quantitative history reveals neither an irresistible tide of progress nor a universal ebb. The present situation seems rather embattled, somewhat on the defensive, but still in command of enough scholarly territory to launch a counterattack.

15) H. Perez-Brignoli and E. A. Ruiz, "History and Quantification in Latin America: An Assessment of Theories and Methods," Social Science History 8 (1984): 201ff; and John H. Coatsworth, "Cliometrics and Mexican History," Historical Methods 18 (1985): 31 - 37.

16) Coutau-Begarie, Le Phenomene "Nouvelle Histoire," 114 - 121; J. Kocka, "Quantifizierung in der Geschichtswissenschaft," in H. Best and R. Mann (eds.), Quantitative Methoden in der historisch-sozialwissenschaftlichen Forschung (Stuttgart, 1977); Rowney, Soviet Quantitative History, 25; L. Stone, "The Revival of Narrative: Reflections on a New Old History," Past and Present 85 (1979): 3 - 24.

A second area in which national styles lead to different responses is the ideological affinity of quantitative history. Is quantification, as is often claimed, a neutral method, or does its apparent empiricism rest on crypto-capitalist foundations, as is sometimes charged? In France the Annalists, whether Marxists or not, seem to employ quantitative methods without ideological qualms. Perhaps the socialist stance of the founder generation and even more strongly the "omnipresence" of Marxist currents in the postwar generation kept quantification from being associated with one camp. Interestingly enough, there seems to be "a relative decline of Marxist influences since the beginning of the 1960s" so that the leaders of the present cohort of Annalists are clearly non-if not anti-Marxist (Chaunu and Besançon). In Germany the radical proponents of *Alltagsgeschichte*, the everyday history of the little people, tend to reject quantitative methods as dehumanizing, as incapable of grasping the social situation or consciousness of an individual worker, a housewife, etc. Ironically, the preceding cohort of socio-political historians criticizes this "pronounced tendency to nostalgic idyllification of preindustrial conditions; their antiquantitative, even antisocial science bias; their disregard for theoretical efforts; their imprecise concepts, especially their notion of class [17])."

In contrast, Soviet historians depart self-consciously from Leninism and cannot understand the opposition between radicals and quantifiers: "Thus the Marxist theory of social development and scientific cognition serves as the general methodological basis of Soviet historical science." But in Britain there is tension between the anti-quantitative bias of History Workshop, a group of Marxist "people's historians," and the practitioners of quantitative history. The objections centering on the class bias in statistical data, the impersonalism of quantification, the capitalist association of econometric history, and the difficulty of learning quantitative techniques have been refuted convincingly. But the odd fact of the hostility remains. In Latin America one can observe a similar association between quantification and capitalism, which encourages the *Annales* paradigm over QUASSH. Clearly, as the French and Soviet reactions demonstrate, there is no necessary connection between quantitative methods and reactionary politics. But it will take much convincing to merge the complementary approaches of People's History and social science history elsewhere [18]).

17) Coutau-Begarie, Le Phenomene "Nouvelle Histoire," 225 - 243; R. Berdahl, A. Lüdtke, H. Medick, et al. (eds.), Klassen und Kultur. Sozialanthropologische Perspektiven in der Geschichtsschreibung (Frankfurt, 1982) versus J. Kocka "Klassen oder Kultur? Durchbrüche und Sackgassen in der Arbeitergeschichte", Merkur 36 (1982): 955 - 965.

18) J. Kahk, "Quantitative Historical Research in Estonia," 193ff; R. Floud, "Quantitative History and People's History: Two Methods in Conflict," Social Science History 8 (1984): 151ff; L. Tilly, "People's History and Social Science History," Social Science History 7 (1983): 457 - 474; and the papers by N. Fitch as well as J. D. Willigan versus K. A. Lynch in the Fall 1984 issue of Historical Methods.

A third major issue, which is hotly debated among (and less so within) national variants of quantitative history, is the role of theory and the relationship between history and the social sciences. In France the *nouvelle histoire* has gained a paramount position among the social sciences, due to its enlargement of scope *(totale)*, its dynamic perspective *(longue duree)*, and its quantitative rigor. Surprisingly, *Annales* explanations tend, however, to be largely atheoretical, layering time series and analyzing their interactions rather than testing explicit theories. In the German-speaking countries, there is more explicit theorizing, reflecting the strong philosophical tradition and the *Theoriediskussion* of the 1970s. The hermeneutical heritage stresses qualitative generalization so that one can argue that "there is theory-oriented history of a non-quantitative character, and legitimately so." Hence only a small minority (such as the leaders of QUANTUM) subscribe to the more rigorous standards of a statistical *Historische Sozialwissenschaft*. In Eastern European countries, Marxism as theory (not just ideology), defines the essential contextual parameters: "It is precisely the Marxist theory and methodology of historical knowledge with its characteristic principles of logical historical method which guarantee that modelbuilding in historical research is applied effectively." Modeling (largely on the reflective-measuring level) plays a limited but important role in middle-level empirical generalization, especially in areas where there are no direct statements by Marxist-Leninist classics [19].

In Britain and in the smaller European countries, divisions on the theory question seem to run somewhat along American lines. A vigorous and sophisticated minority of quantifiers appears to aspire to the stringent standards of "scientific history" (R. Fogel) or quantitative social science history (M. Kousser), involving analytical use of statistics as well as explicit modeling. A larger but less vocal group of practicing quantifiers is content with medium-level generalizations, while an indeterminate number simply applies methods without much theoretical concern. Some scholars support the fusion into a historical social science; others are more comfortable in the middle ground between the social sciences and the humanities (occasionally borrowing for specific purposes), while still others are clinging to the fundamentally humanistic character of historical scholarship, even if they admit the utility of quantitative methods for particular questions. In the theory debate there are significant differences among the national viewpoints, but equally fundamental distinctions exist within many of the countries concerned [20].

19) B o u r d e l a i s, "French Quantitative History," 179ff; J. K o c k a, "Theorieorientierung und Theorieskepsis in der Geschichtswissenschaft. Alte und Neue Argumente," Historical Social Research 23 (1983): 4 - 19; versus B e s t, "Quantifizierende Historische Sozialforschung," 121ff; I. K o v a l c h e n k o, "Model-Building for Historical Phenomena and Processes", Soviet Quantitative History: 29 - 45.

20) R. F o g e l, " 'Scientific History' and Traditional History," in L. J. C o h e n (ed.),

The technological working conditions of quantitative scholars in different countries are a final area of difference between national styles of quantitative history. While much of the computer machinery is transnational (or American in design), national academic cultures and forms of organization determine the conditions of its use. Moreover government support of indigenous computing technology (France, West Germany, and Russia) creates substantial time lags in the availability of software, such as SPSS, which first needs to be transposed into another machine language (not to mention the translation of the manual, etc.). In some of the wealthier Western European countries computer use is relatively open, though the working conditions are more regimented and the turn-around time tends to be longer (jobs often cannot be run by the user directly, but have to be done by other personnel). In Eastern Europe access is quite difficult and in many Third World countries virtually nonexistent. Ironically, the rapid spread of the microcomputer is likely to increase these differences. While France has launched a publicity campaign in its favor, there seem to be few micros in actual working use by historians. In West Germany researchers expect them to be provided by the university or research team, which is a slow and laborious process. In Communist countries and the developing world, funds are hardly available for such extravagance. Especially the soaring yen is keeping Japanese machinery expensive abroad and there are also fewer discounts. Only in Britain and in Scandinavia do microcomputers seem to be spreading rapidly on the level of the individual working scholar. On the continent the dominant organizational style of *Grosswissenschaft* (large institutionally sponsored team research) appears to be inhibiting the microcomputer revolution because of its mainframe orientation. In contrast, in the Anglo-American sphere, microcomputers, especially for word processing, are transforming quantitative history into a cottage industry in the individual department or scholarly study, even if useful data-base and statistical software is only beginning to emerge 21). Hence practical working conditions of quantitative historians may well diverge further in the near future.

Logic, Methodology and Philosophy of Science (Amsterdam, 1982), vol. 6: 15 - 61 and M. J. K o u s s e r, "Quantitative Social Scientific History," in M. K a m m e n (ed.), The Past Before Us (Ithaca, 1980), 437 - 456 as well as "The Agenda for 'Social Science History,' " Social Science History 1 (1977): 383 - 391, versus D. H e r l i h y, "Numerical and Formal Analysis in European History," Journal of Interdisciplinary History 12 (1981): 115 - 136; or B. B a i l y n, "The Challenge of Modern Historiography," American Historical Review 87 (1982): 1 - 24.

21) There is nothing comparable to the lively discussion about microcomputers outside the U. S. See D. K. R o w n e y, "The Historian and the Microcomputer," Byte 7 (1982): 168ff; the threepart article series on microcomputers by M. M. F i n e f r o c k in AHA Perspectives 21 (1983), nos. 8 and 9, 22 (1984), no 1; R. J e n s e n "The Microcomputer Revolution for Historians," Journal of Interdisciplinary History 14 (1983): 91 -111; and K. H. J a r a u s c h, "SPSS/PC: A Quantitative Historian's Dream or Nightmare?" AHA Perspectives 23 (1985): 25 - 26.

These somewhat impressionistic reflections on quantitative history outside of the United States reveal the emergence of a number of distinctive national styles. Given an expectation of uniformity, the differences between national variants are surprisingly extensive. One might even talk of competition between the American (historical social science), French (*Annales*), and Russian (Marxist quantification) paradigms especially in the developing countries, which are importing not only machines but also methodology. While the German quantitative style is still defining itself, a British version is in danger of being swamped by influences from the United States. Although not internally uniform, these prevailing national patterns also lead to divergent responses to the challenge of the revival of narrative, the role of ideology in quantification, the issue of theory, and finally, the practical working conditions of quantitative scholars. No wonder that this diversity complicates the intellectual dialogue across frontiers. The considerable differences in the use of quantitative methods between Ladurie's serial approach to the peasants of the Languedoc, J. Kocka's soft statistics on German white collar employees, J. Kahk's compilations of Estonian agricultural figures, and Wrigley/Schofield's sophisticated British demographic computations are not just due to the peculiarities of individual authors; they also reflect the respective quantitative style of each scholarly community [22]. Instead of assuming the universality of the American model (which one?), historians would be better advised to take these national styles into account as conditioning factors of academic production, which have not only organizational implications but, more significantly, intellectual consequences.

Against these centrifugal tendencies, it is important to stress that quantitative historians also have much in common across national frontiers. Beset by methodological and ideological criticisms, they can take heart from the internationality of their enterprise, not just in the Western countries but also in the Eastern bloc and the Third World. Except in France and Russia, much of the basic computing technology tends to be American, which makes for a certain uniformity. Since the lingua franca of quantifiers is English, software and statistical methods often spread from the Anglo-American center outwards, even if they are applied differently in other contexts and some feedback (from West Germany for instance) is beginning. There is a considerable resemblance among such historical problems as population growth, price fluctuation, elec-

22) Since it is impossible to distill the breadth of quantitative scholarship in various countries into a single work, these four titles are intended only as illustrations of the kinds of divergences among national styles. E. Le Roy Ladurie, Les paysans de Languedoc (Paris, 1966); J. Kocka, Unternehmensverwaltung und Angestelltenschaft am Beispiel Siemens 1847 bis 1914 (Stuttgart, 1969); J. Kahk, Peasant and Lord in the Process of Transition from Feudalism to Capitalism in the Baltics (Tallinn, 1982); and E. A. Wrigley and R. Schofield, The Population History of England, 1511 - 1871 (Cambridge, 1981).

tion results, or social mobility in spite of somewhat different approaches to them. Some areas of inquiry, like historical demography and economic history, have well developed international subject networks and organizations. There are also a few bilateral ties (American-Soviet, French-Latin American) that have a centripetal effect. A number of quantitative historians work and publish in two languages and cultural contexts, facilitating transfer of methods and results. Finally, there have also been a few transnational cooperative research projects such as the Tillys' effort to study the bases of popular revolt in Western Europe [23].

The emergence of national styles of quantitative history is, therefore, both a threat and an opportunity. On the one hand it raises the danger of further fragmenting the community of quantitative historians already divided over such questions as ideology or theory. On the other hand the different variants of quantification also present the challenge of a dialogue that can enrich the participants. With the translation of the major works of the *Annales,* this debate is well on its way between some Anglo-American and French historians. One could only wish that it would reach broader circles of the profession and display more awareness of the impact of academic structures on formal intellectual exposition. Lack of contextual understanding of the other position reduces some of the discussion to shadow-boxing. However, other varieties of quantitative history are largely ignored by the Anglo-American profession. Occasionally individual scholars from abroad are co-opted for a while, but only specialists in Russian history (and among them only a small minority) are aware of the existence of Soviet quantitative work. To overcome this lack of communication, some quantitative historians (representing the AHA quantitative methods committee, its Soviet counterpart, QUANTUM, and individuals from England, France, etc.) have founded an International Commission for the Application of Quantitative Methods in History. Attached to the International Congress of Historical Sciences, this organization has sponsored conferences in Washington (1982) and Bellagio (1984) [24]. During the 1985 meeting of the International Congress of Historical Sciences in Stuttgart (West Germany) INTERQUANT has sponsored a two-day programm with sessions on the impact of quantitative methods on the writing of history, the problem of social inequality, the use of microcomputers, and the transition from agrarian to industrial society [25].

23) Charles Tilly and Louise Tilly, The Rebellious Century (Cambridge, 1975). The great opportunities for comparative/international quantitative history have not yet been explored to the degree they should. Cf. Jarausch, "The International Dimension of Quantitative History," Social Science History 8 (1984): 128.

24) "Quantitative History Conference Report," AHA Newsletter 20 (1982): 8; and the special issues of Historical Social Research, published in early 1985.

25) For the best papers from these sessions, see the other essays in this volume.

But organizational efforts to overcome quantitative parochialism can play only an auxiliary role. To derive greater benefits from the national varieties of quantitative history, individual scholars must become more willing to run the risks of international dialogue. Impressive beginnings have been made. We only have to go on.

Formalization and Quantification in Historical Analysis *)

Charles Tilly

A Wave or Formalization

In historical analysis, the first great wave of formalization started in the 1950s and began to lose its force in the 1970s. Now it has spent itself. When and how will the second wave arrive, if it ever does? Let us address the question in characteristic historical fashion: by examining the first wave carefully, to see if it displays regularities that help specify the conditions under which something similar might occur again.

Formalization? I mean a variety of procedures that match descriptions of events, structures, and process with explicit models of those events, structures, and processes. Formal methods do not necessarily involve quantification or computing; analyses of linguistic, spatial, or temporal structure, for example, often proceed quite formally without computers and without any direct intervention of mathematics. In history, however, the formalization that concerned history's technical innovators in the 1960s and 1970s typically included quantification and/or computing.

Among historians as a group formalization gained a number of energetic advocates during the 1960s. To some, the increasing availability of formal procedures for the investigation of large numbers of cases opened the way to science and certainty. A kind of populism attracted others; they saw the possibility of letting inarticulate people speak for themselves through the real behavior reflected in parish registers, arrest lists, and similar sources. In either case, the path toward formalization typically led through collective biography: the assembly of standardized descriptions of individual units–persons, households, firms, places, events, points in time, or something else–into portraits of the entire sets, and into means for studying variation among the individual units.

Full-fledged formalization in history involves four activities: conceptualization, measurement, modeling, and estimation. Conceptualization concerns the statement of an historical question as a problem susceptible of formal treatment--for example, conceiving of a plantation as a kind of firm (and thus suitable for analysis in terms of the economics of the firm) or of a community as a closed population (and thus available to the demographic analysis of fertility change in closed populations). Measurement refers to organizing the evidence in standard, comparable form, for example by assembling similar records

*) This paper is a substantially revised version of "Neat Analyses of Untidy Processes." Working Paper No. 5, Center for Studies of Social Changes, New School for Social Research, which appeared in International Labor and Working Class History 27 (1985): 4 - 34. The earlier version has a larger bibliography and a more extended discussion of labor history, but says less about other historical fields.

of income and expenditure for all households in a village. Modeling involves the formal statement of an argument concerning the expected pattern of a phenomenon, for example the explicit retrodiction that in a given German town more of the *Mittelstand* than of other classes will turn out to have supported Hitler. Estimation, finally, means matching model to evidence in order to see how well the model fits, for example by means of a statistical procedure, the correlation coefficient, that determines how close to linear is the relationship between wage levels and class voting.

All formalization requires some version of conceptualization, measurement, modeling, and estimation, but analysts do not necessarily give them equal attention. Formalizing historians have, in fact, devoted little of their ingenuity to conceptualization, modeling, and estimation. Often they have unwittingly accepted the concepts, models, and estimation procedures that are implicit in a particular quantitative routine, for example by running a straightforward ordinary least squares multiple regression of electoral results on social characteristics of the populations of electoral districts--an act assuming implicitly that the electoral districts are coherent, independent units, that the social characteristics of those units somehow cause the votes of their electorates, that strong causality would show up as a linear increase or decrease of one sort of vote as a function of increase or decrease of a particular social characteristic, and so on. Often historians have truncated their formalizations: taken considerable care with measurement, only to interpret the measurements informally, for instance by constructing a time series of strike activity and then inserting it into a nonquantitative discussion of rising or falling class consciousness. Historians have, on the other hand, made great contributions to measurement; they have, for example, devised ways of reworking religious records into solid indicators of fertility, mortality, and nuptiality; research done on the resulting historical evidence has altered our ideas of the conditions for large-scale population change.

Formalization had important successes in historical research. Without formal analysis based on collective biography, we would lack almost all of historical demography, most city-by-city studies of social mobility, major treatments of political activism, and much more. Demographic, social, urban, and economic history all underwent significant renewals through the introduction of formal analysis and collective biography. That many wheels spun idly and that the ratio of results achieved to effort expended was often painfully low goes almost without saying; such things usually happen when unprepared people start experimenting with complex new techniques and equipment. On balance, nevertheless, the introduction of formal procedures enriched the possibilities of historical analysis.

Despite indignant complaints about the irruption of positivism into history, many historians then felt that formalization and quantification were the wave of the future. Jacob Price and Val Lorwin–no wild-eyed enthusiasts–introduced their volume on quantitative history with the declaration that:

> From France to Scandinavia to Japan, quantitative ways of thinking, quantitative approaches, and quantitative methods have entered the mainstream of historical investigation. In all areas, major quantitative work is now being done, and even more is likely to be done in the immediate future. The neglect of the possibilities of quantitative research by so many American historians working on topics outside of United States history leds to an unnecessary restriction of their analytical techniques and an unfortunate enfeeblement of their results. Not all problems are equally suitable for quantification; nor will quantification ever become the exclusive or even preponderant form or mood of historical investigation. Yet if historians in the United States and other English-speaking lands working on the history of other countries wish to move to exciting frontiers of research endeavor in their respective areas of interest, a greater proportion of them than at present will have to think and work in part quantitatively 1).

Lorwin and Price's statement, although restrained and sensible in its context, rings quaintly today. "Existing frontier of research endeavor" ? In economic, demographic, and electoral history, quantification has ceased being an adventure in itself; historians in those specialties quantify as a matter of course. Almost everywhere else, however, quantitative analysis has lost much of its following. It is now fashionable to decry formal methods as sterile and reductionist, to insist on the centrality of consciousness, mentalities, and culture in historical experience, and therefore to regard textual explication, retrospective ethnography, and the construction of intelligible narratives concerning daily experience as history's true frontier. As Erik Monkkonen, an experienced quantifier, reports:

> From scholarly journals to the *New York Times*, historians have been castigating themselves for excessive narrowness and a decline in the public voice of their profession. This critique has been articulated through a call for a return to "the narrative", which seems to mean well told, dramatic stories of the past, which attract large readerships, public attention, and respect. Indirectly, quantitative history has born the brunt of this critique, though it includes many non-quantitative forms of history as well 2).

The new critique has an ironic side. It arrives more or less in step with the long-awaited appearance of major works of quantitative social history such as

1) Val R. Lorwin and Jacob M. Price, eds., The Dimensions of the Past: Materials, Problems, Opportunities for Quantitative Work in History (New Haven, 1972) 10.

2) Eric Monkkonen, "The Challenge of Quantitative History," Historical Methods 17 (1984): 86 - 94.

Wrigley and Schofield's *Population History of England* and the Stones' *An Open Elite?* [3]. But since Lawrence Stone himself has lent an influential voice to the critique, it represents more than a discordant noise in the profession, at least in the Anglo-Saxon world [4]. In contrast, Continental Europe looks different. There, formal analysis are still proliferating: studies of Nazi membership, enumerations of Swiss *Aktivierungsereignisse*, content analyses of Medieval texts, and much more. There, furthermore, even studies concentrating on qualitative variations and states of mind commonly turn to some sort of formalization as an auxiliary to their analyses. Daniel Roche's treatment of eighteenth-century provincial academies, for instance, deals mainly with the organization and culture of those quintessential Enlightenment institutions; yet Roche does not hesitate to map, graph, or quantify the provincial savants' activity: not only such obvious features as social origin and age at death, but also more esoteric matters such as themes of poetry read and contents of appointment letters [5]. Continental institutional, cultural, and intellectual historians often turn to formal methods of analysis.

To some extent, the difference between Anglo-Saxon and Continental European reliance on quantification reflects differences in the questions being asked. Generally speaking, quantification provides little help in attempts to account for single instances of anything, especially if the explanations being considered rest on general traits of the individual, group, or place in question. Quantification becomes more useful as a function of a) the compexity of the explanatory model, b) the intrinsic quantifiability of the phenomenon to be explained, c) the importance of variation to the argument, and d) the number of units observed. Any form of "exceptionalism" tends to make quantification uninteresting, even distasteful. Thus the greater readiness of continental scholars to place their subjects in a comparative frame, and yet to employ complex arguments, inclines them toward quantification.

Clearly, the post-1950 wave of formalization did not strike all parts of the historical shore with equal force. At one extreme, such specialties as economic and demographic history made formal methods their standard procedures. At the other, fields such as intellectual history, diplomatic history, and the history of science remained almost untouched by formalization. In between, political history, urban history, social history, labor history, and related subdisciplines

3) E. A. Wrigley and R. S. Schofield, The Population History of England, 1541 - 1871: A Reconstruction (London, 1981); Lawrence Stone and Jeanne Fawtier Stone, An open Elite? England 1540 - 1800 (Oxford, 1984).

4) Lawrence Stone, "The Revival of Narrative: Reflections on a New Old History," Past and Present 85 (1979): 3 - 24.

5) Daniel Roche, Le siècle des Lumières en province: Académies et académiciens provinciaux, 1680 - 1789 (Paris, 1978), 2 vols.

divided by specific subject; the study of social mobility, industrial conflict, urban segregation patterns, elections, and household structure became quite formal, for instance, while students of power structure, war, revolution, gender, urban planning, and social movements rarely ventured into formal analysis of their evidence. Within these intermediate fields, methodological struggles, line-drawing, mutual suspicion, and name-calling multiplied.

Disciplinary Agendas

Although these struggles entailed plenty of misunderstanding, they did not result from simple ignorance. Disciplinary agendas were at stake. In any discipline, members organize themselves in two fundamental ways: a) by creating a bounded interpersonal network, often one that is formalized via organizations, meetings, journals, and similar devices; b) by establishing a shared agenda which includes pressing questions, certified means of answering those questions, and a recognized body of relevant evidence.

Let us concentrate on the pressing questions. All historical fields having any practical coherence organize around a very limited number of "payoff questions"--questions which define the field, whose pursuit requires little or no justification among practitioners, with respect to which specialists are instantly alert to new answers, confirmations of disputed answers, or challenges to widely accepted answers. At any given moment, only a limited number of alternative answers to the big questions are typically in play; otherwise, members of the craft worry about its disarray.

Labor history provides a case in point. Labor history is a bipolar field. It actually organizes around two partly independent sets of questions. One set sums up to the very broad query: What relationships exist among the organization of production, the formation of social classes, and workers' collective action? Under that broad rubric fall narrower and somewhat more manageable questions such as "Which kinds of workers, in what circumstances, most regularly engage in class-conscious militancy, and why?" That and perhaps a dozen other questions inform the bulk of research and writing in labor history.

The other cluster of questions cumulates to this one: What historical circumstances determine the rise and fall of militant and/or effective national labor movements? This question, unanswerable as stated, breaks into a small series of less general inquiries. Within labor-history-defined-as-national-movements, one of the few venerable payoff questions is "Why so much more socialism in some countries and periods than others?" Broadly speaking, the main alternative answers to that old query now under serious consideration are variants of the following:

1. The organization of capitalist production varies significantly over time and space, and only some (few) versions of it promote sharp confrontations of labor

and capital; those confrontations produce support for socialist programs.

2. The political strategies of states and national elites--for example, cooptation and corporatism–strongly affect the availability and viability of a socialist reply to capitalist power.

3. Other features of social life, such as the presence of ethnic divisions, the diffusion of bourgeois styles of life, or the structure of workers' residential communities, govern the extent of working-class consciousness, and therefore the support for socialism.

4. Specific historical experiences and leaders, such as responses to the Depression of the 1930s, shape the political choices and possibilities available within any particular state.

Put so generally, to be sure, these answers could all be correct simultaneously. Only when a historian specifies one of the statements further (for example, by claiming that American geographic and class mobility diminished working-class consciousness) or assigns preeminence to one of them (for example, by insisting that working-class socialism appears only in early phases of rapid industrialization) do sharp contradictions arise. But historians, including labor historians, proceed by alternation between the deliberate sharpening of such contradictions and the judicious synthesis of competing arguments. The choices, and the balance among the choices, remain fundamental to their work. At a given point in time, only a handful of such questions define the overall agenda of the entire field.

Labor history has an indefinite boundary, a chaotic periphery, and a relatively well-defined core. Labor historians regard historical research and writing as important to the extent that it a) renews understanding of the conditions underlying national fluctuations in the militancy and/or effectiveness of worker action, b) helps connect the organization of production, the formation of social classes, and worker collective action, or c) both. By and large, the successes of formal analysis have occurred in labor history's periphery. They include:

a) time-series analyses of the determinants of fluctuations in national levels of strike activity,

b) treatments of the organizational bases of workers' collective action,

c) studies of the demographic correlates of different sorts of industrial organization

d) reconstructions of labor migration and its consequences,

e) quantitative portrayals of occupational mobility and of social ties among different occupations, and

f) research on the urban geography of migration, work, and workers.

These sorts of studies have great merits. (At least I hope so, since my own efforts in labor history lie almost entirely in these areas). But they do not address the organizing questions of labor history directly.

The organizing questions, on the other hand, resist formalization. Remember the ideal conditions for useful quantification: 1) an explicit, complex model of the process or structure under analysis, 2) intrinsic quantifiability of the phenomen to be explained, 3) importance of variation to the central arguments, 4) large number of units. Although the major models of labor history are often complex, they are rarely explicit. Many of the major phenomena figuring in those models, such as class consciousness and revolutionary will, are not obviously quantifiable. Variation is a sometime visitor to the central arguments of labor history; although the differences between two countries are often at issue, even that minimum comparison serves mainly to identify the unique properties of each individual country. And the central arguments of labor history rarely deal explicitly with large numbers of units, except in the sense that they sum up the experience of all workers, all labor unions, and so on.

Where Formalization Works

Many other historical fields resemble labor history in these regards. Intellectual history, the history of science, diplomatic history, political history, the history of warfare, and most synthetic national histories (e. g. the histories of India or China) rarely employ explicit models, deal with intrinsically quantifiable phenomena, analyze variation systematically, or treat large numbers of units– at least not all at the same time. And these characteristics stem directly from a concentration on payoff questions that resist formalization.

Within labor history, consider the problem of national labor movements. Formal analyses of strike activity and quantitative treatments of the organizational bases of workers' collective action begin to address that issue. Yet labor historians tend to question their validity and relevance on the grounds that the formal analyses in question consider too narrow a range of action, fail to provide convincing evidence on the orientations of the workers involved, and ignore the political context.

When push comes to shove, labor historians who are concerned with national labor movements seem to want one or both of two things: a) persuasive reconstitutions of the shared states of mind of the principal actors at different points in time, b) tactical replays of the interactions among various groups of workers, labor leaders, capitalists, political powerholders, state officials, and other significant actors in the national arena. Formal studies of strike activity and of the organizational bases of worker collective action set some limits on the possible reconstitutions of shared states of mind, but provide no effective means for getting at them directly. Dealing with strikes in nineteenth-century Massachusetts, for instance, Carol Conell is able to build mathematical models whose empirical application strongly suggests an important conclusion: skilled workers timed and located both their organization and their strike activity to maxi-

mize the impact of withholding their labor, and the advantage of organization and timing to them was significantly greater than it was for less skilled workers. But Conell's results cannot tell us whether skilled workers made self-conscious calculations to that effect [6].

On the side of strategy and tactics, in principle, it is possible to capture tactical interplay in formal models; in practice, the difficulties of measurement and modeling entailed by the analysis of fluctuations in the national politics of labor will exceed anyone's technical capacity for some time to come. Instead, labor historians are likely to continue with analytically-informed narratives and broad, complex comparisons of a few national experiences at a time. Neither of these enterprises will yield readily to formalization.

Or take the other core problem: the connections among the organization of production, class formation, and worker collective action. Several of the formalized analyses in my earlier list obviously touch on the problem: studies of organizational bases of worker collective action, labor migration, and social mobility. Yet labor historians tend to insist on the consciousness and experience contained in class formation, and the political interaction affecting worker collective action. They also tend to broaden "class formation" and "worker collective action" to embrace a wide range of behavior. In those circumstances, the existing formalizations become peripheral to the real enterprise, and the formalizations that are possible in principle become enormously demanding.

Common understandings of labor history's core focus on matters that yield only with great difficulty to formal analysis. Class consciousness is the obvious, and no doubt the most important, example. But recently different varieties of culture have preempted the territory previously occupied by class consciousness. If the current drift toward retrospective ethnography, individual experience, and discourse continues, formalization will spread slowly, remain at its present low level, or even decline in significance.

Nevertheless, the periphery constrains the core. Collective biography, as the central evidence-producing procedure of formal analysis, necessarily sets limits on a wide variety of arguments in labor history. Findings of studies dealing with labor migration, industrial conflict, daily life and other "peripheral" subjects set limits on plausible reconstructions of the connections among production, class formation, and collective action, or on explanations of fluctuations in national labor militancy and effectiveness. Studies by Victoria Bonnell, Diane Koenker, William Rosenberg, and others concerning the organization and action of workers in Moscow and Petrograd, for example, now make it virtually impossible to portray working-class involvement in twentieth-century Russian movements as a consequence of the thrusting of uprooted peasants into big-city industrial life [7].

6) Carol Conell, "The Impact of Union Sponsorship on Strikes in Nineteenth Century Massachusetts," unpublished doctoral dissertation, University of Michigan, 1980.

Again, research on the dynamics of rural industry by Franklin Mendels, David Levine, Yves Lequin, and others has established the wide extent of rural proletarianization–and therefore of a kind of class formation–in Europe before the period of capital-concentrated industrialization, the complex interdependence between proletarianization and population growth, and the importance of regional systems linking the labor and capital of city and country. These findings limit our possible accounts of the qualitative experience of industrialization. They thereby make more dubious the oncepopular explanations of working-class action that stressed the shock of abrupt-exposure to industrial conditions [8]. Over the last two decades, important findings on such matters have emerged from formal analysis, and would have been less likely to appear without formal analysis.

Conditions for Change

Formalization, then, does have a bearing on the core questions of labor history. Under what circumstances might we expect formal analyses to become everyday activities of labor historians, as they have for economic, demographic, and urban historians? Three possibilities come to mind: 1) that some group of scholars who are directly addressing labor history's core questions will develop a kind of formalization that will transform the field: 2) that the core will shift to questions that now remain in the periphery, and for which effective formal procedures exist; 3) that an intellectual revolution will establish a new core that lends itself directly to formal analyses. None of the three is likely.

It is possible, but improbable, that some great success will establish formal analysis at the core of labor history. American urban history once concentrated on urban biographies and general portrayals of urbanization. It shifted rapidly toward some kinds of quantitative work when Stephan Thernstrom and a few other pioneers demonstrated that through a variety of collective biography urban history could produce results bearing on one of American history's grandest questions: to what extent is the United States a land of opportunity, and how much has that opportunity changed over time [9]? In retrospect, one can see

7) Victoria Bonnell, Roots of Rebellion: Workers' Politics and Organization in St. Petersburg and Moscow, 1900 - 1914 (Berkeley, 1983); Diane Koenker, Moscow Workers and the 1917 Revolution (Princeton, 1981); and William G. Rosenberg, "Workers and Workers' Control in the Russian Revolution", History Workshop Journal, 5 (1978): 89 - 97.

8) Franklin Mendels, "Seasons and Regions in Agriculture and Industry during the Process of Industrialization," in: Sidney Pollard, ed., Region und Industrialisierung: Studien zur Rolle der Region in der Wirtschaftsgeschichte der letzten zwei Jahrhunderte (Göttingen, 1980); David Levine, ed., Proletarization and Family Life (Orlando, Fl, 1984); and Yves Lequin, Les ouvriers de la région lyonnaise, 1848 - 1914 (Lyon, 1977), 2 vols.

9) Stephan Thernstrom, Poverty and Progress: Social Mobility in a Nineteenth

readily that the question has a quantitative, structural component that lends itself to formal treatment. In prospect,however, it is not so easy to see that either of the dominant agendas of labor history–the one linking production, class formation, and working-class action or the one dealing with national labor movements–will yield to formal treatments that most labor historians will recognize as contributions to their field.

It is possible, but even less probable, that the periphery will transform the core–that because of the transformation of our understanding of labor history through work on such matters as labor migration, gender, or industrial conflict the standard questions concerning national labor movements or the established triad of production, consciousness, and collective action will come to seem less central to the entire enterprise. To some extent, such shifts have occurred in economic and social history; peripheral questions (such as how, if at all, industrialization transformed social relations within families) became core questions.

The creation of an entirely new core is unlikely and unpredictable. If it occurs at all, changes in the political environments of scholars concerned with labor–the success of a certain kind of revolution, the failure of another, a fundamental shift in the positions of workers and organized labor–will surely play a part in the redefinition of labor history's subject matter. In that unpredictable event, the discipline's organizing questions could move toward problems that lend themselves to formal analysis. They could also, however, emphasize problems that are even less amenable to formalization. This possibility therefore leads to no forecast at all.

Let me add a disclaimer. I do not claim that a shift to formalization, or to the sorts of peripheral questions that lend themselves to formalization, would "improve" or even "clarify" labor history. I do claim that in the present organization of the field a great expansion of formal analysis at its core is very, very unlikely. Not unless the organizing questions of labor history change significantly will computing, quantification, and other formalizations become central to the discipline. To the extent that members of the discipline move toward questions involving explicit models, systematic variation, comparison of many cases, and intrinsically quantitative phenomena, conversely, they will become receptive to formalization.

The same reasoning applies, I believe, to the rest of history. In political history, diplomatic history, intellectual history, and a number of other fields, no large expansion of formalization will occur unless the dominant questions change. In any of the fields someone could devise a formal method that would recast a major question, currently peripheral questions that lend themselves to formalization could become more pressing, or an intellectual revolution that replaced

Century City (Cambridge, 1964); and "The New Urban History," in: Charles F. Delzel ed., The Future as History (Nashville, 1977).

the core questions could occur. As the use of computers for such routine tasks as the preparation and storage of texts increases, historians might find themselves drifting into the pursuit of questions that only computers make practicable. As the findings of those fields that have invested heavily in formalization, such as economic history, impinge on the questions people are asking in other fields (for example, by stretching out the "industrial revolution" over such a long period that it stops being a plausible explanation of abrupt changes in popular politics), historians in unformalized fields may find themselves compelled to formalize, if only to drive away the formalizers.

No doubt we can invent other scenarios that would produce a rapid, large increase in historical formalization. Nevertheless, the main points remain: in today's practice of history, with few exceptions, the dominant questions around which practitioners organize resist formal analysis; those questions guide a great deal of research and change rather slowly. Without a substantial alteration of those questions we have no reason to expect a rapid expansion of formalization.

Quantitative Historical Social Research: The German Experience *)

Heinrich Best and Wilhelm Heinz Schröder

Quantitative Methods in History: Between Methodological Rigorism and Pragmatism

At the German Historians' Congress in Mannheim in 1976, Jürgen Kocka warned: "In this country .. we tend to criticize a thing before it really exists[1]." This statement anticipated the controversy, the spread of quantification was expected to raise in the Federal Republic of Germany. Two issues were at stake: what is history, and what criteria are there for truth in history? Jürgen Kocka's prognosis, shared by many, seemed to be well-founded. In the United States ten years earlier, quantification had arisen in explicit and definite opposition to "traditional" historiography and its proponents had claimed that history could only be considered scientific when based on numerical evidence and formalized methods. At about the same time, Arthur Schlesinger, the most prominent representative of the "traditionalists" formulated his famous verdict on quantification: All significant questions were significant precisely because they defied quantitative answers[2]. When quantitative methods became an issue in the Federal Republic of Germany, the debate in the United States had already become heated[3]. It only seemed natural that the controversy on quantification would be imported into the Federal Republic along with the method itself. The spread of quantitative methods was nevertheless inconspicuous and uncontroversial. The reasons for this "German *Sonderweg* to quantification" can only briefly outlined in this essay. It was specially important that just at this time the sociological debate on methodology which had examined the concept of experience maintained by the social sciences had died down.

Since this discussion also dealt with the value of analytical and hermeneutic methods for epistemology, the American quantification controversy seemed to offer nothing new to a German public concerned with methodological pro-

*) Translated by Ray Rosdale (Berlin).

1) Jürgen Kocka, "Quantifizierung in der Geschichtswissenschaft," in: Heinrich Best and Reinhard Mann, eds., Quantitative Methoden in der historisch-sozialwissenschaftlichen Forschung (Stuttgart, 1977), p. 4.

2) A good survey of the American debate is Allan G. Bogue, Clio and the Bitch Goddess. Quantification in American Political History (Beverly Hills et al 1983); cf. also Robert W. Fogel, "Scientific and Traditional History" in: L. J. Cohen et al., eds., Logic, Methodology and Philosophy of Science (Amsterdam, 1982); J. Morgan Kousser, "Quantitative Social Scientific History," in: H. Kammen, ed., The Past Before Us: Contemporary Historical Writing in the United States (Ithaca, 1980), pp. 433-456. Arthur Schlesinger's statement is quoted in C. V. Woodward, "History and the Third Culture," in: Journal of Contemporary History 3 (1968), p. 29.

blems, except possibly for a blatant scientism seldom seen here.

Another explanation for this *Sonderweg* is that the discussion in German historiography in the 1960s and early 1970s showed little interest in the methodological foundations of history, but rather centered on the selection and interpretation of concrete historical topics. An example of this orientation is the controversy on the German power-elite's responsibility for the outbreak of World War I. When set against this passionate debate on the reinterpretation of German history, quantification seemed an esoteric methodological innovation that could not readily be associated with any particular political camp or historiographical school. Quantification was put to very disparate use: as a means to help perfect positivist fact-collecting and fact-processing [4]; as a method of letting the "silent masses" speak [5]; or even as part of the methodological canon of Marxist historiography [6]. Out of fear that they might be banished into the esoteric realm of "pure" specialization, the early protagonists of quantification consciously avoided methodological rigorism. The composition of the membership of the advisory council for the "Association for Quantification and Methods in Historical and Social Research" (QUANTUM), founded in 1975, demonstrates that a pluralism in political and scientific orientation stood at the cradle of German quantitative historical research [7].

This pluralism did not mean there were no differences of opinion or programmatical controversies. But the use of quantitative methods must really be seen in the context of a more general historiographical development: The field of research which viewed itself as a "history of society" (in the broadest sense of term) was morning towards the research logic and methodological standards of the systematic social sciences [8]. The keyterms structuring the different stages of this development are --in order of their introduction– *social history, structural history, historical social science,* and *historical social research.* In this context, historical social research represents a methodological paradigm, meaning more than quantification in the sense of an auxiliary science.

3) Some of the most important contributions are to be found in an anthology, published repeatedly since the middle of the 1960's: Ernst T o p i t s c h, ed., Logik der Sozialwissenschaften (Königstein/Ts., 1984).

4) Cf. for instance, Carl August L ü c k e r a t h, "Prolegomena zur elektronischen Datenverarbeitung im Bereich der Geschichtswissenschaft," in: Historische Zeitschrift 207 (1968), pp. 265 - 296.

5) Cf. Richard T i l l y, "Sozialer Protest als Gegenstand historischer Forschung," in: H. R. Tilly, Kapital, Staat und Protest in der deutschen Industrialisierung (Göttingen, 1980), p. 175.

6) For a comprehensive treatment see Don Karl R o w n e y, ed., Soviet Quantitative History (Beverly Hills, 1984).

7) Cf. Historical Social Research/Historische Sozialforschung 17 (1981), p. 96 f.

8) Cf. Heinrich B e s t, "Histoire sociale et méthodes quantitatives en Allemagne Fédérale," in: Histoire moderne et contemporaine informatique 7 (1985) , pp. 3 - 28.

At the beginning of this development, stood social history defined by Werner Conze as "history of society, more explicitly, of social structures, sequences of events, movements [9]." However, this global definition does not make clear the distinction between social history and the other approaches which we will be discussing. One distinguishing feature of social history is the subject tackled: traditionally, the field of social history is society without politics or, as George M. Trevelyan put it, "the history of a people with the politics left out [10]." The second differentiating feature lies in the method and the criteria of truth applied. Near the end of the 1960's Werner Conze could still claim: "The methods of social history are characterized by the methods--generally valid in history--of historical source criticism and that of 'understanding' history [11]." But in fact, both aspects were at this time in the process of further development. This made itself most strongly felt in the broadening of the topics deemed valid for social history. Werner Conze emphasized that social history was as much "political history" as the history of events and decisions [12]. With reference to Otto Brunner, Hans Mommsen similarly characterized social history as a "general view" intent on the "inner construction, the structure of human organizations [13]."

"Structure" became the key term in the next discussion. The concept of "*histoire des structures*" (i. e. history of structure, structuralist history) proposed by Fernand Braudel and elaborated in many articles published by the French journal, *Annales*, was an attempt to reconstruct the historical "relationships" and "conditions" of supra-individual developments and processes without explicitly concentrating on certain areas of historical reality. Nonetheless, the political system was generally excluded *de facto* [14]. Often associated with this approach, was the demand for an understanding of the total historical process in its synchronic and diachronic context. But in the attempts at a "*histoire totale*", a comprehensive history of economics, society, politics and culture (large-scale in space and time), the specific weaknesses of "structuralist history" became apparent. Upholding a "sharp demarcation between structures and non-structures (events, decisions and actions) in history is theoretically and practi-

9) Werner Conze, "Sozialgeschichte," in: Hans-Ulrich Wehler, ed., Moderne deutsche Sozialgeschichte, 3rd ed. (Köln/Berlin, 1979), p. 19.

10) George M. Trevelyan, Illustrated English Social History (New York, 1962) (first publ. 1944), p. XI.

11) Conze, Sozialgeschichte, p. 25.

12) Ibid., p. 24.

13) Hans Mommsen, "Sozialgeschichte," in: Moderne deutsche Sozialgeschichte, p. 34.

14) Jürgen Kocka, Sozialgeschichte. Begriff--Entwicklung--Probleme (Göttingen, 1977), p. 70 f.; Michael Erbe, Zur neueren französischen Sozialgeschichtsforschung. Die Gruppe um die "Annales" (Darmstadt, 1979). For the German reception see especially the introduction, p. 27 ff.

cally very difficult and problematical [15]." Another weakness of the structuralist approach was the arbitrary way the facts were "assembled" into integral large-scale histories. Indeed, structural history had no substantial theory that would facilitate the selection of relevant facts, no hypotheses at its disposal on the interdependence between economics, politics and other areas of reality, nor was it able to formulate provable hypotheses that would identify the causal and functional relationships between the individual aspects of the historical reality studied and the important factors of changes [16]. Polemical criticisms sometimes termed this approach, the "sandwhich-method" or "desk-drawer history." Brilliant descriptions of great literary quality were occasionallythe result, but consistent and far-reaching explanations remained rare.

In this point the programm of historical social science went further than structuralist history: "The growing insight into the often cited 'theoretical poverty' of history played a major role in the development of historical social science [17]." Referring almost exclusively to the theoretical advances of the systematic social sciences, this claim usually means that sociological terms, categories and models are fitted into historical argumentation. But less stringent demands are placed on the scope and explanatory force of theoretical statements: historical social science is concerned with "changes in a historical period under the specific conditions of that period [18]" and not with supra-historical theoretical laws. The theoretical statements of historical social science are primarily "ad-hoc theories", i. e. "hypotheses, used exclusively to transform present (restricted) regularities into a complex of theoretical statements neither integrated into a broader context, nor applied in their valid range to other areas or periods [19]." Though some representatives of historical social science claim to formulate "mid-range theories", this practice actually violates the given range of such propositional systems. "In order to broaden an ad-hoc theory into a mid-range theory, the series of invariables and regularities covered must be confronted with similar invariables differing in space and time. This will either lead to a unified mid-range theory or to a typological differentiation..., in which case the development of a theory on a higher level of abstraction will become necessary to cover and explain the different types equally well [20]." The proponents

15) K o c k a, Sozialgeschichte, p. 73.

16) Ibid., p. 79.

17) Reinhard R ü r u p, "Zur Einführung," in: Rürup, ed. , Historische Sozialwissenschaft (Göttingen, 1977), p. 8.

18) Ibid.; cf. also Winfried S c h u l z e, Soziologie und Geschichtswissenschaft. Einführung in die Probleme der Kooperation beider Wissenschaften (München, 1974), p. 188.

19) Rene K ö n i g, "Grundlagenprobleme der modernen soziologischen Forschungsmethoden (Modelle, Theorien, Kategorien)," in: Sozialwissenschaft und Gesellschaftsgestaltung--Festschrift für Gerhard Weisser (Berlin, 1963), p. 26.

20) Ibid., p. 30.

of historical social science, however, would reject this procedure as "unhistorical." Even though it would be desirable for historical social science to define its demands on theory more clearly, the use of ad-hoc theories is legitimate and fruitful. Empirical social research also makes use of such propositions whose range is limited to the particular problem discussed. A more problematic aspect of historical social science research is the use of individual sociological terms and categories out of their theoretical context; another difficulty is the use of theory in which "explanations" are later "transposed" onto the evidence. This inductive procedure leads to arbitrariness. The "results" observed can be "explained" by a theoretically infinite number of "causes". It is impossible to form a logical chain from observation to theoretical propositions 21).

The methodological practice of historical social science is subject to severe criticism too. Though the representatives of historical social science demand a fusion of "historical -hermeneutic" and "analytical-social scientific" methods, historical social science, in practice, rarely goes beyond hermeneutics, rarely resorting to quantitative methods even for illustrative purposes. However, descriptive casuistry does not suffice for testing theories, since it leads to discrepancies between the proposed range and empirical proof of theoretical propositions on past society.

In this regard historical social research is a further development of historical social science. Generally speaking, historical social research can be defined as "theoretically motivated research into societies, past and present, with valid methods–valid, in the sense that the scope of the research operations fit the scope of the theoretical propositions 22)." In our case, it may be defined as "empirical, especially quantitative, research on social structure and processes in history, considered theoretically and methodically 23)." This approach is neither "neo-positivist", since it is theoretically based, nor can it be simply viewed as a historical application of empirical social research, since the particulars of historical data and the demands placed on theories able to deal with historical facts differ in many respects from a contemporary sociology. The relationship between empirical and historical social research may be characterized by saying that the methodological standards of empirical social research (though not necessarily the methods themselves) have gained acceptance in historical social research. Since historical social research deals with collective phenomena, the acceptance of these standards implies the use of quantitative methods. In

21) Heine von Alemann, Der Forschungsprozeß. Eine Einführung in die Praxis der empirischen Sozialforschung (Stuttgart, 1977), p. 25.

22) Heinrich Best, "Quantifizierende Historische Sozialforschung in der Bundesrepublik Deutschland. Ein Überblick," in: Geschichte in Köln 9 (1981), p. 147.

23) Wilhelm H. Schröder, "Kollektive Biographien in der historischen Sozialforschung," in: Schröder, ed., Lebenslauf und Gesellschaft (Stuttgart, 1985), p. 8.

contrast to the traditional use of statistics in social history, historical social research transforms qualitative information into numerical data which is then turned over ,to mathematical calculation, quantitative evidence is not used just as an illustrative, but to test hypotheses.

Theory - - Research Tool and Epistemological Goal in Quantitative Historical Social Research

The theoretical component in the definition of historical social research is based on two presuppositions that need further clarification. Historical social research is guided by a research strategy led by theoretical suppositions and aims at confirmation of the most general hypotheses possible. A brief look at the practice of quantitative historical research demonstrates that the first presupposition mentioned above is in no way self-evident. Quantification is not necessarily associated with conceptualization and theoretical orientation. Many users see quantification and data-processing as further developments of the fundamental procedures used in traditional historical research, with the old historiographical aim of putting all available sources and interpretative methods to use in order to win the most detailed, complete and objective knowledge of the past possible. In this respect, the computer is a tool for reconstructing past reality "like it really was". Behind this view, there is a methodological supposition rarely made explicit: historical events, processes, and persons may best be understood by considering all the sources deemed relevant. A characteristic expression of this view can be found in the early discussion on data-processing in German publications. Data-processing was viewed as an auxiliary tool necessary only for expanding history's capacity for mass sources [24].

It soon became apparent, however, that the great capacities and flexibility of electronic data-processing were changing the direction of research in a way many neither desired nor expected: the choice of a data base with adequate indicator qualities, the necessity of sometimes rigid classification of material before data-processing, and, finally, the selection of appropriate methods of statistical analysis made it necessary to begin research with an adequate conceptualization of the historical processes and phenomena observed. Relinquishing theory would immediately reduce the quality of the research undertaken: the facts collected cannot–in and of themselves–reveal the criteria that would make possible the appropriate selection, classification and combination of those same facts. The postulate of a theory-free fact base contradicts important pre-suppositions of quantification; or put in other terms, "there can be no measurement without theory" [25].

24) cf. et al. Rolf Gundlach and Carl August Lückerath, Historische Wissenschaften und elektronische Datenverarbeitung (Frankfurt on the Main, 1976); cf. also Lückerath, Prolegomena.

Quantitative research therefore must begin with theoretical reflection. Not only does this requirement apply to the high-level testing of hypotheses, but also to the "simple" descriptive presentation of empirical data. Since no description is able to reflect reality in all its complexity, it must confine itself to a particular segment. The decision as to which part of reality should be examined or which characteristics are relevant for analysis and should therefore be surveyed, can only be made on the basis of theoretical criteria; which only then dictate further steps, such as the type and manner of source selection, collection of data, etc. This fundamental and logical priority of explicit theoretical consideration does not mean, as far as everyday research work is concerned, that the researcher – completely independent of the concrete context of his research – is chiefly concerned with some "pure" development of theory; but, rather, that he will naturally consider the conditions for research (availability of primary and secondary sources, methods, techniques, etc.) in the process of developing theory, in order to guarantee the success of his research.

In this respect, the traditional process of historical research is reversed. Instead of being the hesitantly pursued and rarely attained culmination of positivist fact-gathering, theory becomes the starting point for the epistemological process. Instead of making hypotheses and normative propositions on the basis of observation, theoretical propositions are confronted with reality. Put in ideal-typical terms, the meta-theoretical model of induction is replaced by a deductive one–an unexpected dynamic of a technology often indiscriminately applied. This has put some users in the thankless position of the "sorcerer's apprentice", unable to contain the magical forces he had brought to life.

Another underlying meta-theoretical presupposition is a consequence of the maxim that the goal of the epistemological process in historical social research is to formulate the most general theoretical propositions possible. But even this assumption is neither obvious nor undisputed. Many historians still uphold the view that it is not possible to speak of laws in the same sense that one can in the natural sciences. This stance is based on the proposition that human activity and, in this sense, all historical phenomena, are symbolic in character and are the result of human intention 26).

At the beginning of the 19th century, the German philosopher Windelband distinguished between the two opposing metatheoretical positions considered here. His definition of nomothetic and ideographic scientific thinking is still

25) Michael Drake and Peter Hammerton, Exercises in Historical Sociology (Walton Hall, 1974), p. 12.

26) Peter Christian Ludz and Hans-Dieter Rönsch, "Theoretische Probleme empirischer Geschichtsforschung," in: Theodor Schieder and Kurt Gräubig, ed., Theorieprobleme der Geschichtswissenschaft (Darmstadt, 1977), p. 63; exemplary for the state of the general discussion on theory in German historiography are the earlier four volumes in the series, Theorie der Geschichte.

significant for the contemporary discussion on the philosophy of science 27). Windelband saw the natural sciences as being characterized by nomotheticism and the cultural sciences (*Geisteswissenschaften*)--or more generally, "human sciences"--by ideographism; but the social sciences were increasingly guided by natural science's concept of experience. Today, laws of the type represented by "Newton's Law" are the epistemological goal of a portion of sociology. This development was the maxim of the "unity of the empirical sciences", most prominently represented by Hempel and Popper. If science aims at the truth, and truth is undivided, then there must be a unified approach capable of perceiving this truth. The goal of the epistemological process cannot, therefore, be reduced to the development and application of theoretical concepts and structure types (to which many traditional historians would consent); the epistemological process must aim at the formulation and investigation of covering laws, understood here as "strictly universal, physically necessary (i. e. nomological) assertion on stable relationships of at least two classes of events 28)."

Does that historical research which claims to be non-theoretical, actually lack theory? The argument is certainly justified that even a narrative and associative history is implicitly or latently theoretical. This is true in, at least, two respects: 1) It is assumed that the facts considered are relevant (principle of relevancy); 2) upon closer inspectation the narrative itself reveals itself to be a chain of assumed causalities, a web of relationships. This fact is occasionally characterized in the discussion as the "paradigm of historical sequence." Theoretical assumptions, in the broadest sense, lay the foundations for this paradigm. In the most general sense, these may be on the categorial level: e. g. "determinism", "causality", "accident", and "freedom"; they may involve descriptions of the motor force attributed to particular agents and agencies in history, e.g. ideas, great men, divine guidance, moral forces, climate, geography, social and economic conditions; and theoretical assumptions may also be seen in the categories dealing with the course of historical processes: e. g., "irreversibility of development", "repetition", "progress", and those inherent in historical stages theories. Usually, these paradigms are not made explicit in the formulation of historical relationships; nonetheless, they are present and play a structuring role in the historian's portrayal of events and his presentation of the evidence for relationships 29). The distinction between theoretically oriented historical research and narrative historiography lies, therefore, in the different degree of explicitness of the hypotheses and normative propositions utilized. If

27) W. Windelband, Präludien, Aufsätze und Reden zur Einführung in die Philosophie, 4th rev., vol. 2 (Tübingen, 1911), p. 145.

28) Bernhard Giesen and Michael Schmid, "Erklärungsprobleme in den Sozialwissenschaften," in: Giesen/Schmid, ed., Theorie, Handeln und Geschichte (Hamburg, 1975), p. 14.

29) Ibid., p. 11.

we assume (as most do) that every type of research should attempt to reconstruct the epistemological process as far as possible and, thus, be open for criticism (intersubjectivity), then explicitly theoretical historical research must be preferred.

Further criticism of the theoretization of historical research is based on a different view of the epistemological goal of history. It is argued that the historian's task is to understand historical facts, but not to give causal explanations. The hermeneutic modus of experience is made obligatory for history [30]. History should, therefore, describe various aspects of culture, but not formulate covering laws. Though seen from a different angle this view returns to the contrast between ideographic and nomological method as defined by Windelband. One might object that this distinction was not, as many philosophers of science seemed to suppose, that important for theoretically oriented social research. One example is Max Weber's classical definition of sociology as a science "which understands and interprets social action, and in so doing attempts to explain its course and effects [31]." Even in a sociology which views itself as a rule-bound science, the researcher is only capable of comprehending the information inherent in his material when he knows the system of linguistic signs, the symbolic language in which his material has been written. "It, therefore, plays no great role–as far as epistemological theory is concerned–whether this information is directly perceived through immediate social contact (as in interviews), or indirectly, through historical documents [32]." The fact that both sociology and history are tied to the hermeneutic modus of experience must not necessarily contradict their theoretical orientation. To put it differently: the question, "what happened in the past?" is intrinsincally bound to the question, "why did it happen?."

Theoretically oriented quantitative history is often also criticised because of the defects and difficulties in the transmission of historical data. Historical data are "inadvertent" data, i. e. they are usually neither gathered nor transmitted under scholarly auspices, and even if scientists were involved in the production of contemporary data, they were interested in particular aspects not necessarily of interest to future researchers. Historical data are, in this sense, the by-products of economic, social and cultural processes. Neither their production nor their transmission are usually scientifically controlled. At best, retrospective interviews are an exception to this, although they do suffer from other flaws.

30) Peter Christian L u d z, "Soziologie und Sozialgeschichte: Aspekte und Probleme," in: Ludz, ed. "Soziologie und Sozialgeschichte," in: Kölner Zeitschrift für Soziologie und Sozialpsychologie, special issue 16 (Opladen, 1972), p. 16.

31) Max W e b e r, Wirtschaft und Gesellschaft, (Studienausgabe) (Tübingen, 1972), p. 1.

32) P. Ch. L u d z, "Aspekte", p. 16.

Seen in this light, some observers have asked whether historical social research could ever be anything more than a "tincture of empirical evidence combined with bits of useful theory and mixed with large elements of impression, surmise and empathetic understanding [33]." One may object to this verdict, however, on the grounds that contemporary sociology is making increasing use of data, whose production is hardly scientifically controlled either. An example of this are the so called process-produced data, i. e. the internal records of public and private organzations not gathered for scientific use [34]. The same is true of documents and texts that are the database for computer-supported content analysis [35]. For this material, empirical social research developed and is still developing systematic theories of biased recording which allow for a better evaluation of the data's reliability, validity, and range. One can expect that this knowledge may compensate for insufficient research control over the process of data-collecting and transmittance. On the other hand, empirical social research regards its own data, especially when attained through questionnaires, with growing scepticism. As a result, contemporary empirical social research is relying increasingly on "unobtrusive measure" without, however, surrendering its theoretical orientation. Many of today's social scientists are becoming more aware that their data on society can only approximate social reality. In this sense, sociology has, at best, a quantitative, but not a qualitative advantage over history, which has always viewed its sources as incomplete and faulty. One may go further: even in the natural sciences it is well known that measurement procedures may affect the phenomena under investigation. This "uncertainty principle" resembles the concept of "validity" in the social sciences.

The Research Process in Quantitative Historical Social Research

It should not be surprising that the course of quantitative historical social research generally parallels empirical social research [36]. Differences may be

33) Jerome M. C l u b b, "The 'New' Quantitative History: Social Science or Old Wine in New Bottles?" in: C l u b b / Erwin K. S c h e u c h, eds., Historical Social Research. The Use of Historical and Process-Produced Data (Stuttgart, 1980), p. 370 f.

34) Wolfgang B i c k/ Paul J. M ü l l e r, "The Nature of Process-Produced Data--Towards a Social Scientific Source Criticism," in: Clubb / Scheuch, op. cit., p. 370 ff.; for a comprehensive treatment: Wolfgang B i c k et al., ed., Sozialforschung und Verwaltungsdaten (Stuttgart, 1984).

35) Heinrich B e s t, "Analysis of Content and Context of Historical Documents--The Case of Petitions to the Frankfurt National Assembly 1848/49," in: Clubb/Scheuch, op. cit., p. 244.

36) In the meantime, an imposing number of such introductions has been published which, depending on their different intentions, give special emphasis to the areas of theory, general methodology, specific research methods and application practice in research and education, cf. et al.: Jürgen F r i e d r i c h s, Methoden empirischer Sozialforschung, 12th ed. (Stuttgart, 1984); Peter A t t e s l a n d e r, Methoden der empirischen Sozialfor-

observed, however, due to the special nature of the historical social researcher's primary-source material, and his relationship to the period on which he is working. For historians, inquiry into the significance and condition of the source material is of greater importance than for empirical social researchers who have standardized – though imperfect – fact-collecting instruments at their disposal. Whereas the latter draws on his personal experience for inspiration in the development of theories and criteria for the evaluation of evidence, the former must first attain comprehensive knowledge of previous societies through intense effort. Technology is no substitute for this work - even our electronic age has not yet developed a machine capable of generating theory or interpretations.

The main steps in a research strategy resulting from a deductive research logic that are briefly outlined below should be seen as a model description of the procedure predominant in quantitative research 37). Inductive "feed-back" is common and can be combined with hermeneutic methods.

The aim of formulating an "empirical theory" is the starting point of the historical social research strategy. This simply means that the researcher collects his hypotheses (questions) and assembles them in the most systematic, logical and uncontradictory manner possible. Theories/hypotheses must refer to reality, so that they may be proved faulty when confronted with empirical observation. It is necessary to form theories/hypotheses at the beginning of research, since only then can decisions be made pertaining to the methods and instruments of research needed.

In a second step, important prerequisites for the intersubjective examination and control of statements on reality (i. e. on the area to be studied) must be developed by formulating precise terms, and operationalizating them appropriately. The terms used in theoretical statements must be clearly defined before beginning the empirical investigation. Each term is accorded a series of characteristics with the help of semantic rules; characteristics are, in this sense, observable events and/or words, whose meaning is known. In order to define a term it is often necessary to analyse its meaning systematically or empirically. In empirical research, nominal definitions are usually preferred as they are especially

schung, 5th ed. (Berlin, 1985); Rolf P r i m /Heribert T i l m a n n, Grundlagen einer kritisch-rationalen Sozialwissenschaft, 5th ed. (Stuttgart/Heidelberg, 1983); Erwin R o t h, ed., Sozialwissenschaftliche Methoden (Munich, 1984); Franz K r o m p k a, Sozialwissenschaftliche Methodologie (Paderborn, 1984); Horst K e r n, Empirische Sozialforschung (Opladen, 1980). Insofar as statements referring to the methods of empirical social research are made below, see the sources already mentioned above.

37) The elements mentioned in our survey are in general accordance with the study units of our basic curriculum: Heinrich B e s t/ Wilhelm H. S c h r ö d e r, "Basiscurriculum für eine quantitative historische Sozialforschung," in: Historical Social Research/ Historische Sozialforschung 17 (1981), pp. 3 - 50.

suited for subject-structuring; in nominal definitions a term already known (definiens) is substituted for the term to be defined (definiendum).

Operationalization is the most important step in historical social research when the theoretical and empirical level are brought together. The validity and reliability of operationalization are decisive for the quality of scientific argumentation. Operationalization aims at linking previously defined terms needed for empirical investigation of quantifiable data. Operational definitions determine the research operations which enable the researcher to decide whether or not the case investigated corresponds to the term defined. The concrete procedure is dependent on the relation between the empirical sphere and the term to be operationalized. In a direct relation, the situation described by the term can be directly observed or perceived. In this case, the operations of research can be immediately undertaken (information on what, where, when, and how the counting should be done). For terms with an indirect empirical relation, indicators must first be developed. Indicators, aided by the empirically observable, should allow those phenomena to be inferred which are not directly observable but are, nonetheless, described by the term. These indicators are then also operationalized through information on the research operations necessary. The validity of indicator development is highly dependent on the precision with which those phenomena made observable by the indicator, reflect the situation described by the term. Indicator development must, therefore, be substantiated by careful indicator analysis.

In a third step the selection procedures and techniques for historical data must be determined. At this stage of research, genuinely historical methods (especially source criticism), as well as those of empirical social research (sampling procedures) may be put to work with complementary benefit [38]. The historian's usual procedure may be so summarized: he determines the historical problem area to be examined, decides on the appropriate source material, considers the availability of sources and then works through all the sources available (i. e. in an ideal case) while applying the method of historical source criticism. The assumption usually implicit in this procedure is well known: "somehow" the sources and historical reality will correspond; the problem of representativeness and selectivity of sources is usually only superficially handled and then in a casuistic-descriptive and not in a statistical manner. But even brilliant source criticism may lead to an insufficient treatment of sources in historical social research, characterized by a double problem: On the one hand, historical sources are

38) Cf. Harald R o h l i n g e r, "Quellen als Auswahl--Auswahl aus Quellen," in: Historical Social Research/Historische Sozialforschung 24 (1982), pp. 34 - 62; Paul J. M ü l l e r, "Improving Source Criticism to Cope with New Types of Sources and Old Ones Better," in: ibid., pp. 25 - 33; for practical application see Erdmann W e y r a u c h, "Datenverarbeitung als Quellenkritik?" in: Paul J. M ü l l e r, ed., Die Analyse prozeßproduzierter Daten (Stuttgart, 1977), pp. 141 - 198.

often incomplete, i. e. only a segment is available; on the other hand, the historical social researcher might take a technically poor sample from those sources that are available.

When historical sources pertaining to the question studied are incomplete or only a sample is available, the validity of further research depends on the researcher's capacity to determine what type of "selection", in relation to the "complete" body of non-accessible sources, the available sources represent. The question may also be put this way: which subset of objects from what total population do the sources constitute? Since there is often no adequate and certainly no quantifiable information on the population, the historian must ascertain, how representative the sub-set of historical sources at his disposal actually is by considering the data available on the total population and by using the criteria of empirical theory already formulated. The further systematization and increasing precision (also statistical) of such decisions still remains a major methodological concern of historical social research. In the application of sampling procedures to historical sources one can again draw upon the methods of empirical social research (although not to the historical social researcher's complete satisfaction) [39]. Sampling is appropriate and, in the case of an abundance of sources, usually necessary when the total population may be precisely assessed. The degree of selection in the treatment of sources depends primarily on the necessity of economizing labor and resources, or on the subject studied. Despite some historians hankering for totality, it is often unnecessary and sometimes even damaging for the validity of empirical research to work through all accessible sources.

In the next stept, the characteristics of the object to be investigated (units of analysis) are transformed into measurable variables. The construction of variables is a result of the operationalization of the terms already precisely defined. In this context, "variables" are terminologically defined characteristics of objects having several levels. Measurement is understood as the assignment of a set of numbers or symbols to the levels of a variable. This assignment must be systematic, i. e. all objects must be treated the same way and in accordance with the rules of assignment. This procedure is ordered according to the criteria of uniqueness (it is termed unique when every object can be ascribed to one level),

39) Cf. et al., Ferdinand B ö l t k e n, Auswahlverfahren (Stuttgart, 1976); Gabriele K a p l i t z a, "Die Stichprobe," in: Kurt H o l m, ed., Die Befragung, Vol. 1 (Munich, 1975), pp. 136 - 186; Erwin K. S c h e u c h, "Auswahlverfahren in der Sozialforschung," in: René K ö n i g, ed., Handbuch der empirischen Sozialforschung, vol. 3a (Stuttgart, 1974), pp. 1 - 96; Manfred S t u r m / Th. V a n j a, "Planung und Durchführung von Zufallstichproben," in: Jan v a n K o o l w i j k / Maria W i e k e n - M a y s e r, eds., Techniken der empirischen Sozialforschung, Vol. 6(Munich, 1974), pp. 40 - 80; Jan v a n K o o l w i j k, "Das Quotenverfahren: Paradigma sozialwissenschaftlicher Auswahlpraxis," in: ibid., pp. 81 - 99; Roger S. S c h o f i e l d, "Sampling in Historical Research," in: E. A. W r i g l e y, ed., Nineteenth-Century Society (Cambridge, 1972).

exclusiveness (it is exclusive when only one and not more than one level of a characteristic is appropriate) and completeness (it is complete when both criteria listed above are fulfilled for all objects). When these requirements are completely met, one speaks of a "classification." When these requirements are incompletely fulfilled, one speaks of a "typology." In this sense, a variable may also be defined as a set of values (levels) forming a classification (or typology).

In historical social research, measurement is often done according to nominal scale characteristics, i. e. the levels of a given variable have no substantially interpretable order or other metric properties. For a long time, this meant that the statistical processing of such data was restricted to simple descriptive procedures such as marginal distribution and cross-tabulation. The last few years, however, have seen the development of more sophisticated statistical procedures for the analysis of nominally scaled variables which–going beyond the analysis of two-dimensional relations through measures of association–are capable of analyzing multivariate relations (e. g. on the basis of loglinear models)[40]. In connection with nominal variables, also termed qualitative variables, a misleading differentiation between "qualitative" and "quantitative" methods has arisen in historical discussion. Often, quantification is considered only in the narrow sense of the term, as the application of quantitative methods to metric variables. This narrow view corresponds to the typical use of quantification in German economic and social history, where source material already in quantitative form is examined and evaluated. In contrast quantification in historical social research is appropriate not only for metric variables but for non-metric variables as well. The criterion for differentiating between qualitative and quantitative methods is, therefore, not the measurement level of the variables under scrutiny, but rather the level of theoretical orientation and formalization in the research operations used.

Mathematical procedures are only meaningful when an elementary and fundamental requirement of research strategy is satisfied: The relations between the objects must be reflected by the relations between the numerical values. This precept on the validity of quantification has such prerequisites as the validity of term development (the precise assignment of designates), indicator development (representative description of the cases characterized by a term) and of variable development (systematic assignment rules). Another important precept concerns the reliability of quantification which depends on three requirements that must be satisfied: intertemporal stability (repeated measurement of the same phenomena bring the same results), intersubjective stability (different researchers using the same measuring devices on the same phenomena attain

40) For an introduction see Gerhard A r m i n g e r ' s chapter on "Zusammenhänge zwischen nichtmetrischen Variablen," in: Konrad H. J a r a u s c h et. al., Quantitative Methoden in der Geschichtswissenschaft. Eine Einführung in die Forschung, Datenverarbeitung und Statistik (Darmstadt,1985), pp. 162 - 181 (with more far-reaching literature).

the same results) and inter-instrumental stability (the use of differing measuring devices on the same phenomena lead to the same results).

The fifth step in a general research strategy consists of the analysis of the data. Statistics provide the methods for the aggregation, processing, and interpretation of numerical evidence. Statistics are an aid in consolidating, structuring, or grouping numerical data, and may also be put to illustrative purposes. Further, statistics put procedures at the researcher's disposal which enable him to prove and evaluate hypotheses. In contrast to the field of qualitative procedures where the explanatory capacity of hypotheses remains vague, the application of statistical analysis delivers criteria which make it possible to prove the correctness and the range of the explanations proposed. In statistics, one may differentiate between causal analysis (e. g. path-analysis) and those methods which reduce the existant complexity of information to a few dimensions, as in the case of multidimensional scaling or factor analysis [41]. The application of statistical models also invalues the precept of validity; criteria for the adequacy of a statistical model for the question to be examined may not be drawn from statistics alone, but must be developed through the constitution of hypotheses and through operationalization. The choice of a particular statistical model is always made under the assumption that its conditions completely reproduce those of reality or--in the case of incomplete representation--that observable deviations from reality may still be tolerated without endangering the validity of the application.

Quantification is not data-processing. One should not confuse a general methodology with an important research tool. The difference between "traditional" and more advanced applications of statistics is undoubtedly the latter's routine use of electronic data-processing for the examination and analysis of data-- a use which has greatly broadened the scope and the epistemological potential of quantification [42].

The five stages of a general research strategy outlined here must be transformed into directly applicable methods of investigation suited to the specific case under study. Inspite of the fact that empirical social research has already developed an arsenal of adequate and tested methods and has systematized them for use in research and education, no text book, on *Methods of Historical Social*

41) For practical applications, see Hans H. Blotevogel, "Faktorenanalytische Untersuchungen der deutschen Großstädte nach der Berufszählung 1907,", in: Wilhelm H. Schröder, ed., Moderne Stadtgeschichte (Stuttgart, 1979), pp. 74 - 111; Heinrich J. Schwippe, "Faktorenanalyse und Clusteranalyse. Möglichkeiten des Einsatzes multivariater Verfahren in der Analyse des Verhältnisses von Stadt und Land im östlichen Münsterland im frühen 19. Jahrhundert," in: ibid., pp. 112 - 144.

42) For data-processing see especially, Manfred Thaller, "Numerische Datenverarbeitung für Historiker," (Wien, 1982); Konrad H. Jarausch et al., Quantitative Methoden, pp. 58 - 73 (Author: Manfred Thaller); see also Manfred Thaller's column, "Historical Software Section," in: Historical Social Research/Historische Sozialforschung.

Research , as such has yet been written [43]. Although the development of genuinely valid methods or systematic procedures for historical social research has begun in many areas, only the first steps have been taken. When historical social research's attempts at methodological development could adapt methods already existent in neighboring disciplines, progress has been relatively rapid. Such a methodological development within historical social research may be observed, e. g. in certain topics (stratification and mobility research, historical demography...) for specific historical source groups (files, texts, parish registers, census manuscripts...), for particular types of data collecting (content analysis, retrospective interviews...) and for special analysis procedures (time series analysis, analysis of aggregated data, application of loglinear models...) [44].

Perspectives in historical social research in the Federal Republic of Germany

When asking how successful historical social research has been in its attempt to broaden the scope of historical studies and to introduce a methodologically stricter concept of experience, it must not be forgotten that historical social research has been in existence in the Federal Republic of Germany for only about ten years as an approach encompassing a large number of researchers and the usual range of dissemination media [45]. This is a short time when set against the general time-span of large projects and the sluggish spread of scientific results. Nonetheless, the standardized examination of historical mass sources and the utilization of computers has become routine and has lost the exotic flavor it may oncel have had. Especially historical demography, history of the family, collective biography, and the history of voting behavior have reached a high standard and have made significant contributions to contemporary discus-

43) In the meantime, German textbooks on quantitative history have also been published; see Konrad H. J a r a u s c h et al., Quantitative Methoden; Dieter R u l o f f, Historische Sozialforschung. Einführung und Überblick (Stuttgart, 1985); Roderick F l o u d, Einführung in quantitative Methoden für Historiker (Stuttgart, 1980), a sometimes inadequate translation of the 2nd ed. of An Introduction to Quantitative Methods for Historians (London, 1979); Norbert O h l e r, Quantitative Methoden für Historiker. Eine Einführung (Munich, 1980).

44) A good survey of research in this area can be found in the periodical documentary volumes in the series, Historisch-Sozialwissenschaftliche Forschungen, each of which contains extensive reports on research projects in the field of historical social research; cf. also R u l o f f, Historische Sozialforschung, pp. 70 - 194.

45) This beginning can be almost exactly dated to the year 1975 when the association, QUANTUM, was founded. QUANTUM launched the journal, Historical Social Research/ Historische Sozialforschung (initially as a newsletter with the title, QUANTUM-Information), as well as the publication series, Historisch-Sozialwissenschaftliche Forschungen. At the same time it created an academic audience for quantitative historical social research in the Federal Republic through a series of conferences and working conventions.

sions in sociology and history [46]. German quantitative history today cannot be labelled, "backward", anymore.

Still, many contemporary observers show a scepticism and reservation regarding the gains of historical social research that cannot simply be explained by insinuating that an exotic novelty naturally loses its fascination [47]. On the contrary, many have only now come to realize that the use of quantification implies specific limitations. At first sight, the need for methodological self-discipline and asceticism in the face of speculative temptation might seem to be the greatest restriction. Even more conflicting, however, is the fact that micro-analyses in which people are the study units are almost exclusively limited to research on institutionally defined roles and formal structures. Quantifiable mass sources are typically the products of public book-keeping which in its function and fact-gathering method is incapable of covering the informal world. Not only official secrets and matters left to personal discretion are badly recorded, but also, more generally speaking, the intent and motivation of human activity are left out. With the help of quantitative methods, we are quite capable of reconstructing the formal "structure of opportunity [48]" of past societies, as well as the way people behaved within this framework. But only rarely can a quantitative answer be given to the question of how people viewed the conditions under which they acted. One might expect that the use of systematic content analysis (a method too often neglected) might shed some light onto this darkness, but success remains limited: It cannot be forgotten that until the late 19th century the great mass of society was illiterate; the scope of the evidence for systematic content analysis, however, is limited to the literate elites.

Comparative restrictions must also be accepted in research on a higher level of aggregation, i. e. when regional units or organisations are the units of observation. Typical data sources here are administrative statistics. But the goals of administrative data-collecting do not necessarily coincide with the interests of present researchers. It seems obvious that the study of questions not covered by immediate statistical evidence must be given up, but it is also understandable that the claim is very reluctantly waived. One way out of this dilemma is to choose methods of indirect measurement and highly complex analysis procedures that attempt to examine the "unmeasured" through the use of mathematical operations on manifestly empirical evidence. The application of such procedures is dependent on long chains of inference needing many pre-requisites. Here historical social researchers have sometimes skated on thin ice. The use of

46) This is also documented by the (meanwhile) 21 volumes of Historisch-Sozialwissenschaftlichen Forschungen.

47) Cf. et al. the section, "Qualitative Kritik", in: Konrad H. Jarausch et al., op. cit., p. 195 ff.

48) Cf. Talcott Parsons/ Edward A. Shils, ed., Towards a General Theory of Action (New York), p. 225 f.

the "cattle-quota" as an indicator for the secondarization of national economies in the late 19th century [49], or population growth as a substitute for missing data on the gross national product [50] are examples of this tendency. The question is whether or not historical social research can meet its own demand of utilizing more valid evidence than "traditional" history while skirting the borderline of the measurable. At this point a descriptive casuistry would be more appropriate. This raises a more fundamental consideration: historical social research should complement philological historiography, but it is no substitute for it. If we allow the world beyond the data to turn into forbidden ground, our view of history will degenerate into a collection of disparate phenomena and events. However, this is not a *carte blanche* – quantitative methods do have greater evidential power than the hermeneutic circle. The maxim that, *ceteris paribus*, those procedures should be used that offer the most reliable results, makes quantification with a good data base preferable.

As far as the future potential of quantitative historical research is concerned, one may voice the optimistic prognosis that the scope of historical social research will be broadened in the next few years. Historical social research is profiting from technical innovations, e. g. the microcomputer which allows on the spot data-collecting in archives, and the development of more efficient word processing which greatly reduces the time and financial costs of transforming texts into machine-readable form. Efficient data-bank systems decrease the loss of information occuring through transformation of sources into data [51]. Therefore, the demand for theory-guided research is rapidly loosing its technological foundation. New techniques of random sampling for complexly structured and/or damaged populations can now often reduce the survey effort without loss of information. Today historical source materials can be used which previously would have been considered too extensive, too complex in their content, or too oblique in their structure [52]. Progress and new possibilities may also be seen in the area of analysis procedures. For example, the methodological repertoire of network analysis can be successfully applied to the profusely documented

49) Cf. et al. Richard H. Tilly, Sozialer Protest, p. 185.

50) Paul B. Huber, "Regionale Expansion und Entleerung im Deutschland des 19. Jahrhunderts: Eine Folge der Eisenbahnentwicklung?" in: Rainer Fremdling/Richard H. Tilly, ed., Industrialisierung und Raum. Studien zur regionalen Differenzierung im Deutschland des 19. Jahrhundert (Stuttgart, 1979), p. 37 ff.

51) Cf. Manfred Thaller's column, "Historical Software-Section" (see ft. 42) in the journal, Historical Social Research/Historische Sozialforschung and also, M. Thaller, "Automation on Parnassus. CLIO–A Databank oriented System for Historians," in: Historical Social Research/Historische Sozialforschung 15 (1980), pp. 40 - 65.

52) Cf. et. al. Harald Rohlinger, "Quellen als Auswahl--Auswahl aus Quellen," in: Historical Social Research/Historische Sozialforschung 24 (1982), pp. 34 - 62.

historical data on interlocking positions and kinship patterns 53). New procedures in the multivariate analysis of event data represent efficient statistical instruments, especially suited to a science like history which considers events and development over long periods of time 54).

Problems in the adaption and transfer of the methods and research instruments do lead to bottlenecks. The most important future task of interdisciplinary historical social research is, however, precisely the solution of these problems.

53) Cf. et al. The KZfSS.s special issue (1984) on the analysis of social networks.

54) Cf. et al., Hans-Jürgen A n d r e ß, Multivariate Analysen von Verlaufsdaten. Statistische Grundlagen und Anwendungsbeispiele für die dynamische Analyse nichtmetrischer Merkmale (Mannheim, 1985); for an example of practical application: Heinrich B e s t, "Reconstructing Political Biographies of the Past: Configurations, Sequences, Timing, and the Impact of Historical Change," in: Helene M i l l e t et. al., ed., Prosopographie et Informatique (Paris, 1985).

II. SOCIAL INEQUALITY IN COMPARATIVE PERSPECTIVE

Social Inequality in the 19th and 20th Centuries: Some Introductory Remarks

Hartmut Kaelble

Why should social inequality be the topic of a session of a *history* congress rather than of a meeting of sociologists and, hence, a section of this book by historians rather than by sociologists? Why should one raise the issue of social inequality in a period of deep worldwide *economic crisis* in which the general public is interested in other themes and in which social inequality is often considered as a preoccupation of the past economic boom ? Why should social inequality be treated in a series of papers on *quantitative* history after having become so much a preoccupation of intellectual history and of ideological debates? I shall briefly answer these important and unavoidable questions, then cover the definition as well as some ideas on the long-term change of social inequality and finally say something about the three cases which are dealt with in the following papers, i. e. Sweden, Poland, and the U.S.

1

There is a widespread misunderstanding among historians about who should properly do research on the history of social inequality. Most historians do think that this is the task of sociologists and that they had better read sociological studies for information on this field. This attitude is reinforced by the impression that social historians have rarely published on this topic in a general way. If one looks for books and articles on "social inequality", one ends up, in fact, with the work of philosophers, sociologists or economists such as Stanislaw Ossowski, W. G. Runciman, Pierre Bourdieu, Gerhard Lenski, Ralf Dahrendorf, Simon Kuznets or Jan Tinbergen [1].

1) S. Ossowski, Class Structure and the Social Consciousness (New York, 1963); W. G. Runciman, Relative Deprivation and Social Justice (London, 1966); P. Bourdieu, La distinction (Paris, 1979); G. Lenski, Power and Privilege. A Theory of Social Stratification (New York, 1966); R. Dahrendorf, Class and Class Conflict in Industrial Society (Stanford, 1959); S. Kuznets, "Quantitative Aspects of the Economic Growth of Nations: VIII: Distribution of Income by Size," in: Economic Development and Cultural Change 11 (1963); J. Tinbergen, Income Distribution (Amsterdam, 1975).

For various reasons, however, this is a mistaken view of the task of historians as well as of their actual contribution to this field. The history of social inequality cannot be written without the contribution of historians (or, alternatively without exceptionally intensive studies of the past by sociologists and by economists). Who else but historians know about the exact strengths and shortcomings of the sources for the history of social inequality, such as tax registers, censuses, rules of etiquette, dictionaries, diaries or letters of travellers etc.? Who else but a historian understands the complex historical meaning of indicators of social inequality, e. g. the factual role of monetary income for the social differences in the standard of living in the past or the meaning of education in the past so different from current educational institutions and so important for the inequality of life chances. Who else but a historian could place the findings on social inequality in the wider perspective of past societies and economies? There is a peculiar role for historians and a particular need for their research in the field of social inequality. Historians cannot be replaced by sociologists and economists in the study of long term change of social inequality unless the latter become in fact historians.

Morever, the history of social inequality has not been neglected by social historians. A substantial amount of research was done by historians especially in the last fifteen years or so. This research covers many aspects of social inequality, uses many methods, deals with many types of communities and countries. It is rich in many respects. But it is extremely difficult to find, since historians have not yet found a common term, not yet started a debate, not yet established a scientific network in this field of research. Tracing the work on social inequality by historians means investing much time and energy in reading and skimming through large numbers of books. It is like the work of the gold-digger who has to sift lots of sand and flint to find small nuggets [2]. So it comes as no surprise that the work by historians has been rarely used in sociological or economic research. To draw the attention of historians to this problem and to present their research in a more accessible way to other disciplines is one purpose of this section.

Do we raise the topic of social inequality at the wrong time? Should the historian living in a long economic depression better treat other topics of greater actual interest? No doubt, historical research often has peculiar cycles of debates and new topics. It is often difficult to say whether historians are late or early, since the best time to raise a new topic might be when it is totally out of fashion. In addition, social inequality in long economic depressions is a compelling theme as historians know from former depressions. Anyway, there is substantial, perhaps even increasing interest among historians in the history of social

2) As a report of the studies by historians see H. K a e l b l e, Industrialization and Social Inequality in 19th-century Europe (Leamington Spa., 1986).

inequality. It is telling that in the last two years (1984 and 1985) more general books on social inequality have been published than in many years before [3]. Hence, this section of the book is not an isolated attempt to promote a neglected topic but just one publication among several others.

Is a book in quantitative history the right place to present studies of the history of social inequality? There is no doubt that a large amount of the research by historians on social inequality in the 19th and 20th centuries is in fact quantitative. To be sure, advanced quantitative techniques are rarely used; many studies of social inequality base their conclusions on counting and on numbers. Since differences in social inequality over time and across societies often are a matter of minor shades rather than of strong contrasts, quantification is imperative. Because social inequality often does become clear only if many individual lives are looked at, quantification is also necessary. It is interesting that one of the most known promoters of the "new" non-quantitative narrative history, Lawrence Stone, recently published a highly quantitative book in the field of social inequality. This does not only show the common sense of this author. It also demonstrates that quantification is very useful or even unavoidable in the history of social inequality.

On the other hand, quantification is not the only way of treating the history of social inequality. What definition of social inequality we use, what research approach we choose, how social inequality was seen in historical times, what demarcation lines and social distinctions were drawn by whom and with what instruments, how the politics of social inequality happened, are all questions which are not answered by quantitative studies. Since the topic of social inequality does lead to non-quantitative methods, we include in this section one article out of three which is less quantitative than the others. For the history of social inequality as for other fields of history, the debate on quantitative versus narrative methods is ill-defined, unrealistic and futile. Quantitative and non-quantitative methods can be and often must be used alongside each other depending on the topic, the sources, sometimes even the training of the audience. The future of quantification in history, after being firmly established, lies in the sensitive and reasonable combination with other, non-quantitative methods. Historical research on social inequality is a good example for this.

3) I would consider three recent books as important new interpretations in the history of social inequality: J. G. Williamson, Did British Capitalism Breed Inequality (Boston, 1985); L. Stone and J.C. Fawtier Stone, An Open Elite? England 1540 - 1840 (Oxford, 1984); and J. Mooser, Arbeiterleben in Deutschland 1900 - 1970 (Francfort, 1985) (Working-Class in Germany, 1900 - 1970). A sociological research survey with a certain historical perspective is R. Girod, Les inégalités sociales (Paris, 1984); and a sociological congress on social inequality with an interest in the past is G. Strasser and R. W. Hodge, eds., Status Inconsistencies in Modern Societies (Duisburg, 1986).

2

The history of social inequality is not an established field of historical research with a wide consensus about its basic terms. Hence it is necessary to cover briefly the definition of social inequality. Three approaches are used in historical research, For lack of space I shall simply review them rather than discussing their strengths and weaknesses:

Firstly and usually, historians see social inequality as differences in the standard of living in the broad sense, i. e. not only in the real income, but also in the quality of working conditions, housing, family life and neighbourhood, education, level of health and life expectancy, or of security against crime and oppression. In trying to cover as many of these aspects as the sources allow, historians usually pursue social inequality between social classes and occupational groups or, less often, between men and women, between minorities and majorities, between urban and rural people, and between generations. Sometimes, historians are interested in social inequality only at one point in time and in one place; sometimes, however, they deal primarily with the long-term change of social inequality and its demographic, economic, social, cultural and political reasons. The following articles by Johan Söderberg and by Janusz Zarnowski are good examples of this approach.

Secondly, historians see (sometimes in combination with the first approach) the development of social inequality as the history of social differences in attitudes, life styles and mentalities, or as the history of purposeful social distinctions and social demarcation lines. Once again, the differences are investigated mostly between social classes and occupational groups, but sometimes also for minorities, between generations, between women and men, or between rural and urban people. This approach is generally used for the study of one individual social class, one occupational group, or one minority, rather than for the study of entire societies. Some historians use this definition together with the first one, since they intend to write a *histoire totale*, or since they consider both aspects of social inequality as closely interwined in historical reality and find it difficult to say whether certain differences of the quality of housing, of levels of education or of health are a matter of cultural choice or a result of standards of living. The following article by Olivier Zunz is a good example of starting from this second definition of social inequality.

Finally, historians sometimes look at social inequalities as social contrasts between two basic social classes, i. e. the employers and the wage earners. All other social classes and social differences are considered or supposed to be secondary. This approach is not only used by Marxists, but also by non-Marxists open toward the falsification of the approach. Two things are perhaps surprising in the actual use of this approach in the research of social inequality in the past:

First, an extremely small number of studies in fact investigates the social *differentials* of the standard of living even between the two social classes which are considered the two most important ones. Generally, the rise or decline of the standard of living of a *single* class is treated rather than its differentials. Second, such investigations are not simply a variation of the study of the standard of living. There is an important European school, inspired especially by E. P. Thompson, which looks at social actions, social conflicts, and social attitudes rather than at the mere material situation. One might even say that this is in fact the strength of the best of the small number of studies on social inequality using this approach.

3

Historical research can contribute most to an analysis of the long-term *change* of social inequality, i. e. to the question of the rise or decline of social inequality in the long run. Especially the following papers on Sweden and Poland follow this perspective. It would be highly interesting to describe the main trends of the discussion on the long-term changes in social inequality. For lack of space, I want only to point to three major debates which have dominated research on the change of social inequality.

One major discussion covers the rise or decline of social inequality during the *industrial revolution*. Historians have, on the one hand, argued that the industrial revolution in Europe led to a mitigation of social inequality compared to the sharp social differences in feudal agrarian society. Lawrence Stone has described early modern European society as a huge hill with a high and extremely thin tower on it, with the bulky hill consisting of the mass of poor peasants, artisans, and labourers, and the thin tower consisting of the courts, the large landed aristocrats, and the rich merchants. During the industrial revolution the middle class became much more numerous. The tower on top became more solid and the contrast to the large hill of poverty below less striking. On the other hand, historians with such different basic points of view as Jeffrey Williamson and Eric Hobsbawm have argued that social inequality during the industrial revolution increased distinctly, especially between the rising middle class and the working class. From this point of view, the industrial revolution is seen as the period of most distinct social contrasts [4]. The following papers one Poland and Sweden join this controversy.

4) L. S t o n e, "Social Mobility in England 1500 - 1700," in: Past and Present 33 (1966); E. H o b s b a w m, Industry and Empire. An Economic History of Britain since 1750 (London, 1968); W i l l i a m s o n, Inequality; cf. as other recent interpretations in this debate: P. K. O' B r i e n / S. L. E n g e r m a n, "Changes in Income and its Distribution During the Industrial Revolution," in: R. F l o u d / D. N. M c C l o s k e y, eds., The Economic History of Britain since 1700, vol. 1 (London, 1981); R. Q. G r a y,

A second debate among historians covers the change of social inequality during the subsequent period of *second industrialization*. To simplify once again a complicated discussion, two basic positions can be found. On the one hand, historians have seen the second industrialization as a period of less sharp social inequalities due to various reasons such as the rise of the labour movement, the early beginnings of social policies, the decline of the artisan elite in the working class, the rise of routine white collar workers. Standards of living between various social classes became somewhat less distinct in the period of the rise of large entreprises and the beginnings of state intervention. On the other hand, historians have pointed to rising social inequalities between the concentrated economic and political power of emerging big business and the mass of wage earners, small farmers, artisans and shop-keepers. Once again, the following papers participate in this debate among historians [5].

The Aristocracy of Labour in 19th-Century Britain, 1850 - 1914 (London, 1981); G. Crossick, An Artisan Elite in Victoria Society, Kentish London 1840 - 1880, (London 1978); J. M. M. de Meere, Long-Term Trends in Income and Wealth Inequality in the Netherlands 1908 - 1940," in: Historical Social Research 27 (July 1983); A. Daumard, "Wealth and Affluence in France since the Beginning of the 19th Century," in: W. D. Rubinstein, ed., Wealth and the Wealth in the Modern World (London, 1980); R. H. Hubscher, L'agriculture et la société rurale dans le Pas-de-Calais du milieu du XIXe siècle à 1914, 2 vol. (Arras, 1979); F. Marquardt, "A Working Class in Berlin in the 1840's" in: H. - U. Wehler, ed., Sozialgeschichte Heute (Göttingen, 1974); D. Saalfeld, "Lebensverhältnisse der Unterschichten Deutschlands im 19. Jahrhundert," in: International Review of Social History 24 (1984); J. Kocka, Lohnarbeit und Klassenbildung. Arbeiter und Arbeiterbewegung in Deutschland 1800 - 1875 (Hannover, 1983); H. Rosenbaum, Formen der Familie (Francfort, 1982); L. Soltow, Toward Income Quality in Norway (Madison,1965); V. Zamagni, "The Rich in a Late Industrializer: The Case of Italy, 1800 - 1945," in: W. D. Rubinstein, ed. Wealth and the Wealthy in the Modern World (London, 1980); A. Imhof, Die Gewonnenen Jahre (Munich, 1984), pp. 107 ff.; H. Kübler, Besoldung und Lebenshaltung der unmittelbaren preußischen Staatsbeamten im 19. Jahrhundert; Y. S. Brenner, H. Kaelble and M. Thomas, eds., Income Distribution in Historical Perspective (forthcoming).

5) Recent interpretations in this debate are H. U. Wehler, ed., Klassen in der europäischen Geschichte (Göttingen, 1979) (especially the articles by Hans-Ulrich Wehler, Heinz-Gerhard Haupt on France, Sidney Pollard on Britain, Jürgen Kocka on Germany, Hans Jürgen Puhle on the United States); F. Kraus, The Historical Development of the Welfare States in Europe and America (New Brunswick,1981); H. Kaelble, "Arbeiter und soziale Ungleichheit in Europa, 1950 - 1930," in: K. Tenfelde, ed., Die internationale Forschung zur Geschichte der Arbeiterschaft (Munich,1985); W. Fischer, Armut in der Geschichte (Göttingen, 1982); Brenner, Kaelble and Thomas, Income Distribution; Williamson, Inequality; S. Pollard, The Development of the British Economy, 1914 - 1980 (3rd ed., London, 1983); de Meere, Inequality; Daumard, Wealth; H. Kaelble / H. Volkmann, "Streik und Einkommensverteilung im Kaiserreich", in: J. Bergmann et al., Arbeit, Mobilität, Partizipation, Protest (Opladen, 1985); V. Hentschel, Wirtschaft und Wirtschaftspolitik im Wilhelmi-

A third discussion covers the period since *1945*. It is a discussion more general among social scientists than just among historians . Once again, we find the view that the social differentials in the standards of living became less distinct especially as a consequence of the final establishment of the welfare state, the unprecedented power of trade unions, the rapid expansion of higher education and of a highly educated labour force, the unique economic prosperity, or as a consequence of political factors such as the wars or basic changes in economic systems. On the other hand, we find the view that social inequalities since 1945 became more distinct between generations, between native and foreign workers, between the average wage earners and the new poor, but also between the new professionals and the traditional industrial workers. The paper on Poland joins that debate [6].

4

Why should we take Sweden, Poland, and the United States as examples of the history of social inequality in 19th and 20th Europe and America? It is certainly not easy to find historians who are ready to give good papers with new findings or new perspectives on this topic. We tried to find a paper on one of the early industrialized countries of Western Europe and a paper on a Mediterranean European country. This failed. The three papers which follow are, however, not accidental. They represent three different situations.

The Swedish paper by Johan Söderberg covers a country with one of the most rapid industrializations in Europe. Between 1880 and 1913 the Swedish rate of industrial growth was 2,9 % annually compared to only 2,1 % in Europe

nischen Deutschland (Stuttgart, 1978), pp. 67 ff.; I m h o f, Gewonnene Jahre, pp. 107 ff.; R. S p r e e, Soziale Ungleichheit vor Krankheit und Tod. Zur Sozialgeschichte des Gesundheitsrechts im Kaiserreich (Göttingen, 1981); J. K o c k a, Die Angestellten in der deutschen Geschichte 1850 - 1980 (Göttingen, 1981); K. D i t t, Industrialisierung, Arbeiterschaft und Arbeiterbewegung in Bielefeld, 1850 - 1914 (Dortmund, 1982); H. J. R u p i e p e r, Arbeiter und Angestellte im Zeitalter der Industrialisierung. Eine sozialgeschichtliche Studie am Beispiel der Maschinenfabrik Augsburg und Nürnberg (M.A.N.) 1837 - 1914 (Francfort, 1982); H. P o h l, ed., Sozialgeschichtliche Probleme in der Zeit der Hochindustrialisierung (1870 - 1914) (Paderborn, 1979); M. K ö n i g / H. S i e g r i s t / R. V e t t e r l i, Warten und Aufrücken. Die Angestellten in der Schweiz 1870 - 1950 (Zürich, 1985).

6) Typical examples of work on the postwar trends are T i n b e r g e n, Income Distribution; K r a u s, Income Inequality; T. S t a r k, The Distribution of Income in Eight Countries (London, 1977); P. T o w s e n d, Poverty in the United Kingdom (Harmondsworth, 1979); A. B. A t k i n s o n / A. J. H a r r i s o n, Distribution of Personal Wealth in Britain (Cambridge, 1978); A .H. H a l s e y, Change in British Society (Oxford, 1978), ch. 2; A. E. A t k i n s o n, ed., Wealth, Income and Inequality, 2nd ed., (Oxford, 1980); H. v a n d e r W e e, Der gebremste Wohlstand (Munich, 1984), pp. 287 ff.; D a u m a r d, Wealth; H. S u p p a n z / M. W a g n e r, eds., Einkommensverteilung in Österreich (Munich, 1981).

in general. The share of the industrial work force grew with a unique rate of 2,1 % annually from 1880 until 1910 compared to only 0,6 % in Western Europe in general. The share of urban population increased by 2,2 % annually between 1890 and 1910, once again one of the highest rates in Europe [7]. Sweden in fact jumped into industrial society. In contrast to other rapid European industrializers, however, the political history of Sweden is characterised by an exceptional steadiness, by soft transitions and by the rareness of major upheavals. Not only did the European wars of the twentieth century afflict Sweden least; the transition to parliamentary democracy was also unspectacular and unrevolutionary in Sweden. Moreover, Sweden had a long, strong tradition of state intervention and, hence, was not characterised by a dramatic and unprecedented rise of government interventions as in other European countries or as in the U. S. In sum, an unusually dramatic industrialization and a political steadiness make Sweden an interesting case for the history of social inequality.

Poland, which is covered in the paper by Janusz Zarnowsky, is an important case for opposite reasons. Predominately agricultural until the 1950's with few, though sometimes early industrial regions, Poland on the whole is one of the late industrializers among the large European countries. Perhaps due to this backwardness (compared at least to Western Europe), Poland's economic development since her independence was rapid. In spite of relatively modest growth rates of industrial production, the share of the industrial labour force increased rapidly. Since the first reliable occupational census in 1921, it grew from 9 % to 35 % in 1970. Even compared to Sweden, the 20th century Polish labour force changed rapidly [8]. What makes Poland, however, a peculiar case for the history of social inequality, is an exceptional series of political upheavals in the 20th century. When Poland became independent in 1919 from Russian, Prussian, and Austrian rule, a certain foreign part of the upper class and the upper middle class emigrated and might have left behind a different structure of social inequality. Only twenty years later, Poland was occupied by the Nazi forces and suffered from one of the most brutal Nazi policies in occupied European territories. A substantial part of the Polish middle class and lower middle class was exterminated in the Holocaust,, again with strong and lasting effects on class structure and social inequality. Finally, when Poland became a com-

7) Calculated from: P. B a i r o c h, "International Industrialization Levels from 1750 to 1980," in: Journal of European Economic History 11 (1982), p. 294 (rates of industrial growth per capital); H. K a e l b l e, "Was Prometheus most unbound in Europe? Labour force in Europe during the late 19th and 20th centuries," in: Journal of European Economic History 16 (1986) appendix; P. F l o r a, Quantitative Historical Sociology (The Hague, 1977), pp. 46 f. (cf. also id., State, Economy and Society in Western Europe 1800 - 1975, vol. 2, Francfort, 1984 - 86).

8) Calculated from: B. R. M i t c h e l l, European Historical Statistics 1750 - 1970 (London, 1978), p. 58; for economic growth cf. B a i r o c h, Industrialization Levels, p. 331.

munist country another ten years later, a further upheaval of class structure and change of social inequality in Polish society occured. In sum, Poland is a case in which social inequality was not only affected by a dramatic economic development but also by dramatic political events.

The United States, which is discussed by Olivier Zunz, is important for our theme since it was for some Europeans the most attractive or for others the most repellent, egalitarian model. A "charm of American Life" wrote the British ambassador to the United States, James Bryce, in 1888 was the attenuated form of social inequality. "People meet on a simple and natural footing, with more frankness and ease than is possible in countries where every one is either looking up or looking down. There is no servility on the part of the humbler... . There is no condescension on the part of the more highly placed[9])." Many Europeans before and after saw the United States in this egalitarian way and their own Europe in an unegalitarian way. James Bryce makes clear that he speaks of a specific sort of social inequality. He does not want to say that the social differentials of the standard of living were less distinct in the U. S. than in Europe. He does not deal with this understanding of social inequality which can be often found - as we saw - among social historians. He only says that social distinctions were less clearly drawn than in Europe and that the different worlds of social classes were less separated in the United States. It is this meaning of social inequality which matters in historical comparisons between Europe and America. In fact, it is this meaning which stands behind the following article by Olivier Zunz on the American white collar employees of the period in which James Bryce saw America.

For all these reasons I think the following papers are important and stimulating. I hope they are also the beginning of more intensive and more comparative research on the long-term historical change of social inequality in modern societies.

9) J. Bryce, The American Commonwealth (New York, 1888), citation from: H. S. Commager, ed., America in Perspective. The United States through Foreign Eyes (New York , 1947), pp. 233 f.

Trends in Inequality in Sweden, 1700 - 1914 *)

Johan Söderberg

Introduction

This article discusses the secular development of social inequality in Sweden from ca. 1680 to 1914. The following questions are asked: What were the main trends, and what subperiods can be discerned? How do urban patterns (Stockholm) compare to rural ones? What were the driving forces? What is the relevance of the Kuznets curve as a description of historical patterns?

In contrast to Williamson's recent standard work on Britain this research emphasizes wealth rather than income inequality mainly because of its longer time perspective. The more we focus on pre-industrial and agrarian conditions, the less relevant will an income approach be. While information on various aspects of wealth is fairly rich, direct measurement of even late 19th century farm incomes is seldom feasible because of the scarcity of data. Though there seems to be widespread agreement that income and wealth inequality are closely related in historical series, I am also less convinced than Williamson that "wealth and its distribution is the tail wagged by the current income dog [1]."

Studies of historical inequality have a place in several research agenda. One of them, the macroeconomic analysis of capitalist development, deals with inequality as part of a general equilibrium process. Within a growth and distribution model, inequality may be treated as a set of price signals flashing factor scarcities and triggering supply responses. Eventually, such a model may explain the joint behaviour of factor rewards, output, and inequality. The work of Williamson along these lines resembles but also attempts to augment the modeling of the classical economists from Ricardo to Marx, predicting the long-term behaviour of wages, rents, and profits [2].

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1) J. G. Williamson, Did British Capitalism Breed Inequality? (Boston, 1985), p. 78. Investigations into long-term patterns of interoccupational pay ratios and intra-occupational wage or earnings inequality is certainly a promising line for Swedish research, but a focus on urban data will be unavoidable.

2) Williamson, op. cit., thinks that independently changing wealth distributions (due to emancipation, land reform, or revolution rather than to income changes) are historically rather rare. Such "independence" would however be more frequent in the pre-industrial era, say prior to 1815, particularly with reference to the effects of war, demographic crises, and political instability. It is interesting to note that Eli F. Heckscher faced

Plausible macroeconomic modeling is however dependent upon the availability of fundamental data on inequality, factor markets, and output. More has been done on the British and American economies than on others. For Sweden and many other countries we need a much more systematic empirical basis [3]. This paper reviews some basic evidence on Swedish inequality. Only regarding Stockholm have I been able to conduct a few selective investigations into primary materials and a the real property tax registers of 1715, 1799, and 1845. My focus is on economic aspects of inequality; patterns of social mobility will only be treated briefly.

Important aspects of the distribution of resources in pre-industrial society may be traced in Swedish materials since the 16th century. No doubt this should also be possible regarding other European countries or regions. This opens up intriguing questions concerning the very long-term evolution in inequality which are just beginning to be explored. The well-known Kuznets curve of course only intended to describe the period of modern economic growth from the 19th century. As yet few corresponding hypotheses exist for the pre-industrial era. Since little empirical research has been carried out in Sweden, only some tentative hypotheses suggesting various long-term shapes of the inequality curve in pre-industrial agrarian society are discussed.

Inequality is measured solely by conventional indicators such as the Gini index. In quantitative history there has sometimes been an overstress on the unusual or fanciful at the expense of standardization and comparability. The comparative dimension will be extremely important in future historical inequality research. Such work will be aided by the use of standard methods and measures as far as possible [4].

As readers cannot generally be expected to know Swedish economic history well, it may be worthwhile briefly to present some basic features. Pre-industrial agrarian society was dominated by relatively independent peasants in large

the problem squarely in his discussion of the distribution of wealth in 17th century Sweden. Noting that "one of the great controversies in political economy concerns the question whether wealth increases are rooted in especially valuable economic contributions - according to market valuation - or depend on the distribution of power in society, two viewpoints which, to be sure, do not altogether exclude each other", he reached the conclusion on historical evidence that "the great fortunes were created primarily by the political conditions; contributions to ordinary economic activity in 17th century Sweden were not the main factors in the formation of large fortunes, although business transactions played their substantial part". H e c k s c h e r, Sveriges ekonomiska historia från Gustav Vasa, I:2 (Stockholm, 1936), p. 318. Compare also the discussion of the reduktion below.

3) Important work on national product series for the whole of the 19th century is currently carried out by Olle Krantz and Lennart Schön at the Department of Economic History, University of Lund.

4) Much of the French inequality research is less useful for comparative purpose than it might have been due to a reliance on home-spun rather than standard methods. See, e. g., A. D a u m a r d et al. Les fortunes françaises au XIXe siècle (Paris, 1973).

parts of the country. Most researchers maintain that Sweden was never feudalized [5]. Large estates were mainly found in the plainlands of the lake Mälaren region in eastern Sweden and in the south. The strategic industrial activity in the pre-industrial era was iron production. A strong, centralized bureaucracy emerged during the 17th century.

Agrarian economic growth in the period 1750 - 1850 is now generally regarded as an important prerequisite to later industrialization. The expansion of the peasant economy was a major force in the transformation of agriculture and the beginning of modern economic growth [6]. Large-scale farming did not possess any obvious productivity advantages over peasant farming based on family labour [7].

The country was overwhelmingly agrarian well into the second half of the 19th century. As late as 1850 not more than one tenth of the population lived in towns. Industrialization was late but rapid; during the last decades of the 19th century exports of wood products and iron ore grew dramatically. The industrialization process was extremely successful in terms of economic growth and rising standards of living. From about the turn of the century the domestic market increased in importance and industrial production was gradually reorientated from raw materials to processed products such as pulp and mechanical engineering. Industrialization and urbanization were to a considerable extent separate phenomena, as 19th century exports relied on exploitation of natural resources in rural regions.

The Period 1680 - 1715

The only systematic inquiry into inequality trends during this period is Kekke Stadin's dissertation on small-town burghers. For seven towns, mainly in eastern and south-eastern Sweden, she described social differentiation primarily on the basis of tax registers. No other strata than burghers were studied [8].

5) A classic statement on the absence of feudalism is E. F. Heckscher, An Economic History of Sweden (Cambridge, Mass., 1954), ch. 2. For diverging Marxist viewpoints see P. Anderson, Lineages of the Absolutist State (London, 1974); J. Lindegren, Den svenska militärstaten 1560 - 1720, in: Magtstaten i Norden i 1600-tallet og de sociala konsekvenser, ed. E. Ladewig Petersen (Odense, 1984), 99 - 130.

6) On peasant expansion generally see S. Martinius, Jordbrukets omvandling på 1700 - och 1800-talen (Lund, 1982), M. Fridholm et al, Industrialismens rötter (Stockholm, 1976).

7) This aspect is stressed in much recent research at the Department of Economic History, University of Stockholm. See, e. g., U. Jonsson, A.-M. Köll and R. Pettersson, "Eine Agrargesellschaft im Wandel," Zeitschrift für Agrargeschichte und Agrarsoziologie 28 (1980); U. Jonsson, Jordmagnater, landbönder och torpare i sydöstra Södermanland 1800 - 1880 (Stockholm, 1980), ch. 5.

This research observed a clear tendency towards widening inequality. A small group of well-to-do burghers managed to concentrate an increasing share of total economic resources into their hands. This tendency was strongest in the economically expanding towns, while stagnating ones exhibited a weaker trend toward concentration, or even a decline in inequality. Five per cent of the richest burghers often represented about fifty per cent of total taxis paid.

The dominance of an economic elite was most pronounced in trading centres, where merchants generally formed an upper stratum. One reason why wealth was increasingly concentrated was, according to Stadin, that several important economic activities demanded larger amounts of capital than previously. This applies for instance to the iron trade. Towns such as Arboga near the iron producing regions tended to be set aside by direct transactions between iron producers and Stockholm merchants. Small-town middlemen were increasingly bypassed, and only a minority among them were capable of successful adaptation, for example by establishing themselves as owners of ironworks, usually leaving the town [9].

Stadin interprets her results within a broader framework of emerging capitalism. Only a small upper stratum among the burghers was capable of accumulation to such an extent that it contributed to capitalistic forms of enterprise, primarily with regard to ironworks, shipbuilding, and shipping companies. Their investments were modest but not unimportant. Members of this thin stratum were often closely related by marriage to Stockholm merchants. Middlemen, a far larger segment of burghers were under pressure from merchants in the capital, possessing greater resources gained from foreign trade. A commercial and economic concentration to Stockholm was taking place at the expense of several small and middle-sized towns. Economic functions were increasingly specialized within a division of labour geared to demand from the European metropolises. The new trends in economic organization implied a higher degree of efficiency but also a widening in overall economic inequality.

By 1715, there were probably less than twenty towns in Sweden proper (excluding Finland) with a population exceeding 1,000 [10]. Trends in the urban distribution of resources can only have affected the aggregate national picture in a marginal fashion. No systematic study of inequality within the agrarian sector during the period in question is, however, available. Rising land prices,

8) K. Stadin, Småstäder, smaborgare och stora samhällsförändringar (Uppsala, 1979) especially ch. 5. Stadin argues that the analysis of tax records provides results that are comparable over time.

9) Concentration tendencies favourable to the big merchants were more evident in the export trade with bar iron than in internal trade with pig iron. I owe this observation to unpublished research by Professor Rolf Adamson, Department of Economic History, University of Stockholm.

10) This rough estimate of mine is based on data in Stadin, p. 176.

a major factor generally assumed to have contributed towards increasing differentiation later during the 18th century, probably was of little importance during this earlier period [11].

The most interesting changes in stratification within the agrarian sector towards the end of the 17th century are associated with the great reform in state finances (the *reduktion*). In order to increase tax incomes, the crown confiscated many possessions that had been transferred to the nobility earlier during the century. Still, most of the old aristocracy managed to save its most important landed estates. In addition, several recently ennobled and enriched families emerged as large landowners in the aftermath of the reduktion. Non-noble merchants seldom were able to buy large estates. The actual balance between old and new fortunes is little known, although Eli F. Heckscher emphasized that the net result of the reduktion consisted less in an overall leveling tendency than in a transfer of wealth unto new hands [12]. Heckscher probably underestimated the effects on overall inequality in the distribution of land. The amount of land belonging to the nobility was substantially reduced, by something of the order of a third. I find it hard to believe that inequality among private landowners should not have been appreciably reduced, even though the position of the peasantry was not automatically strengthened.

The Period 1715 - 1850

The agrarian sector

The only hypothesis concerning long-term inequality trends so far advanced in Swedish research was proposed by Maths Isacson (for references see Table 4 below). His investigation of a parish in the county of Kopparberg (for the division into counties see Figure 1) led him to separate two phases in the development of inequality among peasants. During the first period, stretching from the end of the 17th century throughout the 18th, inequality was reduced. Larger farmsteads tended to be divided into two or more units, resulting in homogenization.

11) I know of only one investigation into land prices, covering some 60 purchases of farmsteads in the county of Gotland 1689 - 1721. No marked price trend was discernible. See G. Kellgren, Gotland 1690 - 1720 (Södertälje, 1942), pp. 209 - 10. Stable 17th century land prices, applying at least to transactions within kin, are also suggested by I. Jonsson, Jordskatt och kameral organisation i Norrland under äldre tid (Umeå, 1971), p. 103.

12) E. F. Heckscher, Sveriges ekonomiska histora från Gustav Vasa I:2, pp. 336 - 59. For more recent accounts see K. Ågren, The reduktion,in: Sweden's Age of Greatness, ed. M. Roberts,(London, 1973); and L. Magnusson, Reduktionen under 1600-talet: debatt och forskning (Malmö, 1985).

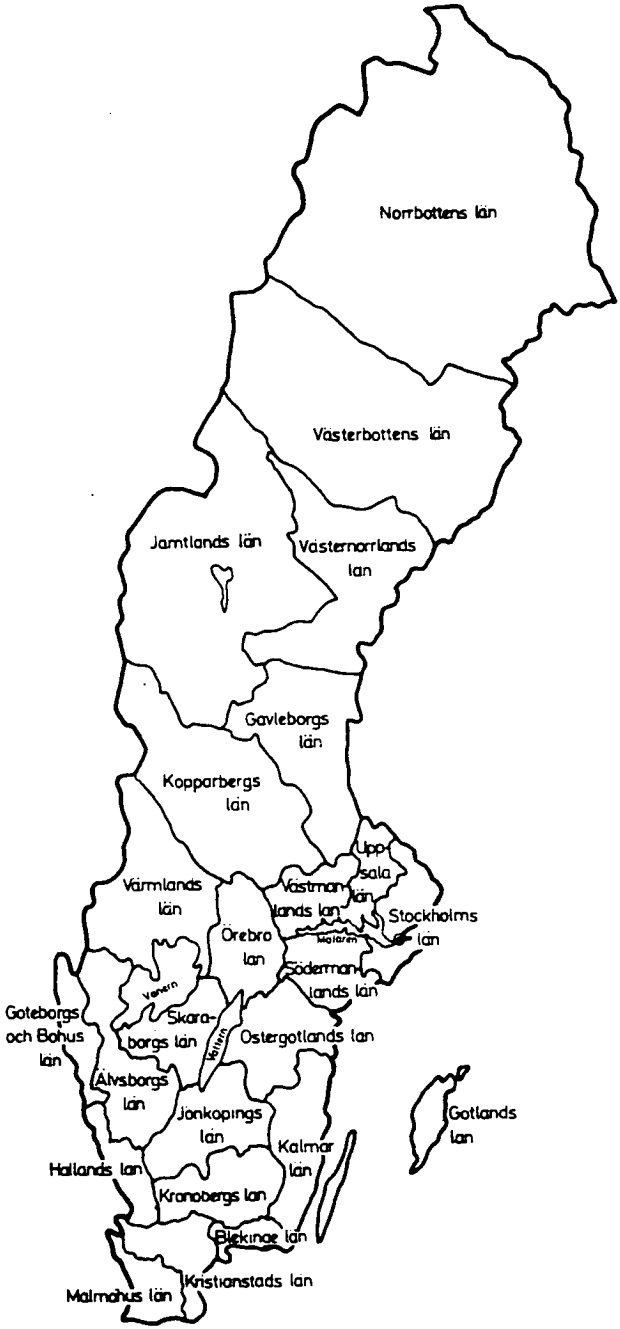


Figure 1: The division of Sweden into counties.

The second phase is connected with the agrarian revolution from the beginning of the 19th century. A group of large peasants emerged, which in Isacson's investigation area was involved in iron production as well. Agrarian production was growing at a faster rate than previously and substantial amounts of land were reclaimed. Isacson believes that there were some advantages of scale for the relatively large farmers. By 1850, a marked stratification among the peasants is evident, and the distribution of wealth was more unequal than it been by 1715. The small group of large peasants by the mid-nineteenth century was differentiated from the rest of the peasantry not only with regard to wealth and productive capacity but also socially, e. g., by the ownership of wagons, gold, and silver.

Isacson thus argues for the existence of a long-term U-shaped inequality curve, reaching a minimum around 1800. He did not claim that these results necessarily would apply to other areas than the one investigated. It is nonetheless interesting to discuss his findings in more general terms.

For the first half of the 19th century there seems to be wide agreement that inequality among peasants was rising. Several regionally based studies in addition to Isacson's display such a pattern of differentiation (see Table 4 below). Christer Winberg, dealing with a few parishes in the plains of Skaraborg county, reports a quite marked increase in inequality with regard to the distribution of land. He contends that the peasants in his area were so differentiated by 1850 as to make it meaningless to characterize this category as a social stratum. For two peasant-dominated parishes in southern Sweden, I also found evidence of growing inequality among landowners and farmers between 1821 and 1862. The Gini coefficient (G) increased from .42 to .51 in the plainland parish of Fleninge and from .18 to .35 in the woodland parish of Loshult. Still, inequality among property owners in agrarian society is in general likely to have been lower than in the towns [13].

The gaps in our knowledge are greater when it comes to the first part of Isacson's hypothesis, supposing an 18th century homogenization. There is no agreement among researchers that it is reasonable to expect such a trend. In a study dealing with the county of Skaraborg between the 1730s and the 1770s, Lars Herlitz on the contrary supposes growing differentiation among peasants. Land prices were rising rapidly, forcing many peasants to settle with small farming units on which the labour force could not be effectively utilized. The growth in production and incomes was unevenly distributed. These conclusions of Herlitz' are not based on actual observation of changes in the distribution of resources but are merely indirect inferences from trends in land prices.

13) L. Soltow, "The Swedish Census of Wealth at the Beginning of the 19th Century", Scandinavian Economic History Review 33 (1985), indicates a higher level of inequality in Swedish and Finnish towns than in rural areas according to the wealth census of 1800. Unfortunately, Stockholm is missing in this material.

In other words there are two alternative hypotheses in the literature regarding 18th century trends in social differentiation. Isacson's assertion is to some extent contradicted by a study by Mats Morell reporting growing inequality in the distribution of land in five parishes in the counties of Stockholm and Västmanland ca. 1770 - 1825. Since this period is prior to the major changes associated with the agricultural revolution, his results fit Herlitz' hypothesis of rising inequality better. The same applies to Winberg's study, revealing a decline in the share of middle-sized farming units and a rising portion of small as well as large ones between 1780 and 1810.

Table 1 exhibits four inequality measures for the parish of Luleå in Norrbotten county. They all indicate widening inequality in the distribution of land between 1750 and 1824. Available evidence thus does not support a view of declining inequality during the latter part of the 18th century.

Table 1. Distribution of landholdings in Luleå parish in 1543, 1750, and 1824.

Inequality indicator	Year		
	1543	1750	1824
Share held by top 10 per cent of owners	20	17	20
Share held by top 50 per cent of owners	70	62	70
Coefficient of variation	.51	.34	.52
Gini coefficient	.28	.18	.28

Source: Calculations based on G. Enequist, Nedre Luledalens byar (Uppsala, 1937) pp. 35, 139, 221.

On the other hand, data for Luleå are not incompatible with Isacson's hypothesis in a deeper sense: there appears to be some kind of long-term curvilinear or cyclical path in inequality. The distribution of land was clearly more equal in 1750 than in 1543; the latter is is fact very similar to the 1824 distribution. Isacson certainly has a point in that we should not assume any long-run constancy in the level of inequality before the beginning of modern economic growth. Obviously far more work needs to be done in order to trace the very long-term evolution in inequality and its possible regional variations. It should be stressed that Luleå, being an area in Sweden's northernmost county where livestock rather than arable production was essential, differs in many ways from the central plains. Inequality in northern Sweden is likely to have been comparatively low [14].

More research into patterns of landownership and other aspects of the distri-

14) The Luleå data are based on actual land measurements rather than on the conventional, inflexible land tax assessment unit (the mantal).

bution of material resources will be needed before we can determine the 18th century trends with any accuracy [15]. It should be safe to assume, however, that the trend toward widening inequality among peasants that is seen during the first half of the 19th century must have been far stronger than anything during the previous century.

So far we have dealt primarily with peasant farmers or owners. One of the most striking elements in the total process of differentiation was, however, the growth of rural strata below peasants in the century after 1750. Especially during the period ca. 1800 - 70, the lower strata comprising crofters or landless increased dramatically. About 1750, groups below the peasants (primarily crofters, cottars, and landless labourers) were only a quarter as numerous as the peasants; a century later the lower strata comprised as many people as the peasants. Regardless of trends within the peasantry, this expansion of lower agrarian strata must have contributed towards a widening of inequality in a broader perspective. In this sense there can be little doubt that the century after 1750 must be regarded as a period of growing overall inequality [16].

What about the upper classes in rural society, the landed nobility and large landowners in general? By the mid-eighteenth century, less than half of one per cent of Sweden's population held approximately a third of the land. Although this may seem a high figure, it is far from extreme in a European perspective. The distribution was more uneven in, e. g., England and Wales, Prussia, Lombardy, and Spain, but perhaps somewhat more even in France at the eve of the Revolution [17].

Large landowners were declining in the long run. This was a temporally and regionally differentiated process, involving shifts between various groups of large landowners as well. The decline in the position of noble landowners began

15) More results on inequality in 16th century agrarian society will come forward in a research project entitled "Agrarian Production, Prices, and Wages in Sixteenth-Century Sweden", recently started by myself and Janken Myrdal at the Department of Economic History, University of Stockholm.

16) Several detailed social mobility studies show that downward mobility from the peasant to the lower strata increased dramatically during the first half of the 19th century. Facing rapidly rising land prices, sons or daughters of peasants frequently failed to attain the position of their parents. Trends in social mobility thus conform to what is reasonable to expect from economic inequality trends. Major studies include those of Winberg, Martinius, and Söderberg listed in Table 4. See also J. O. Björkman, Bonde och tjänstehjon; om social stratifiering i äldre svensk agrarbygd (Uppsala, 1974), and I. Eriksson and J. Rogers, Rural Labor and Population Change (Uppsala, 1978). Köll's thesis (Table 4) includes an interesting analysis of marriage patterns as an indicator of social distance. See also S. Carlsson, Fröknar, mamseller, jungfrur och pigor (Uppsala, 1977), and for on overview of social structure R. Miller and T. Gerger, Social Change in 19th-Century Swedish Agrarian Society (Stockholm, 1985).

17) S. Carlsson, Ståndssamhälle och ståndspersoner 1700 - 1865 (Lund, 1973), p. 118.

and grew strongest in areas outside the central plainlands. The central plains, where the largest estates were situated, were less affected. Especially in the decades around 1850, a not inconsiderable net transfer of land took place from nobles to non-nobles including bourgeois as well as peasants. By 1862, 2.5 per cent of the largest owners held 29 per cent of the value of landed property [18].

Stockholm

In order to trace some broad trends in inequality in Stockholm, the distribution of real property has been studied by means of three cross sections referring to the years 1715, 1799, and 1845, based on the following sources. Between 1713 and 1715, a yearly wealth tax was levied on real and personal property in Sweden. For Stockholm, only the 1716 returns, pertaining to valuations carried out during late 1715, are preserved. The registers report estimated values of sites, buildings, and personal property. Values of sites and buildings are here added for the purpose of obtaining comparability with the other cross-sections. Personal property is left aside [19].

Apart from the wealth tax of the 1710's, no 18th-century valuation of real or personal property exists at the national level. Taxation of real property remained a municipal matter until 1810. For Stockholm, the source situation is better than for most of Sweden, since real property was re-evaluated on three occasions during the century (1737, 1787, and 1799). For this study I have only had the opportunity to analyze the 1799 records [20].

Starting in 1810, yearly real property valuations were carried out throughout the century. All of this valuable material is preserved. In rural areas valuations were generally fixed in money terms between about 1815 and 1862. For instance, a farmstead assessed to 1,000 rdr (riksdaler banco) in 1815 would still exhibit the same value in the 1861 volumes, although ownership changes would be recorded correctly. Of course this means that the sources do not reflect market values well during most of this period. In Stockholm, however, valuations were far more flexible in the short run. For practical reasons I chose to work with a municipal register based on the 1845 tax register [21].

A stratified random sample was drawn from each register. All registers contain

18) On the position of noble and other large landowners see C a r l s s o n, op. cit, ch. 6. The 1862 distribution: S. M a r t i n i u s, Jordbruk och ekonomisk tillväxt i Sverige 1830 - 1870 (Gothenburg, 1970), ch. 2.

19) For a general account of the wealth tax of 1713 - 1716 see J. E. A l m q u i s t, Om kontributionsränteriet, Karolinska förbundets årsbok 1917.

20) The 1737 municipal real property tax records are partly damaged.

21) For yearly aggregate real property values for Stockholm see F. T. B e r g, Statistiska minnesblad öfver Stockholm, Statistisk Tidskrift 3 (1865). On 19th century real property tax registers see R. A d a m s o n, Järnavsättning och bruksfinansiering 1800 - 1860 (Gothenburg, 1966), ch. 9, and S. M a r t i n i u s, Peasant Destinies (Stockholm, 1977), ch. 2.

the same information: the title and name of the proprietor and the estimated value of the property, but no other personal characteristics such as age, and few descriptions of houses or sites [22].

Table 2 reports the share of real property held by specified percentiles of proprietors, ranked from largest to smallest, and sample sizes.

Table 2. Percentage of real property in Stockholm held by specified shares of property owners in 1715, 1799 and 1845.

Percentile	Share			Cumulative shares		
	1715	1799	1845	1715	1799	1845
0 - 1	12	9	11	12	9	11
1 - 5	30	24	23	42	33	34
5 - 10	21	20	19	63	53	53
10 - 20	20	21	19	83	74	72
20 - 30	9	10	10	92	84	82
30 - 40	4	7	6	96	91	88
40 - 50	2	4	5	98	95	93
50 - 60	1	3	3	99	98	96
60 - 70	0	1	2	99	99	98
70 - 80	1	0	1	100	99	99
80 - 90	0	1	1	100	100	100
90 - 100	0	0	0	100	100	100
Gini coefficient				.78	.70	.68
N				390	364	366

Sources: 1715: Karl XII:s kontributionsarkiv, skattningslängd 1716. 1799 and 1845: Brandvaktskasseadministrationens arkiv, taxeringslängder 1799 and 1846. All in Stockholms stadsarkiv.

The key result is that of a long-term overall decline in inequality. Most of the change occurred between 1715 and 1799, when G fell from .78 to .70 [23]. What

22) The 30 largest proprietors were located in each register. The rest were drawn by simple random sampling. As is well known with regard to highly skewed distributions such as these, simple random samplingthroughout will underestimate inequality. See, e. g., F. Nygård and A. Sandström, Measuring Income Inequality (Stockholm, 1981), ch. 10.

23) A narrowing in inequality in Stockholm during the first half of the 19th century is also suggested by Soltow's study of the distribution of wealth among deceased. G declines from .84 in 1790 and 1800 to .78 in 1850. The source is the municipal death lists (dödlistor). This material is however highly incomplete, including only a minority of the deceased. The consequences of the gaps are not discussed. See Soltow, The Swedish Census of Wealth, p. 23.

shifts between social strata account for the narrowing differentials? Who were the winners? The losers?

Table 3 divides the samples into four strata. The first comprises persons of standing or rank (*ståndspersoner*) except merchants, dealers, and industrialists, who make up the second group [24]. The third consists of artisans and some other people with a similar social standing, while the fourth comprises individuals with a social position below that of the craftsmen: journeymen, labourers, soldiers and civil servants in low positions, and unspecified widows. The table also reports the share held by females (summed over all social strata).

Table 3. Distribution of real property in Stockholm by social category.

Category	Percentage of wealth			Percentage of sample		
	1715	1799	1845	1715	1799	1845
Persons of standing	74	41	35	23	20	18
Merchants, industrialists	12	33	37	8	20	21
Artisans	13	23	25	47	37	43
Lower stratum	1	3	3	22	23	18
Total	100	100	100	100	100	100
Female owners	35	14	11	21	20	14

Persons of standing suffered a rather dramatic decline in their share of real property during the 18th century, from 74 to 41 per cent of the total. Their shares were overtaken primarily by merchants and industrialists, and the artisans also advanced noticeably. Between 1799 and 1845 the distribution was more stable; the small changes taking place were continuations of 18th century trends. The lower stratum, while comprising about a fifth of the number of proprietors, held a fairly negligible portion of total real property.

When discussing the causes of the redistribution we have to keep in mind that the 1715 taxation took place during the later stage of the Great Nordic War, ending in 1721 when Sweden lost her Baltic provinces and her great power position. By 1715 the war had been raging for a decade and a half and Sweden had suffered heavy losses in Russia. Of course the war involved great strains on the country. Still, modern research has tended to play down the adverse effects, which clearly were not as disastrous to the economy as an older tradition main-

24) The ståndsperson concept (from German Standesperson) refers to persons of high extraction and particularly those standing above the burgher and peasant estates. Nobles and priests were included, but from the latter 18th century the concept also was taken to comprise growing numbers of non-noble iron masters, officers, doctors, etc. See Carlsson, Ståndssamhälle och ståndspersoner, ch. 2.

tained. Stockholm was never attacked, but at the time discussed here the capital had received quite a number of refugees from Åland which had recently been conquered by the Russians. These people are often described as destitute in the 1715 register.

The eighteenth-century leveling tendency particularly affected the nobles. They very much dominated the upper tail of the 1715 distribution. Among the top ten proprietors only one was a non-noble (the merchant, Paul Johan Heublein). The largest owner was a noble woman, Elisabet Funck (1642 - 1719). The daughter of a rich mayor of Stockholm, she married Johan Funck, a dynamic iron master and entrepreneur regarded as one of the richest persons of burgher extraction in his time. He was ennobled in 1672 and died in 1679 at the height of his career [25]. Among the rest of the top proprietors a small number of well-known noble families were well represented (e.g., Sparre, Tessin, De la Gardie, Piper, Fleming, Stenbock, and Horn).

By 1799, the situation had changed significantly. Only three nobles remained among the top ten (representing the families De Geer, Cronhjelm, and Rosenadler). The largest proprietor was a textile manufacturer, Carl Gustaf Apiarie, possessing the largest mill in Stockholm. The rest of the top ten now was quite diversified, including a merchant, an ironworks entrepreneur, another textile manufacturer, a high government official, an officer, and a wealthy widow.

In 1845, the largest owner was doctor, M. C. Retzius. The rest of the top ten now included a stronger element of merchants, occupying positions two to five. Furthermore, there were three nobles (families De Geer, Nordenfalk, and Stael von Holstein), a textile manufacturer, and a brewer.

In his classic interpretation of Swedish economic history, Heckscher emphasized two major changes in the 18th century economy. The first was the emergence of a new, largely non-noble upper class based on the leading merchants, particularly in Stockholm (the *Skeppsbroadel*), and the iron masters. The second was the growing importance of the peasantry, similarly based on economic expansion. Heckscher thought that the 18th century in some respects could be regarded as the age of the merchants, who were still being favoured by mercantilist policies aimed at stimulating the feeble towns. The merchants not only controlled the important exports but also were more closely involved in industrial production, especially iron, than they were to be during the subsequent century.

Heckscher on the other hand very much played down the role of urban handicrafts and manufactories in economic growth. They did not form a point of departure for the industrialization gaining momentum during the 19th century. The roots of modern industrialization rather were to be found in rural cottage production, particularly in textiles [26].

25) On the Funck family see Svenskt biografiskt lexikon 16 (1964), p. 650.

26) E. F. Heckscher, Svenskt arbete och liv (Stockholm, 1968), pp. 148, 212,219.

Heckscher's conception of cottage industry is supported and reinforced by recent Swedish research stressing the importance of the domestic market for consumption goods. In a major study of the rise of mechanized textile factories, Lennart Schön observes a close connection between agricultural growth, raising domestic demand for textiles, and the expansion in rural cottage industry [27]. Heckscher anticipated strategic elements in that part of the protoindustrialization debate which points to the existence of such a positive link between cottage industry and subsequent industrialization.

The limited investigation of Stockholm presented here can of course only very partially form a basis for a reappraisal of Heckscher's interpretation of the Swedish 18th century economy. Nevertheless, I will try to relate the results to a larger framework.

With regard to the expansion of iron merchants and iron masters emphasized by Heckscher, this cannot be expected to have made much of an impact on the Stockholm real property market. Investments in moveables and ironworks were more strategic to the exporters than was investment in real property within the capital [28]. The economic strength of the leading merchants, and even less of the iron masters, will not show up in the holding of large possessions in Stockholm. Other sources and methods will have to be used in order to determine the extent of their expansion.

The advance of the merchant and industrialist group in Table 3 mainly involved individuals other than those associated with the major merchant export firms. Traders in grain, spices, or general groceries were prominent. Particularly in 1799, there was a not inconsiderable number of industrialists among the larger proprietors. Even though the manufactories of the capital on the whole were declining since the 1760s, this should not lead us to believe that possibilities of capital accumulation were absent. A few textile and tobacco manufacturers were able to compete at the highest level of the urban real property market.

During the 18th century not only merchants and industrialists but also the artisan category in Table 3 clearly improved its position versus the persons of standing. While artisans formed a diminishing share of the proprietors, those remaining increased their share of total property. Artisan proprietors in other words became fewer and richer. Brewers, representing a relatively capital intensive industry, are among the most prominent in 1799. At the other end of the scale were the few and small owners from large trades with small costs of entry such as shoemaking and tailoring.

This pattern may be compared to Ernst Söderlund's study of the Stockholm

27) L. S c h ö n, Från hantverk till fabriksindustri (Lund, 1979), ch. 5; S c h ö n, Industriealismens förutsättningar (Lund, 1982).

28) K. S a m u e l s s o n, De stora köpmanshusen i Stockholm 1730 - 1815 (Stockholm, 1951), ch. 3.

artisans, based on tax registers. On one hand, he stressed the secular stagnation of handicrafts in the capital during most of the 18th century. Small-scale rural cottage production and other towns offered stiffening competition. On the other hand stagnation did not affect all handicrafts equally and did not preclude polarizing tendencies. Some small groups among the masters succeeded in establishing capitalistic forms of enterprises, employing dozens of journeymen and labourers in the building trades. Brewers, butchers, bakers, and goldsmiths formed an upper stratum at a considerable distance from the majority of masters [29]. Results in Table 3 seem to agree with a view of widening inequality within the artisan group when this is taken to include the unpropertied masters. Economic stagnation among artisans should not be overemphasized since the category was expanding at the expense of persons of standing.

The decline of persons of standing is the dominating feature of Table 3. There is a lack of economic studies dealing with the nobility, among whom the decline was striking. One possibility ist that some withdrew from the capital in order to specialize as landowners. The counties surrounding Stockholm were a stronghold of noble landowners well into the second half of the 19th century. One of the very few investigations into landed estates during the 18th century suggests fairly high levels of profitability. There is no reason to expect an economic crisis among noble landowners in this region [30].

Far from all nobles possessed land, however. A cohort study of the nobility by Ingvar Elmroth reveals a secularly declining percentage holding landed estates. This share was high among those born or ennobled in 1650 - 1659 (56 per cent) but far lower in the 1700 - 1709 and 1750 - 1759 cohorts. Demographic reproduction was significantly lower among the unpropertied, indicating less favourable economic circumstances [31]. A growing share became civil servants or military men; this was partly an inevitable effect of the reduktion.

The weakened position of the Stockholm nobility during the 18th century may be seen as an expression of growing inequality within this estate, making itself particularly felt in the capital where the number of nobles in civil service was very high. It is only logical that the stable position of the landed nobility in the lake Mälaren valley should contrast to the retrogression in the capital.

There are reasons to believe that the major features of Heckscher's interpretations are realistic. Summarizing the discussion above, some minor points may still be made. First, reference to social categories should be supplemented by the observation that differentiation within the peasantry as well as within the nobility and the Stockholm artisans in all likelihood was widening. Second, Heckscher may have had a too negative view of the role of urban burghers and

29) E. Söderlund, Stockholms hantverkarklass 1720 - 1772 (Stockholm, 1943), ch. 8; Söderlund, Hantverkarna II (Stockholm, 1949), pp. 85 - 99.

30) L. Magnusson, Ty som ingenting angelägnare är än mina bönders conservation (Uppsala, 1980), ch. 5.

manufacturers. While the general discontinuity between handicrafts and manufacturies on one hand and modern factory industry on the other is undeniable, possibilities of capital accumulation within the handicraft and manufactory sectors were far from totally lacking. This somewhat more positive view resembles Stadin's concerning the small-town burghers in the decades around 1700.

Third, regarding the Stockholm merchants, the advance of some iron exporters may have been overstressed at the expense of broader layers of merchants and dealers who often seem to have been fairly successful. Fourth, the diversity of regional patterns makes generalization to the national level a less straightforward matter than Heckscher assumed. The establishment of national trends more often than not requires large numbers of regional investigations, few of which have yet been carried out.

The results regarding female proprietors in Table 2 remain to be commented upon. A surprisingly high share of real property in 1715 (35 per cent) was held by women. This share was not more than 14 per cent in 1799 and 11 per cent in 1845. In 1715 as well as in 1799 females comprised about 20 per cent of the sample. The 1715 female proprietors thus were remarkably wealthy but not unusually numerous. Wartime male mortality alone is not a sufficient explanation. Possibly the Great Nordic War led to disproportionate rise in mortality among noblemen as many officers were killed. Anyhow this period seems to be associated with an economically strong position of propertied women.

The long-term inequality decline in Stockholm does not reinforce either of the competing hypotheses regarding Swedish rural society referred to above. Table 4 summarizes most of the available results on secular trends.

The secular decline in inequality in Stockholm does not conform to Kuznets' well-known inverted U hypothesis, according to which inequality is supposed to widen during early periods of industrialization and later to narrow. Kuznets assumed that inequality among the urban population would be far wider than for an agricultural population organized in relatively small enterprises. This would be the case particularly when the urban population was being swelled by immigrants, either from the country's agricultural areas or from abroad. Once the turbulent phases of urbanization and industrialization had passed, the relative position of lower urban strata would improve, reducing overall inequality [32].

The inverted U hypothesis in this original formulation is based on assumptions of the emergence of a dynamic growth process in which industrialization and urbanization are closely tied. This does not provide a good description of the Swedish experience in the century after 1750 where industrialization and urbanization were largely separate phenomena. Agrarian growth is likely to have sur-

31) I. Elmroth, För kung och fosterland (Lund, 1981), chs. 4, 6.

32) S. Kuznets, Economic Growth and Structure (London, 1966), pp. 273 - 5.

Table 4. Schematic presentation of results on secular inequality trends in Sweden, ca. 1720 - 1850.

Area, county	Social category	Inequality trend 1720 - 1800	1810 - 1850
By, Kopparberg	Peasants	Falling	Rising
Most of Skaraborg	Peasants	Rising	
Dala, Skaraborg	Peasants		Rising
Skåning, Skaraborg	Peasants		Rising
Julita and Österaker, Södermanland	Peasants		Rising
Fleninge, Malmöhus	All owners		Rising
Loshult, Kristianstad	All owners		Rising
Västerlövsta, Västmanland	All owners		Rising
Stockholm city	All owners	Falling	Falling

Sources: By: M. Isacson, Ekonomisk tillväxt och social differentiering 1680 - 1860 (Uppsala, 1979), Skaraborg: L. Herlitz, Jordegendom och ränta, (Gothenburg, 1974); Dala: C. Winberg, Folkökning och proletarisering (Gothenburg, 1975),. pp. 184 - 5; Skaning: S. Martinius, Peasant Destinies; the History of 552 Swedes Born 1810 - 12 (Stockholm, 1977). Julita and Österåker: A. - M. Köll, Tradition och reform i västra Södermanlands jordbruk 1810 - 1890, (Stockholm, 1983), pp. 46 - 7. Fleninge and Loshult: J. Söderberg, Agrar fattigdom i Sydsverige under 1800-talet (Stockholm, 1978), pp. 60 - 1. Västerlövsta: M. Morell, "On the Stratification of the Swedish Peasant Class", Scandinavian Economic History Review 28 (1980), p. 29.

passed urban economic growth. Under these conditions most of Sweden experienced a widening and subsequent narrowing in inequality during the 18th and 19th centuries, exhibiting an inverted U curve albeit within another growth context than that envisaged by Kuznets.

The larger framework within which Stockholm producers operated differed radically from the agrarian arena. Contrary to advancing on a widening market, as agricultural producers did, those in Stockholm were facing long-term economic stagnation and strong tendencies towards deindustrialization in the century after 1750. Trying to adapt to market contraction, Stockholm firms were often

on the Schumpeterian negative side of development. Indications of low profitability should of course not be taken to imply that no individual enterprise were gaining large profits; examples of success among manufacturers and craftsmen have already been presented. Secular economic stagnation still should have put serious barriers to capital accumulation, inhibiting a cumalative process of differentiation 33).

The Period 1850 - 1914

The second part of the 19th century will be treated briefly here. There is strong evidence to suggest that inequality was narrowing, but this rests on wages and incomes rather than wealth.

Studies of industrial towns indicate that the share of low-income earners declined while the share of high-income earners was rather stable. The middle groups were the winners. In particular, the share of skilled labourers in the middle income strata grew strongly because of substantially rising wages 34). A detailed investigation into three factories points to a leveling in industrial workers' wages during the last three decades of the 19th century. This was partly an effect of mechanization; the more handicraft labour participated in the production process, the greater were wage disparities 35).

The trade unions strived to reduce wage disparities. Homogenizing the working class was seen as a way of improving collective action prospects and raising class consciousness. However, the fairly weak unions can only marginally have affected the overall industrial pay structure at least before World War I. The main reasons for the leveling tendency of the late 19th century must be sought elsewhere. One attempt at explanation stresses that the industrial working class succeeded in reproducing itself to a substantial degree from about the turn of the century onwards. A second generation of workers emerged whose links with the agrarian environment were weak. This process combined with more widespread mechanization served to reduce gaps among manual labour 36).

33) On economic stagnation in Stockholm see most recently J. Söderberg, "Den stagnerande staden; Stockholms tillväxtproblem 1760 - 1850 i ett jämförande europeiskt perspektiv", Historisk Tidskrift 105 (1985).

34) B. Öhngren, Folk i rörelse (Uppsala, 1974), ch. 5; Öhngren, "Urbaniseringen i Sverige 1840 - 1920," in: Urbaniseringsprocessen i Norden, ed. G. Authen Blom, (Oslo, 1977), pp. 323 - 32. J. Söderberg and N. - G. Lundgren, Ekonomisk och geografisk koncentration 1850 - 1980, (Lund, 1982), pp. 22 - 3.

35) B. Berglund, Industriarbetarklassens formering (Gothenburg, 1982), ch. 4. For recent case-studies of the structure of wages see also L. Cornell, Sundsvallssdistriktets sågverksarbetare 1860 - 1890 (Gothenburg, 1982), ch. 7 (sawmills); T. Svensson, Fran ackord till manadslön (Gothenburg, 1983), ch. 3 (shipbuilding); N. - G. Lundgren, Skog för export; skogsarbete, teknik och försörjning i Lule älvdal 1870 - 1970 (Umea, 1984), ch. 7 (forestry); K. Morger, Skebo bruk; teknik och social förändring vid ett järnbruk under 1870-talet (Stockholm, 1985) (an ironworks).

However, this line of reasoning does not explain the previous leveling trend. The erosion of skill rewards seems to have begun well before the turn of the century. An economic analysis of the relative scarcity of unskilled labour, rents, profit rates, and other factor market conditions is obviously needed but still remains to be done. The Williamson hypothesis of industrialization bias, stressing that industrialization in the early phase was more capital and skill intensive than later on, is worth pursuing. In comparison with Britain, the early spread of literacy in Sweden may well have promoted a higher skilled labour supply response. At least it appears to have been so elastic as to reduce skill rewards during the last decades of the 19th century [37].

Two indications of the narrowing of pay ratios are presented in Figure 2. The first illustrates the steeper rise in female as compared to male wages between the 1880s and World War I. Female servants' wages in 1865/69 amounted to 44 per cent of the corresponding male wages: by 1910/13 this figure had risen to 63 per cent. The second aspect pertains to unskilled versus skilled male earnings. From the 1890s unskilled linemen in the state railways clearly approached the highly skilled enginemen. Leveling was strong during World War I [38].

Many other examples could be cited to the same effect. There can be little doubt that accelerating industrialization in the last decades of the 19th century was associated with a leveling in pay ratios.

Concluding Remarks

Interpreting American inequality data, Williamson and Lindert argue that long-term stability appears to be the best description regarding the 18th century. The main period of increasing inequality was between 1820 and 1860, while the latter part of the century exhibits no evidence of rising inequality [39].

36) C. Winberg, "Vem blev industriarbetare?",Fataburen 1984. Social mobility studies on the late 19th and early 20th centuries include H. Norman, Från Bergslagen till Nordamerika; studier i migrationsmönster, social rörlighet och demografisk struktur med utgångspunkt från Örebro län 1851 - 1951 (Uppsala, 1974),, ch. 6; B. Kronborg and T. Nilsson, Stadsflyttare; industrialisering , migration och social rörlighet med utgångspunkt från Halmstad 1870 - 1910 (Uppsala, 1975), ch. 7; Kronborg and Nilsson, "Social Mobility, Migration, and Family Building in Urban Environments," in: Chance and Change; Social and Economic Studies in Historical Demography in the Baltic Area, ed. S. Åkerman et al (Odense, 1978); S. Åkerman, "Swedish Migration and Social Mobility: the Tale of Three Cities." Social Science History 1 (1977); M. Rolén, Skogsbygd i omvandling (Uppsala, 1979). See also J. Söderberg, "Metoder att analysera social rörlighet," Historisk Tidskrift 98 (1978).

37) On literacy see E. Johansson, "The History of Literacy in Sweden, in Comparison with some other Countries, " in: Literacy and Social Development in the West, ed. H. J. Graff (Cambridge, 1981), pp. 151 - 83.

38) On narrowing gaps between female and male industrial wages see G. Bagge et al, Wages in Sweden 1860 - 1930 (Stockholm, 1933), I : 197, 422 - 3. In textiles, the ratio of female to male wages seems to have been more constant.

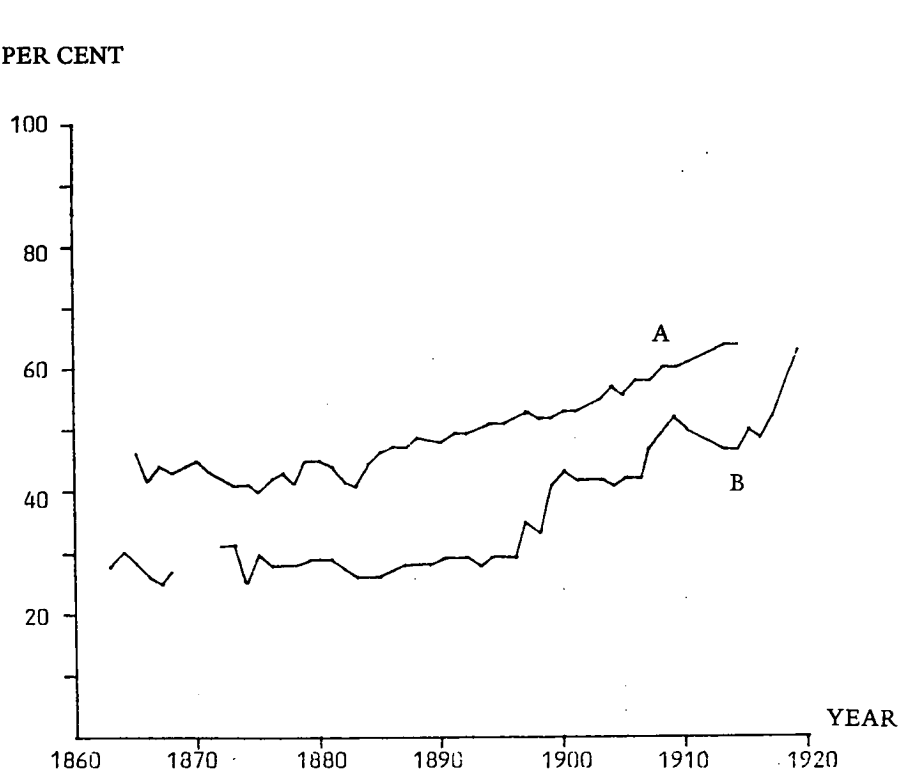


Figure 2: Aspects of the late 19th century leveling in wages.

A. Female to male pay ratios: Female farm servants wages as per cent of those of male farm servants, 1865 - 1914.

B. Unskilled to skilled pay ratios: Annual earnings of state railway linemen as per cent of those of enginemen, 1863 - 1919.

Source: G. B a g g e et al., Wages in Sweden 1860 - 1930, Stockholm, 1935, II: 79, 113 - 4.

The British pattern is somewhat different, indicating a rise in income inequality from the end of the 17th century to the mid-Victorian era. The upward surge was most pronounced from the 1820s to mid-century. After the 1860s there is a clear decline in inequality [40].

39) J. G. W i l l i a m s o n and P. H. L i n d e r t, American Inequality (New York, 1980), chs. 1 - 4. My comparison focusses on trends in rather than levels of inequality. On levels, see the comparison between Sweden, Finland and the United States in S o l t o w, The Swedish Census of Wealth at the Beginning of the 19th Century. According to his results, Swedish wealth inequality was higher than in Finland because of the stronger position of the nobility in the former country, and also higher than in the United States.

40) W i l l i a m s o n, Did British Capitalism Breed Inequality?

In the United States as well as in Britain, then, the decades preceding 1860 stand out as being marked by growing inequality. This would also seem to be the case in Sweden. During other periods, the Swedish pattern is more similar to the British than the American one. While the 18th century is characterized by widening inequality in Britain and Sweden (apart from Stockholm), no such trend is seen in America. Evidence for Britain and Sweden also are more alike insofar as the onset of a secular leveling trend is earlier than in the United States: the last decades of the 19th century are associated with declining inequality in the two former countries but not in the latter.

In the very long run from the 16th to the early 20th century there may be some Swedish evidence suggesting the existence of an inequality curve of the form of a recumbent S. Data for Luleå parish presented above pointed to a decline in inequality between the mid-sixteenth and the mid-eighteenth centuries, and Isacson's hypothesis in a broadly similar way assumes a downward trend before the beginning of modern economic growth. The upward turn during the first half of the 19th century and the subsequent downward turn during the second half would seem to complete the right-hand side of the recumbent S. This is at best a tentative hypothesis, waiting for further tests. Abundant pre-nineteenth-century sources relating to the distribution of resources in agrarian as well as urban society allow it to be checked.

The Collar Line: Clerical Workers in America at the Turn of the Century *)

Olivier Zunz

The growth of corporate capitalism and the dynamic organizational revolution that swept the American industrial belt in the few decades preceding the First World War profoundly and irreversibly altered such areas as work culture, education, family life, and consumption. Since that time, large corporations have enjoyed increasing economic, social and cultural influence, have absorbed a growing proportion of the working population, and have employed an ever larger percentage of these workers in clerical occupations. The emergence of a large, corporate white-collar work force in the period from the 1870s to the 1920s had a profound affect on class structure in America. In this paper, I will focus on an important aspect of this change, on the development of the line – real or imaginary – which separated blue-collar from white-collar workers in American society. The reader will undoubtedly notice a discrepancy between the large comparative framework that I set up and the narrow data base which I use to test some of the propositions raised. This is in part the consequence of the incompleteness of work in progress, in part of the dearth of historical literature of the subject.

Understanding the extent to which the "collar line" was a significant social and mental boundary at the time of the first great expansion of the white-collar sector will illuminate the realities of lower-middle class life as well as the rigidities of the social system. Studies of several communities at the turn of the century show that between 22 % and 43 % of the sons of blue-collar workers attained white-collar status [1]. Such studies are part of large body of scholarship on inequality and mobility which has helped us reach a balanced view of social reality, free from the oversimplifications of the rags-to-riches myth [2].

*) I wish to thank Roberta Senechal and Charles Feigenoff for their assistance in preparing this paper.

1) Stephan Thernstrom, The Other Bostonians: Poverty and Progress in the American Metropolis, 1880 - 1970 (Cambridge, Mass, 1973), 246.

2) See Jeffrey G. Williamson and Peter H. Lindert, American Inequality: A Macroeconomic History (New York; 1980), 62 - 63; Peter R. Shergold, Working-Class Life: The "American Standard" in Comparative Perspective (Pittsburgh, 1982); and for a recent debate on inequality, Robert E. Gallman, "Professor Pessen on the Egalitarian Myth," Social Science History 2 (Winter 1978): 194 - 207; Edward Pessen, "On a Recent Cliometric Attempt to Resurrect the Myth of Antebellum Egalitarianism," SSH 3 (Winter 1979): 207 - 27; Gallman, "The 'Egalitarian Myth,' Once Again," SSH 5 (Spring 1981): 223 - 34; Pessen, "The Beleaguered Myth of Antebellum Egalitarianism: Cliometrics and Surmise to the Rescue," SSH 6 (Winter 1982): 111 - 28; Stuart M. Blumin, "Age and Inequality in Antebellum America: The Case of Kingston, New

Most historians are in agreement that nineteenth-century economic, technological, and environmental change produced enough opportunities to benefit the majority of individuals. These studies, however, also point to significant inequality, a fluid social system, and an element of the arbitrary which affects the course of mobility. They give substance to those interpretations of Horatio Alger's stories which stress luck as a mode of advancement and to the depiction of downward mobility found in the novels of Theodore Dreiser and William Dean Howells. The mere fact that a significant movement into white-collar occupations existed – a movement greatly facilitated by the large number of openings in clerical occupations in the economy – does not reveal much, however, about the actual mingling between the blue-collar and white-collar environments. Were the sons entering a new world with a new set of rules and thereby breaking with their parents? Or were the two universes intimately tied by the unceasing upward and downward movement across the "collar line?" Although it would be simplistic to equate the achievement of white-collar employment with arrival in the middle class, it is reasonable to see the shift from manual to non-manual labor as an important event which should be examined to determine whether it indicates a larger change, a move away from the working class.

For the purposes of this preliminary exploration, I am knowingly leaving aside or touching briefly on an embarrassing long list of sources. Numerous pamphlets, books of etiquette, newspapers and magazines articles, books of advice, contemporary reports on education, when taken together, combine to give a rich description of the white-collar world at the turn of the century. I am currently examining this literature with some excitement but will sacrifice comprehensiveness for the time being in order to give myself the opportunity to address a more theoretical problem. Similarly, this paper knowingly leaves aside large segments of the lower middle-class such as small independent entrepreneurs, retailers, government workers, and teachers to concentrate on those clerical workers hired by large bureaucratic corporations, those organizations which were most responsible for changing the work culture. In lieu of the synthesis which I hope will be forthcoming in the not-too-distant future, I attempt here to explicate the meaning of the "collar line" only in the context of a single American experience, the growth of the American railroad industry in the late 19th century, and to set up this experience in a broader comparative perspective.

York," SSH 6 (Summer 1982): 369 - 79; G a l l m a n, "Professor Blumin on Age and Inequality: Antebellum America," SSH 6 (Summer 1982): 381 - 84.

A comparative framework: The German and British models

Early European social scientists such as Werner Sombart stressed the exceptionalism of the American pattern of inequality in comparison to his own Germany. In his classic work, *Warum gibt es in den Vereinigten Staaten keinen Sozialismus?* (1906). Sombart focused almost exclusively on what he thought were characteristics of the American worker who, as he put it, "mixes with everyone – in reality and not only in theory – as an equal" [3]. But Sombart, writing in 1906, paid little attention to the lower-middle class in his comparative thinking. A new perspective has emerged as a result of the researches of German historians into the origins of national socialism. Jürgen Kocka, in particular, finds its roots in a related series of events: the rise of big business, the subsequent creation of a large white-collar sector, and the attempt by the state to protect (through special legislation) that sector from infiltration by the labor movement [4]. In his innovative study, Kocka contrasts the situation in Germany, where the State had, in effect, artificially solidified the collar line, pitting blue-collar and white-collar workers against each other, with the fluid movement between the blue-collar and white-collar worlds which characterized American society. He argues that it is this very fluidity which distinguished the United States from Germany.

In Germany, Kocka posits, "older patterns of social perception and behavior" led the middle class to define the emerging industrial working class as "inferiors subject to discrimination and rule [5]." "The wish not to be a worker", he continues, "was a central part of many white-collar employees' self image – something they shared in spite of many differences in other respects [6]." In its anti-socialist stance, the state bureaucracy consolidated this feeling and provided a model for the growing class of white-collar workers. The process perhaps culminated in 1911 when "the Imperial government conceded white-collar demands and enacted a law giving a special social security status to non-manual employees [7]." In Germany, where the blue-collar workers voted communist or socialist, the white-collar workers reacted by joining the ranks of the NSDAP [8].

In the US, instead, the loose social structure which allowed passage from white to blue-collar work made it difficult for white-collar workers to feel

3) American edition with an introductory essay by C. T. Husbands and a foreword by Michael Harrington (White Plains, N. Y.), 110.

4) Jürgen Kocka, White-Collar Workers in America, 1890 - 1940: A Social-Political History in International Perspective (Beverly Hills, 1980).

5) Ibid., 138.

6) Ibid., 139.

7) Ibid.

8) Ibid., 30.

disadvantaged even during times of economic duress. The few studies available on Klan membership seem to confirm Kocka's point [9]. American white-collar workers played only a small role in the renaissance of the Invisible Empire in the twenties. Even though it is true the Ku Klux Klan gained some support among the lower-middle class, primarily from its independent sectors but also from white-collar employees, the lower middle class never represented more than a "substantial minority", a minority which declined rapidly as the Klan grew. The Klan of the 1920s recruited the bulk of its members mostly among status anxious blue-collar workers who found a refuge for their disappointments in one-hundred-percent Americanism.

In both the United States and Germany the national government intervened in response to tensions created by the organization of the economy by large firms. But in the United States, Kocka argues, "professionalization," especially in certain fields (engineers, managers, lawyers, and teachers) mitigated the effects of state intervention [10]. In short, in the United States, professional organizations and professionals themselves provided models for the growing army of white-collar workers, a function that in Germany fell into the hands of bureaucrats.

England offers another perspective for comparison. In England as in Germany and America, the standard of living of clerical workers varied from relative ease to near poverty. With this diversity in mind, British historians have recently tried to define the main characteristics of this heterogeneous group and in doing so have raised the issue of the collar line. Geoffrey Crossick, for example, approaches the question from the standpoint of the workers: "How does one distinguish the majority of... skilled men... who found apprenticeships for their sons in the same or some other skilled trades, from those others whose sons frequently became clerks and who saw it as a social advance? Was there something exceptional within the working class that made certain parents or children desire white-collar work [11]?" Eric Hobsbawm, in turn, argues that the emergence of a new and mainly white-collar lower middle class, "which wedged itself into the intermediate position between the old labour aristocracy and the middle classes, is one main reason for the growing incorporation of the labour aristocracy into a wider proletarian culture and movement" during the Edwardian period [12]. Hobsbawm recognizes the ambiguity of the collar line when he cites examples of

9) The best synthesis remains Kenneth T. Jackson, The Ku Klux Klan in the City, 1915 - 1930 (New York, 1967).

10) Kocka, 53.

11) Geoffrey Crossick, "The Emergence of the Lower Middle Class in Britain: A Discussion," in The Lower Middle Class in Britain ed. Geoffrey Crossick (London, 1977),37.

12) Eric Hobsbawn, Workers: Worlds of Labor (New York, 1984), 219.

tradesmen who wore stiff collars in the workshop but his main contention is that the labor aristocracy's fate was tied to the increasing proletariat, not with *embourgeoisement* as the Leninists would have it [13].

By contrast, British clerks saw themselves firmly tied to the middle class. The British clerks even shared some features with their German colleagues. They felt the same "sense of honorable status" which makes them "emphatically not working class and stridently conscious of that fact [14]." In all other respects, however, the British lower white-collar workers hardly resembled their German counterparts. Their lives were unaffected by the intrusion of a state bureaucracy, and they were not drawn by the forms of association that flourished in Germany. The British clerical worker, believing firmly in the tradition of individual mobility within a laissez faire society, did not emulate the bureaucrat as did his German counterpart but instead took the gentleman of the traditional mercantile world as his model. When George Bernard Shaw was a clerical worker in the 1870's, he refused even to contemplate joining a trade union, for joining would "have been considered a most ungentlemanly thing to do – almost as outrageous as coming to the office in corduroy trousers, with a belcher handkerchief round my neck – but snobbery apart, it would have been stupid, because I should not have intended to remain a clerk. I should have taken the employer's point of view from the first [15]."

Many British "blackcoated" workers of the late nineteenth century had very modest means of living, but they clung to an ideology of a previous era, where in the counting house, the relationship between clerk and employer was often a personal and particular one, when clerks "mixed" with the sons of gentlemen, and when they were expected to behave accordingly. As a contemporaneous account of the 1870s puts it, "Clerks are, as a rule, of decent address and gentlemanly habits, patient and long-suffering, not given to noisily 'insisting upon their rights' and are possessed of some delicacy when requesting an advance of salary [16]". Other witnesses concur: "The clerks in established and well known merchants' offices yield to no one in gentlemanly deportment, cultivated proficiency and self-respect; and in appearance there is but little difference between many of them and the employers they serve [17]." Even though such testimonies must be read with skepticism (the second one reads like puffery to me!) and a thorough assessment of the clerks' class consciousness must await a new set of

13) Ibid., 237.

14) Crossick, 13.

15) Cited in Crossick, 24.

16) Charles Edward Parsons, Clerks: Their Position and Advancement, 1876, p. 2.

17) B. G. Orchard, The Clerks of Liverpool, 1871, p. 33. This text and the previous one are cited in David Lockwood, The Blackcoated Worker: A Study in Class Consciousness (London), 1966), 29 - 30.

studies, historians have generally concluded that, politically, clerical workers drifted toward Toryism, "emphatically the party of property and stability [18]".

The American case

British and German historians have begun to document this great transformation which accompanied the rise of a white-collar work force and to assess the class position of clerical workers [19]. What do we know about the American case? At mid-century, the fortunes of clerks were still intimately tied to that of their employers. *A Practical Treatise on Business* published in Philadelphia in 1853 insists first that "the chief qualifications to be sought for in a clerk, next to ability are honesty and politeness" only to add that "serenity of temper is a virtue of which all men cannot boast – and probably without serious derogation of their character or abilities; but it is a fundamental constituent in the character of a clerk *and* (my emphasis) a business man." Clerks are further encouraged to show initiative by performing tasks "for which we receive no direct remuneration" while employers are encouraged to follow the example of a bank manager who installed a library in the bank for the use of clerks, "for their superior knowledge is always useful [20]." The American "ideal type" is also well expressed in this extract from an 1841 publication, "Familiar Scenes in the Life of a Clerk" published in *Hunt's Merchants' Magazine:* "The majority of clerks are young men who have hopes and prospects of business before them . . . A good clerk feels that he has an interest in the credit and success of his employer beyond the amount of his salary; and with the close of every successful year, he feels that he too, by his assiduity and fidelity has added something to his capital – something to his future prospects, and something to his support if overtaken with adversity; and a good merchant encourages and reciprocates all these feelings [21]."

These two texts embody some of the characteristics often invoked to contrast the American scene with that of the Continent: initiative; hope of mobility, and simultaneously recognition of a possibility of downward mobility ("if overtaken with adversity"). Nippers, a clerk in a Wall Street lawyer's office described in Hermann Melville's *Bartleby The Scrivener,* was no gentleman but frankly in the camp of the upwardly mobile. His employer complains of his "diseased ambition", which was "evinced by a certain impatience of the duties of a mere copy-

18) Crossick, 40.

19) Too little work has been done on France to attempt a synthesis here. See nonetheless the chapter by Yves Lequin in volume 4 of Histoire de la France Urbaine, ed. Maurice Agulhon (Paris, 1983).

20) Edwin T. Freedley, A Practical Treatise on Business: Or how to Get, Save, Spend, Give, Lend, and Bequeath Money with an Inquiry into the Chances of Success and Causes of Failure in Business (Philadelphia, 1853), 119 - 20.

21) This testimony is cited in Margery W. Davies, Woman's Place is at the Typewriter: Office Work and Office Workers, 1870 - 1930 (Philadelphia; 1982),21.

ist, and unwarrantable usurpation of strictly professional affairs, such as the drawing up of legal documents." He was also "considerable of a ward politican, (and) occasionally did a little business at the Justices' court [22]." Although Bartleby himself was a gentleman who ends incarcerated in the Tombs, the scrivener's message is one of independence as he relentlessly utters his motto, "I prefer not to", whether he refuses to examine his copy, perform other duties, and in the end leave the office.

In America in the middle of the 19th century, clerks were few in number and expected to become themselves businessmen. The particular situation of clerks at mid-century, close to their employers while exhibiting a significant degree of independence led Michael Katz and his collaborators to include them in the business class, not in the working class in the two-class model they presented in their *Social Organization of Early Industrial Capitalism.* As they put it, "sons of men in the business class often began their working lives in clerical occupations, and the mobility of men out of clerical work and into proprietorship was quite high. For many men clerical work was the initial phase of a career in commerce. Clerks were paid a salary, not a wage; this was a critical distinction at the time. It indicated that they could expect to work throughout an entire year and did not experience the seasonal fluctuation to which men paid daily wages were subjected [23]." Katz does qualify his classification. He is well aware that he describes the American social structure of the mid-nineteenth century at a unique and short-lived turning point, after artisans had lost their autonomy and before white-collar workers had grown in numbers. He concedes that there is difficulty "interpreting the class position of the great army of white-collar workers and salaried professionals who first appear in the late nineteenth century ... . Here, bureaucracy takes the place of the factory as the paradigmatic form of organization [24]."

With growth, American clerical workers still stood apart. Critical observers of the time were clearly conscious of the change. One wrote in the *Atlantic Monthly* in 1904 that while "for generations the small business, that is, the business house as it was before the advent of the Great Corporation and the Trust, was a school of character second in importance only to the Church", in the new world of corporations "there are thousands of all grades of capacity who now have no other feeling than that of the clerk, or the servant [25]." His prediction that "men who have grown up simply as clerks ... will become more and more men of

22) Cited in Davies, 9 - 10.

23) Michael B. Katz, Michael J. Doucet, and Mark J. Stern, The Social Organization of Early Industrial Capitalism (Cambridge, Mass., 1982), 45.

24) Katz's contribution to AHR forum on Edward Pessen's "Social Structure and Politics in American History," American Historical Review 87 (1982), 1334.

25) Henry A. Stimson, "The Small Business as a School of Manhood" Atlantic Monthly 93 (March 1904): 337 - 40.

detail" preceded by some fifty years C. Wright Mills' analysis of the white-collar man. Nonetheless in America, as in England and Germany, for the young men and women who sought to work for the large corporations, the previous era of partnership in the counting house served as a reference point. If in Germany, state intervention had prompted clerks to emulate the bureaucrat, and if in England, tradition led them to assume the manner of gentlemen, in America, late-nineteenth clerks continued to model themselves after businessmen and to adopt the criteria of a business culture.

This situation leads me to question Kocka's suggestive comparative analysis that "without a relatively united proletariat, the line of division between blue-collar worker and white-collar employee remained relatively diffuse in most areas of life" in the United States [26]. Kocka contrasted the American sales clerks' union, which "allied (itself) with organized labor and shared the fundamental positions of the labor movement", to the conservative German mercantile employee associations which were decidedly middle class [27]. He also points out that "objective criteria" in America, the low salaries and absence of social protection by corporations brought white-collar and blue-collar workers together [28]. At the same time, corporate training programs created to promote the best manual workers to supervisory positions contributed to a society in which objective criteria and mobility combined to blur the "collar line." Similar arguments have been made by American historians who have analyzed the contradiction between work rules and middle-class ideals and argued, in particular, that the position of the saleswoman hired by department stores represents "an extreme case of the dilemma of all workers under consumer capitalism–driven by the social relations of the workplace to see themselves as members of the working class, cajoled by the rewards of mass consumption to see themselves as middle-class [29]." In this instance, the reasoning of these historians is based exclusively on salesclerks – the lowliest category of Clerks – and applied to the entire white-collar work force. It is misleading, however, to consider these mostly young and single women independently of the family context in which they lived. Treating them as creations of the workplace hardly gives a realistic picture of their lives and aspirations. And it is similarly misleading to take the stance adopted by the American sales clerks' union as representative of clerical workers in general.

26) K o c k a, 139.

27) Ibid., 75.

28) Ibid., 116.

29) Susan Porter B e n s o n, "The Customers Ain't God," in Working-Class America: Essays on Labor, Community, and American Society ed. Michael H. F r i s c h and Daniel J. W a l k o w i t z (Urbana, 1983), 205.

The Office Workers of the Chicago, Burlington, and Quincy Railroad

The data base for this paper is admittedly limited to one group of clerical workers, those who applied to work for the Burlington railroad in the late 1800s and those who were actually employed in the Chicago office as of June 1880. Although this data base is limited, it is, I would argue, highly symbolic. The railroads were the first big bureaucracies in America, several decades ahead of the other sectors in instituting a new hierarchical work culture. The men who ran the CBQ, James Murray Forbes, Charles Perkins, and later James J. Hill, are among the leading figures in the history of American business. It is not their careers which are at issue here, however, but those of the hundreds of white-collar employees who worked unter the close supervision of middle-level managers. If, as Walter Licht recently demonstrated, the elite of skilled railroad workers, conductors and engineers, could not be bound by all the rules designed for them because the realities of railroading forced them to confront many unknown situations and make on-the-job decisions, clerical workers, tightly controlled by a new breed of executives (whose profile I'll draw elsewhere), had to go by the book [30].

The hundreds of letters of application sent to the CBQ office indicate little affinity with the blue-collar perspective but instead clearly express an ideal of conduct modeled after that of their prospective employers [31]. It may very well be that applicants designed their letters to appeal to their employers' prejudices, but their expression of business values is too strong and too pervasive to be dismissed. The objective socio-economic and demographic characteristics of these clerical employees combine with the form and content of these letters to reinforce our vision of a distinct, homogeneous clerical culture.

First of all, most applicants were young, native-born Americans below 25 years of age. They attended school in the 1880s and 1890s, where white-collar work was put forward as the appropriate reward of an education. Indeed promoters of vocational education during the period lodged strong protests against this trend: "Throughout the second half of the 19th century", as Joseph Kett has remarked "educators voiced abundant complaints that native American boys seemed to prefer the lowliest clerkships to honest manual labor ... These educators argued that, among other benefits, vocational education would reduce American dependence on foreign labor ... and attract native-born youth to manual labor [32]."

30) Walter Licht, Working for the Railroad: The Organization of Work in the Nineteenth Century (Princeton, 1983).

31) The archives of the CBQ are in the Newberry Library in Chicago.

32) Joseph F. Kett, "The Adolescence of Vocational Education," in Work, Youth, and Schooling: Historical Perspectives on Vocationalism in American Education ed. Harvey Kantor and David B. Tyack (Stanford, 1982), 91.

The letters these young men and women wrote (the latter making up a small although sizable fraction of applicants) emphasized common themes. They believed in their own potential for upward mobility, in the individual's quest for bettering himself, and they especially believed that joining a large business organization was an appropriate means to realize their goals. They viewed a clerkship as an occasion to perfect their skills and as a prelude to further job opportunities and promotion. Many mention that they are willing to accept a low salary to start, not only to limit the risk to the employer but also because they are confident that their talent will lead to rapid promotion.

The applicants also directly and indirectly stressed their know-how and experience. Many point to an education in a small business college. Most handwritten notes which make up about half of the letters show a fine hand, the sign of a good education, while the typewritten ones have a very professional look. All show a sense of the proper etiquette and good working knowledge of standardized formulae, a knowledge that was practiced as a form of art.

Along with proper etiquette, the applicants guarantee their good character. Lester Taylor, a former stenographic and typewriter instructor from Milwaukee, who proclaims himself a master of "phonology", who is able to "write blindfolded on Remington typewriting machine", and who had worked for Deering Harvester in Kansas, assures CBQ officials of his "character and ability." Another applicant, a young man of 19 living with his parents, points to his previous experience as book keeper and bill clerk, but also emphasizes that he does not smoke cigarettes. He gives several references for his "character, habits, and ability." Another applicant of about the same age says: "I have no bad habits such as smoking, chewing, drinking or swearing", the latter an annoying habit of telephone operators that contributed much to the early feminization of this occupation.

There are a few exceptions to the general pattern. Two formerly well-paid executives of the railroad who had fallen from their managerial positions–sobering reminders of the possibility of downward mobility–wrote to their former colleagues in the hope of obtaining low-level clerical positions for which they were clearly overqualified. There is a single instance of a veteran of the Spanish-American war among the applicants, the kind of applicant who persistently searched for jobs in the federal government but who was rare in the business world. There is only one instance of an applicant stressing family poverty. Of the handful of letters from immigrants, all were fluent in English and evinced socialization into the white-collar world. One of them reminded the railroad of the usefulness of bilingualism for writing instructions for foreign labor. And finally, there are a few rearguard applications from scriveners who complained that "typewriters" (i. e. young female typists) had displaced them from their jobs.

These letters show some traffic between firms. One applicant worked for the Chicago and Alton railroad Co. in the auditor's office when a change of ownership, leading to restructuring, forced him to look for another position. Others had positions in insurance companies, banks, or other large employers of white-collar workers when they applied. This sort of horizontal exchange characterizes an already well-established class of workers.

We can study the socio-economic characteristics of actual workers busy in the Chicago office in June, 1880 as well as their families by combining information contained in the CBQ payroll, which gives a detailed description of their positions and salaries, with that of the U.S. census taken that same month, which lists these workers and their households. These two sources enable us to understand their social status and demographic strategies within the context of the family economy. The payroll books of the CBQ line listed a total of 271 clerical workers employed in the Chicago office as of June 1880, with their positions, departments, and salaries. We were able to identify addresses from other sources for 147 CBQ workers and successfully located 117 of them in the census. To study these people in the context of their living environment – other family members, fellow boarders in boarding houses, other non kin-related members of their households – we assembled the socio-economic characteristics of 824 Chicago residents in the city or its immediate suburbs.

Male heads of households working in the Chicago office of the CBQ (a total of 38) were among the older clerks (that is, they were above 25), were generally native-born Americans (or immigrants from Great Britain), and clearly exhibited a middle-class life style. Most of these heads of households working for the railroad had been married only recently, were making $67 a month on the average, and were supporting small nuclear families. By comparison, unskilled workers in 1880 usually made less than $300 per year and few skilled workers brought home $500.

Only rarely did any of these men mingle residentially with blue-collar workers. About half of this group of clerks heads of households lived in Chicago, the other half in the newly-created suburbs. Of the suburbanites, only three lived in north side Chicago: one lived in Waukegan, off the Chicago, Milwaukee and St. Paul Railroad while two lived in Evanston. Most located their households along the CBQ line, between Chicago and Aurora, that is, toward the west, in Clyde, Riverside, Western Spring, Hinsdale, and Downers Grove. Only one of them lived in Riverside, the exclusive suburb created by Federick Law Olmsted and Calvert Vaux, whose CBQ railroad station and adjoining Water Tower are landmarks of American suburban architecture. Eight families headed by a CBQ clerical worker had located further down the line in Downers Grove, a quiet commuting suburb incorporated seven years earlier in 1873, with streets shaded by the growing maple trees the settlers had planted in hope of obtaining

a sugar supply [33]).

The better paid among them often employed servants in their homes. Thomas Jackson, for example, was a claim clerk in the general freight department. Thirty years old, he was making over $100 a month and lived in Evanston with his wife (also native born) and four children. Mrs. Jackson, who stayed home, was helped by a cook. Seven other clerks who were heads of households also employed servants. In other families, despite the relatively high salaries of these clerks, the family economy was practiced. Jacob Wilson, a passenger agent making $90 a month, lived with his wife and five children. His oldest daughter, who was 19, was employed as a school teacher, These families, however, did not practice the complex pooling of incomes from several skilled and unskilled occupations that characterized the immigrant working class family at the same period. Occupations usually pursued by other members of the household, whether family members or boarders, were clerkships (in stores, or for the board of trade), law, medicine, and teaching. Only in one case did members of a CBQ employee's household (a daughter and a boarder) practice dressmaking, a typically immigrant occupation. Not surprisingly, this lone case was found in the household of one of the few immigrants in the office.

Other clerks at CBQ had not yet established a household of their own. Twenty-six whom I could locate with certainty in the 1880 census were young men only beginning their careers and still living with their parents. Practically all these households show a distinct white-collar lifestyle. These CBQ employees were themselves the sons of clerical workers, dealers, or manufacturers. In eight instances, their families earnings were comfortable enough to allow them to employ a servant, like in the family of CBQ clerk Delbert Rodgers, the son of Theodore Rodgers, a lumber and hardware dealer who lived in Downers Grove. In four families, one or two sons working for the CBQ supported a widowed mother; in a few instances, both fathers and sons were clerking in the same office. Of these clerks, only two had working sisters. In one household where the two brothers worked for the CBQ and supported their mothers as well as several younger brothers and sisters, one of the sisters also worked as a railroad clerk (although not a CBQ). In one other household the father was also a CBQ clerical worker, one sister a school teacher and the other employed in a book bindery. Altogether only six of the twenty-six sons clerking at CBQ came from blue-collar families, where the father was a carpenter, or a piano tuner, and in a unique case of intra-railroad/intra-familial crossing of the collar line, a railroad fireman.

Unfortunately, we have been able to locate very few daughters in the Census among CBQ workers. Of the initial sixteen women listed in the payroll, in 1880,

33) The WPA Guide to Illinois, 1939 (New edition with an introduction by Neil Harris and Michael Conzen (New York, 1983), 543.

a time when a clerical job was still a man's purview, and the base company payroll providing no residential clue, we were able to find only two young women who, we can say with certainty, worked for the CBQ in the 1880 census. In both cases, these two native-born women lived with their Irish parents, and their family combined blue- and white-collar workers. It is, however, impossible to generalize on the basis of such small numbers.

Except for a few odd cases (sons-in-law, grandsons, etc.), the remaining clerical workers were all boarders. They were a part of the large urban population that had left their families, but had not yet established their own. We traced forty-one boarders and lodgers altogether, roughly divided into two groups, either boarding in families or in boarding houses. Boarders sharing space with a family usually chose to live with other white-collar workers and members of the middle class. As we know, it was quite common for American middle-class families to rent rooms to young men. In one case, a Riverside doctor housed a CBQ worker; in another case, also in Riverside, the only head household/CBQ clerk living there rented a room to a fellow office worker. A similar arrangement in Chicago proper comprised three CBQ clerks. Sometimes a widow rented rooms to her son's CBQ colleagues. In yet another instance of four housemates, one was an executive of the CBQ and his brother a clerk in the same department while the other two were respectively a merchant and an architect. Boarders usually lived in families headed by someone of the same or of a superior occupational status. Out of fifteen "familial" arrangements, only in three instances do we find a clerical employee boarding in the home of a blue-collar worker.

As for the slightly smaller half (13 cases) in the boarding houses near their offices in the city center, the situation is somewhat more complex. Only among the residents of boarding houses do we find more prominent examples of residential mixtures of blue- and white-collar workers. In one instance of a large boarding house with twenty-six residents, railroad brakemen, railroad machinists, telegraph operators, engineers, conductors, and CBQ clerks all lived together. This association by industry reflects the specialization so well described for an earlier era by Thomas Butler Gunn in his *Physiology of New York Boarding Houses*[34]). Yet other boarding houses in the city were occupied by people of the same occupation – namely clerks in a variety of industries and commercial ventures as well as members of the teaching profession, a new ordering reflecting the changing times.

On the basis of this evidence and on work in progress on their neighborhoods and family life, I would conclude that CBQ clerical workers were part of a white-collar world. They lived in daily contact with middle-level executives, businessmen, and professionals and were well separated from the working class. It is hard to imagine a better drawn "collar-line" than at CBQ. Even though the

34) Thomas Butler G u n n, The Physiology of New York Boarding Houses (New York, 1875).

railroad had been in operation long enough for the offsprings of their blue-collar workers to have reached working age, none of the clerical employees were sons or daughters of that elite blue-collar group – the engineers – and only one was the son of a railroad fireman.

Work in progress on Ford Motor company will provide a second case study 30 to 40 years later (between 1908 and 1920), a case study that will have the advantage of including many more young women and be centered on an essentially blue-collar city. Whereas the railroad represents a prototypical bureaucracy, the quixotic Henry Ford was legendary for cursing bureaucratic complications.

Georgia E. Boyer, one of the first women clerks recalls a day at the Piquette plant when "during lunch hour, Mr. Ford went into the Accounting Department and picking up all the ledgers and other books pertaining to bookkeeping, he threw them out of the window onto the street. When the accountants returned from lunch they were amazed to find their books gone. Mr. Ford told them that he saw no reason for keeping a set of books. He said, 'Put all the money we take in in a big barrel, and when a shipment of material comes in, reach into the barrel and take out enough money to pay for it [35]'." But for all the legendary stories about his antipathy to bureaucracy, Ford and James Couzens actively created a large pool of clerical employees subdivided into a variety of departments to process the ever increasing paperwork the booming automobile industry generated. According to my preliminary count, they hired over 1200 clerical workers between 1908 and 1912 in their efforts to maintain a constant pool of about 500 workers. In 1910, 446 white-collar employees were on Ford's payroll. We were able to trace over half of them (250) in the 1910 census, 180 men and 70 women; 82 heads of households, 57 sons, 46 daughters, 43 boarders. What was their class position in the blue-collar city of the automobile industry? The Detroit-Dearborn complex will be a critical test case of the thesis that I advance.

In the meantime, I must conclude (provisionally) that the absence of an institutional separation between blue- and white-collar workers, a separation reinforced in Germany by the State, and the absence of the British gentlemanly tradition did not mean that blue and white-collar workers mingled easily in America. There is some evidence of fluidity, but overwhelmingly the white-collar world seemed well separated, whether one looks at the organization of neighborhoods, family organization, intergenerational career patterns, schooling, moral codes, and technical culture. Fluidity was indeed an important part of American society but its effects were largely mitigated by well engrained socio-cul-

35) "The Reminiscences of Miss Georgia E. Boyer," Ford Motor Company Archives, Oral History Section, January 1954, 9.

tural divisions that maintained rigid hierarchies in the evolving social structure 36).

36) Two years have passed since the 1985 Stuttgart conference where I read this paper. I have now completed my study of several other large corporate offices in the 1910s – not only the Ford headquarters in Detroit but also Dupont in Wilmington and Metropolitan Life Insurance Co. in New York. These clerical workers' collective biography confirms the existence of a distinct collar line albeit with significant shifts in the clerks' socio-economic characteristics. The results will be reported in my forthcoming book, "The Social Contours of Corporate America".

Social Inequalities in 20th Century Poland *)

Janusz Żarnowski

Scholars conducting research into social inequality encounter serious theoretical and practical difficulties which are frequently as great for historians as for sociologists. To what extent do inequalities correspond to the functional structure of society and which differences can be called inequalities? Do inequalities lie on one plane or can they be reduced to a single hierarchy? Can social inequalities be examined solely on the basis of quantitative indices, which usually refer to occupation and education, or should one also use factors which cannot be presented in figures [1]? These are but a few of the problems encountered in research on this topic.

In spite of such obstacles the quantitative approach to the history of social inequalities seems to be absolutely essential. It is beyond any doubt that this aspect of historical development contains at least some measurable elements. This is the reason for debating the history of social inequality at the meeting of the International Commission for the Application of Quantitative Methods in History. The Polish case can be instructive, although it introduces some complications to the scheme of evolution of inequality proposed in other papers presented at this session. Its development cannot follow the same sequence in an early industrialized country and in an only partly industrialized one. Since Polish society belonged to the latter category, all comparisons pertain only to the groups living in centers and areas covered by industrial civilization. The coexistence of two different social and economic structures within Polish society modified to some extent the process of industrialization in Poland. Nevertheless, this transformation as well as that of social inequality bears some resemblance to the development of Western European societies in the late XIXth century and in the XXth century.

Research into social inequalities can be conducted with reference to practically the entire history of Poland. I will deal here only with the 20th century. However, even if we confine our research to such a historically short period, we

*) I am going to deal with questions which have been for some time the subject of intensive sociological studies in contemporary Poland but which have not been examined from the historical point of view. This will therefore be a provisional, preliminary study.

1) In his book "Industrialisierung und soziale Ungleichheit. Europa im 19. Jahrhundert. Eine Bilanz" (Göttingen, 1983), Hartmut K a e l b l e enumerates some factors of social inequality: "die Verteilung etwa von Vermögen, von Einkommen, von Qualität der Arbeitsbedingungen, von Bildung, von Wohnungsqualität, von Gesundheitschancen und medizinischer Versorgung, von Erholungsmöglichkeiten und Freizeit, von Rechtssicherheit, von Chancen autonomer Gestaltung der eigenen Lebenssituation und Bewältigung kritischer Lebenssituation, von Ansehen und sozialen Kontaktmöglichkeiten, von Mobilitätschancen" (pp. 13 - 14).

shall come across difficulties which are specific to Poland, the most banal being the lack of detailed information, especially of exact figures. An even more difficult problem is the question: Is it possible to compare social inequalities under different socio-economic and political systems [2]? It would be wrong to give up comparisons, for even an incomplete study can be of great scientific and practical importance. It is worth pointing out in this connection that comparisons of societies living under different social systems have already been made by sociologists [3].

Before the problem of inequalities is examined by quantitative methods it must first be considered from the subjective point of view. Systems of values lie at the root of every socio-occupational hierarchy. In the case of Polish society, we come across the interaction of social hierarchies based on different systems of values. Up to 1939 (or 1944), in addition to the industrial structure, there existed in Poland a pre-capitalist social structure characterized by a comparatively primitive agriculture with many remains of natural economy and relics of traditional peasant culture. At the other end of the scale were large landed estates which were organized mostly according to pre-capitalist principles. The peasants and the semifeudal landowners formed a specific social hierarchy. To this can be added the majority of the petty bourgeoisie, whose commerce and production were largely pre-capitalist in character. In view of the fact that the petty bourgeoisie consisted mainly of Jews, structural inequalities were compounded by cultural and ethnic differences. People under the influence of urban-industrial civilization formed another structure. According to my estimates, modern economy and civilization embraced a minority of the population of the pre-war Polish state (which at that time had large territories in the east inhabited mostly by a non-Polish population) [4].

A practical result of this interaction was, for instance, the high rank assigned in social hierarchy to owners of large landed estates, a rank which frequently was not justified by income (the situation of big landowners was very difficult during a considerable part of the inter-war period). Another result was the dichotomous concept of social hierarchy in traditional peasant culture (the peasants and the "lords" being its main components). What was specifically Polish was the position of the intelligentsia, which in the 19th century was defined in very broad terms. In this group the discrepancy between individual status factors was probably the greatest (especially between education and position in society

2) To be more exact, they have discussed questions of social mobility, closely connected with the problem of inequality: Max Haller and Bogdan W. Mach, Structural Changes and Mobility in Capitalist and Socialist Society. A Comparison of Men in Austria and Poland (VASMA Projekt, November 1981); E. Allart and W. Wesolowski, Social Structure and Change, Finland-Poland, Comparative Perspective, (Warszawa, 1978).

3) It amounted to about 10 million, out of a total population of 32 million in 1931.

4) Kaelble, Industrialisierung, alone N. 1.

on the one hand and income on the other). The post World War I period has witnessed a process of far-reaching social integration, as a result of which the different and divergent social hierarchies have been largely merged.

Social Inequalities before World War I

We know much about the general aspect of inequalities before the First World War, and there are many narrative sources dealing with this subject. The situation is worse in regard to detailed, especially statistical, data, but not all research possibilities have yet been exhausted. To keep our reflections in order let use the scheme applied by Kaelble in one of his books [5]. He examines social inequalites in regard to income, position in the work place, education, housing, illness and death, and considers the same questions from the point of view of class division. Not all these aspects are known to us.

The process of industrialization brought enormous changes in income and prosperity to Poland. It was in the 19th century that large bourgeois fortunes were created in this country. In Poland this was the only period of boom for a sizeable group of millionaires - like the famous Kronenbergs and Blochs - who were mostly of Jewish or German origin; this was an additional obstacle to the consolidation of the bourgeoisie and the rallying of the enlightened classes behind it. The bourgeoisie emerged mainly in the Congress Kingdom, which was under Russian rule. There was practically no big Polish bourgeoisie in the Austrian and Prussian parts of Poland. In the early years of the 20th century individualistic capitalism declined, and Poland saw the appearance of anonymous joint-stock companies and foreign capital in a new role (with directing centres abroad). The concentration of wealth and income increased in the first 15 years of the 20th century, and turnover and capital became increasingly large. The bourgeoisie's share of social income and assets must have also risen, but the bourgeois class lost its individualistic character. Its lower ranks, that is the middle bourgeoisie, just managed to keep its head above water, while the petty bourgeoisie was slowly entering a period of crisis, which strongly affected this social group in Poland in later years. This is, however, only a hypothetical sketch of the situation.

At the other end of the scale was the working class, whose standard of living was, on the whole, extremely low [6], but whose situation gradually improved.

5) Average yearly wages of textile workers in 1894 in roubles: USA 1300, Great Britain 936, Germany 707, Congress Kingdom 427, Russia 350. For more details see: E. Kaczyńska, in: Polska klasa robotnicza, Zarys dziejów (The Polish Working Class, An Outline of Its History), vol. I, part 2, (Warszawa, 1978), pp. 274 - 308.

6) I have presented a preliminary analysis of the social hierarchy and inequalities in interwar Poland in my book Społeczeństwo Drugiej Rzeczypospolitej 1918 - 1939 (Polish Society 1918 - 1939), (Warszawa, 1973), Chapter X. Most of the dara referring to the years 1918 - 1939 comes from this book.

We do not know to what extent this improvement was due to general economic development - this must have been the most important factor - and to what extent it resulted from a change in the distribution of national income in favour of the working class. We know more about the evolution of income within this class. The initial gap between skilled factory "artisans" and the badly paid unskilled workers was bridged by many intermediate rungs which finally produced a continuum. However, the difference between the top and the bottom of this ladder, far from decreasing, was becoming ever greater; the highest wages, which were at first 2-4 times as high as the lowest, were often 7-10 times higher than the lowest wages on the eve of World War I. The top limit of the highest wages was raised, but the bottom limit rose much more slowly. On the whole, the situation in the Congress Kingdom did not differ much from that in the Polish territories under Prussia (Upper Silesia, Poznan region, Pomerania), where the rise in wages was quite considerable, especially in the case of skilled workers, or from the situation in Teschen Silesia (Austria).

We know less about handicrafts and small-scale industry. In these occupations the differences in wages were not so great and were mostly connected with traditional occupational categories (journeyman - apprentice). In any case, the wages of workers employed in large factories were higher than the pay of those working in small establishments.

We do not have enough data to present a synthesis of the inequalities in income within the group of non-manual workers (called brain workers in Poland) or the difference between the pay of manual and non-manual workers. In Poland the term "non-manual worker" referred to a social group, the intelligentsia, which enjoyed great social prestige. This fact might have had an influence on the evaluation of work and even on the salaries of this category of people. In any case, there were sharp differences in factories between the wages of workers and the pay of salaried personnel and technical supervisory staffs. Within the group of non-manual workers the differences in income were extremely great. Professional people or factory directors enjoyed much greater prosperity and a higher social status than civil servants of lower ranks, post-office clerks and clerical workers. The differences within this group were much greater than between workers. The salaries of at least a half of the non-manual workers were not higher than a worker's wage.

In towns and the industrial sector, there is no doubt that although the type of production remained capitalist, the former gross and brutal inequalities within the workplace diminished at the beginning of the 20th century. This applies, among other things, to relations between owners, managers and supervisory staffs on the one hand, and workers on the other. These changes were linked to the growth of democratic customs resulting from the weakening of sharp archaic divisions between the individual estates, as well as to the influence of the 1905 revolution, which raised the prestige of the working class.

Another question is inequality in access to education. The majority of industrial workers in the Congress Kingdom were illiterate. Although illiteracy was decreasing and on the eve of World War I more than a half of all workers (not only in industry) could read and write (Polish education existed only in the Austrian part of Poland; in the rest of the country instruction was given in Russian or in German), worker's access to education was still restricted. In this respect the disproportions increased. The level of general and vocational education of skilled workers was rising, while the masses of unskilled workers remained illiterate. Illiteracy was rare in the Polish territories under Prussia; the situation was worse in Galicia and the worst in the Russian-ruled Congress Kingdom. In view of the denationalization policy conducted by Prussia and Russia, even the enlightened classes of Polish society had difficulties in gaining access to secondary schools and, especially, universities, but this did not apply to Galicia. In sum, the inequalities in access to education slightly diminished before 1914.

There were gross inequalities in housing. In industrial centers the overcrowding in workers' flats was simply unbelievable (3-4 persons, sometimes even more than 10, per room); a large number of workers lived in uninhabitable quarters, some in peasant-type cottages. In contrast, the bourgeoisie usually had large flats, though many of them were old fashioned and lacked modern conveniences. At the end of the 19th century and the beginning of the 20th, the situation of factory workers improved a little owing to the growth of housebuilding and the construction of workers' flats by many factories. However, since the technical standards of apartments for the prosperous classes rose steadily, inequality in this respect probably did not lessen.

There were also great inequalities in health care. For lack of space I cannot present them in detail, but the general picture was similar to the housing situation: inequalities in health care rose to a new level, so to speak, in view of a certain improvement in the situation of the lower social strata (among other things, thanks to medical care in factories) and a simultaneous improvement in the standards of medical care for the prosperous classes.

In the countryside, especially in the territories under Russia and Austria, an archaic socio-economic structure predominated. The inequalities were institutionalized, their antagonistic embodiments being the big landowner and the peasant. Although there were great differences in the income of peasants, the main inequality was between the manor house and the peasant cottage. It concerned land ownership (a large landed estate was several score or several hundred times as big as a peasant holding) and of course also income. The housing conditions of the two groups could not even be compared and are best reflected in the words "manor house" and "cottage". The situation was similar in regard to educational chances. Illiteracy prevailed in the villages of the Congress Kingdom, was quite large in Galicia, and small in the Prussian part of Poland. There were also glaring inequalities in health care. The rural semi-proletariat and prole-

tariat lived on an even lower level than the peasants. Other inequalities and a different hierarchy existed on manorial farms employing agricultural laborers. With the passage of time, however, the economic and cultural level of a considerable part of peasant stratum improved and thus the inequality in the countryside possibly decreased somewhat.

Social inequalities corresponded to class divisions; at one end of the scale were capitalists and land-owners, at the opposite end, workers and peasants. The middle rungs of the social ladder presented a more complex picture, since the most characteristic part of non-manual workers, namely the intelligentsia, occupied a high rung as far as prestige and education were concerned, but held varied positions in regard to income and living standards; the lower ranks of this group did not differ much from the lower social strata while its highest ranks enjoyed a position similar to that of the privileged classes. The position of the petty bourgeoisie was also ambiguous; a part of this group did not differ from the proletariat; the rest (with the exception of the Poznan region) did not enjoy respect, and had a modest standard of living.

Generally speaking, the inequality curve within the part of Polish society living in industrialized areas followed an incomplete inverted U pattern. Since the process of industrialization began in Poland in 1860 (earlier in Silesia), this concerns only the second half of the 19th century and the beginning of the 20th century. By an incomplete inverted U I mean the fact that the rise of inequality at the beginning of the process was far more rapid and pronounced than the decrease at its end.

The inter-war period

Let me state at the beginning that the First World War disordered or even abolished many of the old hierarchies and inequalities. Its natural result was a change in mutual relations and in the evaluation of manual and non-manual work. War-time conditions favoured the owners of goods. From the material point of view the hardest blow was dealt to the intelligentsia and non-manual workers and also to workers in large industrial centers. At the end of the war and after its conclusion the difference between the pay of manual and non-manual workers was much smaller than before, and so were the differences between the wages of various groups of manual workers. It seems that the reduction of the gap between the wages of manual and non-manual workers has become a permanent feature.

Inter-war Poland experienced a relatively rapid integration of society and a reduction of differences between the systems of social distances which had existed in the three parts of the partitioned country. However, as late as 1939, the differences between the territories which had been under Prussia and those under Russia and Austria were still considerable. Another feature of Polish inter-war society was the continued existence of pre-capitalist structures along-

side a modern industrial sector, although this dichotomy was somewhat lessened. An acute economic crisis affected the developments of Polish society, and many of the features characteristic of the pre-war period were still apparent in the years 1918 - 1939. I shall deal here only with the changes which took place in the new period [7].

Regarding living standards and incomes in 1918 - 1939, as well as many other questions, the sources at our disposal are more abundant than for earlier panels, but are, unfortunately, only fragmentary. Attempts were made during those years to present a general picture of social inequalities in Poland, and I shall make use of these data here. On the basis of estimates of national income and its distribution, Michał Kalecki and Ludwik Landau, two distinguished economists, calculated the monthly expenditure of four-person families of various socio-occupational groups in 1929 and 1933 [8] (the exchange rate of the dollar was 8,90 zlotys in 1929, 7,20 in 1933 before its devaluation, and 5,30 in 1935).

Table 1

Classes and strata	Expenditure in zlotys	
	1929	1933 a)
Persons living on profit and professional people	1,300	800
Non-manual workers	640	445
Petty bourgeoisie	345	185
Manual workers	265	135
Peasants	175	73 - 151 b)

a) wages and prices dropped in the years 1929 - 1933

b) my own estimates. Kalecki and Landau have not given figures for peasants in 1933.

Expenditures do not, of course, reflect the structure of incomes, which differed much more. I have distinguished the following levels of income and consumption in the years 1918 - 1939 in my book: 1) the financial elite, aristocracy, big bourgeoisie (several thousand families), 2) the prosperous bourgeoisie, landowners, senior civil servants (several hundred thousand persons), 3) the typical level ot the intelligentsia: clerical workers, less prosperous representatives of the professions, secondary school teachers, prosperous petty bourge-

7) Cf. footnote 6.

8) Michał K a l e c k i and Ludwik L a n d a u, Szacunek dochodu społecznego w 1929 r. (An Estimate of the Social Income in 1929) (Warszawa, 1934); by the same authors: Dochód społeczny w 1933 i podstawy badań periodycznych nad zmianami dochodu (The Social Income in 1933 and Foundations of Periodic Research into Changes in Income), (Warszawa, 1935).

oisie (over a million people), 4) clerical workers of lower ranks, the working class elite, petty bourgeoisie (3,5 million), 5) unskilled workers, proletarian artisans (5 - 6 million), 6) peasants (a variegated group of 15 million), 7) rural semi-proletariat, the poorest urban strata, persons permanently unemployed during the crisis (4 million).

Kalecki and Landau also estimated the distribution of Poland's national income. They put the national income in 1929 at 26.000 million zlotys and the income of hired labour at about 8.000 million (of which non-manual workers earned 2.500 million, manual workers 4.300 million, and agricultural labourers 1.600 million zlotys). The petty bourgeoisie obtained 3.500 million, small holders 8.700 million, the propertied classes and professional people 2.200 million. These figures give some idea of the proportions in the distribution of the national income. The estimates for 1933 reflect changes brought by the crisis, which was the most important event in this respect in the years 1918 - 1939. According to the authors' estimates, the real income of non-manual workers rose as a result of the Depression (it reached an index of 104) while the income of manual workers dropped (78); the incomes of the petty bourgeoisie also dropped (81), and there was a slight decrease in the income of the bourgeoisie and professional people (95). The industrial goods consumption index was 47 (!) for peasants and agricultural labourers, and 85 for big landowners. Generally speaking, the changes indicated by these figures meant a growth of social inequalities at the end of the 1920s and the beginning of the 1930s. Unfortunately there are no estimates for other years. In the last few years before the war, the working class might have slightly increased its share of the national income, but this is only a hypothesis.

Hanna Jędruszczak analyses in detail the share and differentiations of workers' wages in the years 1924 - 1939 [9]. She estimates that in 1937 the share of wages (of manual and non-manual workers) in the national income was about 20 per cent higher than in 1928, and 50 per cent higher than in 1933, which was the worst year. I will not deal here with the large fluctuations in relative wages in the years 1918 - 1928, since this is of little importance for our question. A number of studies published before and after World War II give quite an exact picture of the situation. There is also a large amount of information on differences in workers' wages. There is no point in discussing this data in detail, since no comparisons can be made, in view of the lack of information on the period preceding World War I. However, it is worth pointing out that the differences dependent on region, branch of industry and the size of work places were no smaller than the differences between the wages of skilled and unskilled workers. According to Landau, in 1929 the average monthly wage of workers

9) Hanna Jędruszczak, Płace robotników w Polsce 1924 - 1939 (Workers' Wages in Poland 1924 - 1929) (Warszawa, 1963), p. 300.

employed in sawmills was two-and-a-half times lower than in fertilizer factories. In the same year industrial workers in the lowest wage bracket (6 per cent of the total) earned 8 - 10 times less than workers belonging to the best paid group (12 per cent). Wages in small factories were frequently no more than a half of what was paid for similar jobs in large factories. It is quite difficult to ascertain wage differences resulting from qualifications, there being no uniform criteria of skilled, semi-skilled and unskilled work. According to comparative studies these differences are said to have been relatively large in Poland, but factors other than qualifications frequently led to even greater differences in wages.

Other studies have shown that the differences between the incomes of manual and non-manual workers were not very great. Table 1 gives some idea of the differences in wages and expenditures between manual and non-manual workers. In 1929 the situation was as follows:

Table 2

Monthly wage	Percentage of manual workers	Percentage of non-manual workers
up to 150 zlotys	49	17
150 - 300 zlotys	39	39
over 300 zlotys	12	44
Total	100	100

Source: L. Landau, see fn. 10, pp. 245 - 246.

It seems that the difference in the income of manual and non-manual workers, after being reduced during World War I, began to increase again during the economic crisis. This was probably due to the fact that a large proportion of non-manual workers were civil servants. As is known, their salaries and employment tend to be stable.

The inter-war period did not bring major changes in the position of the different categories of people in the work place, but the status of the working class as a whole rose as a result of the democratization of customs and the activity of the working class and trade union movements. This had an impact on relations in work places. Moreover, there appeared a category of manual workers employed in state institutions - state monopolies, railways, post-office - who earned well, enjoyed prestige and could expect social promotion, at least for their children. During the crisis which affected Poland at the end of the 1920s

10) The data come from the study: Ludwik L a n d a u, Płace w Polsce w związku z rozwojem gospodarczym (The Connection between Wages and Economic Development in Poland)(Warszawa, 1935), repr.:L. L a n d a u, Wybor pism (Selected Works) (Warszawa,1957).

and the beginning of the 1930s, a sharp dividing line began to separate workers with guaranteed employment from a new group of those permanently unemployed.

Let us now examine the educational chances of various social groups. In 1937, Marian Falski published an interesting and well documented book concerning the social background of school pupils and students.

Table 3

Number of children reaching the last grade of secondary school and the first year of university study out of 100 children of a given group who attended the first grade of a primary school. The data refer to 1935/1936.

Occupational groups	Last grade of secondary school (12th year of schooling)	First year of university study.
Big businessmen	40.6	29.1
Big landowners	39.5	26.4
Professional people	74.1	53.6
Civil servants	33.9	23.6
Small businessmen	4.8	1.8
Small holders	1.0	0.4
Rural semi-proletariat	0.5	0.2
State officials of lower ranks	6.0	1.7
Domestic servants	1.7	0.7
Workers employed in commerce and industry	1.3	0.4
Agricultural labourers	0.2	0.1
Rentiers	48.5	24.0

Source: M. Falski, *Środowisko społeczne młodzieży a jej wykształcenie* (The Social Differentiation of Youth and its Education) (Warszawa, 1937), p. 62.

We know that the opportunities of peasant children decreased during the interwar period because of a permanent agrarian crisis. According to Stanisław Rychliński, an eminent social researcher, the stagnation of the economy halted upward social mobility, and this in turn hampered the democratization of culture in Poland.

We also have information on inequalities in housing. I shall confine myself to the percentage of persons of each social group who lived in dwellings with a lower density of occupation than two persons per room, which was then regarded as the tolerable minimum condition. This density was enjoyed by 77 per cent of the members of the propertied classes and professional people, 78 per cent of non-manual workers, 44 per cent of small-scale producers and shopkeepers, 29 per cent of manual workers and labourers, and 19 per cent of peasants. Once again the inequalities in housing, as in other fields, were on the whole linked to class divisions.

For lack of space I cannot present a detailed picture of inequalities in the field of medical care, but it seems that on the whole they did not change much compared with the period preceding World War I. The health service for hired labor covered about one-sixth of Polish society (not all manual workers had the right to social insurance), but financial difficulties (the crisis) put medical care out of the reach of a large part of the peasantry. A considerable part of the intelligentsia benefited from progress in medicine, and this had a positive effect on the health of the younger generation, but it also increased inequality in this respect. These are however only hypotheses.

This short survey shows that compared with pre-war times,social inequalities did not undergo any radical change during the inter-war period; what changed was their distribution, e. g. non-manual workers employed in state institutions improved their position, and a change could be noticed in access to education (elementary schooling embraced practically the entire younger generation as a result of which illiteracy decreased).

Social changes resulting from the war and the revolution

The war was not only a cataclysm and a break in the normal development of Polish society, but also a factor leading to major changes in social structure. These transformations have been discussed by Wacław Długoborski [11]. For lack of space I cannot repeat his conclusions. Let me only point out that the extermination of Jews meant the liquidation of the majority of the petty bourgeoisie and of a half of the bourgeoisie. On the whole, the partial destruction of the old social structures (especially in the territories incorporated into the Reich) facilitated the introduction of social reforms after 1944. The occupation of the country led to the extermination of a part of the propertied classes and of the intelligentsia, and to the degradation of a part of the working class (forced labour) and of the peasantry (mass evictions). This policy of extermination and persecution blurred social inequalities among a large part of Polish society. The mass deportations of Poles from the eastern territories in the years 1939 - 1941

11) Wacław Długoborski, "Die deutsche Besatzungspolitik und die Veränderungen der sozialen Struktur Polens 1939 - 1945" in: W. Długoborski, ed., Zweiter Weltkrieg und sozialer Wandel (Göttingen, 1981).

also levelled social differences. However, some of these changes were transitory, and many people regained their previous social status after the war. The Nazi socio-national hierarchy, composed of all the ranks from *Reichsbürger* down to the inmates of ghettos and concentration camps, was of course only temporary.

The changes made in the years 1945 - 1985 have led to the liquidation of the uppermost rung of the old socio-occupational hierarchy. In practice, however, the majority of the propertied classes and of the petty bourgeoisie was either physically or economically destroyed during the war. The remaining components of the social structure are: workers, peasants - farmers (the short period of forcible collectivisation in the years 1950 - 1955 failed to eliminate this group), the intelligentsia (a group which according to a new definition now comprises only people with a university education), clerical workers, and owners of commercial and industrial establishments (the so-called private sector, mostly small-scale producers and shopkeepers). The large-scale industrialization launched in the late 1940s has resulted in great structural mobility. Millions of peasants have come to towns and found employment in industry, hundreds of thousands, if not millions, of people from working class and peasant families have taken up non-manual jobs or joined the group of the intelligentsia, and the country has undergone a process of intensive urbanization. Between 1938 and 1983 the social structure changed as follows:

Table 4

Year	Workers and other manual employees	Farmers	Non-manual workers	Others	Total	Town	Country	Total
1938	30	50	6	14	100	30	70	100
1983	44	27	23	6	100	60	40	100

Efforts have been made to give people of working class and peasant origin greater access to posts of authority, to the intelligentsia, to secondary and university schools. Changes in the social structure were the quickest in the 1950s; later on they lost momentum, and in the 1970s some symptoms of ossification could be noticed [12]. The introduction of the new political and economic system has created structures providing ground for privileges and preferences which

12) Melanie T a t u r, Arbeitssituation und Arbeiterschaft in Polen 1970 - 1980 (Frankfurt, 1983), pp. 32, 83, 93; Maria J a r o s z, Nierówności społeczne (Social Inequalities) (Warszawa, 1984).

are an important element of inequality, although they can hardly be put in figures.

In analysing the hierarchy of social inequalities we cannot disregard its ideological background in a socialist state. The ideological principles envisage equality of chances and assign the main and decisive social and political role to the working class. Inequality is to be abolished at a higher stage of development while at present there may be inequality resulting from differences in the input of work. These official principles do not differ much from the views expressed in various opinion polls. Egalitarianism is the dominant ideology of Polish society, which theoretically recognizes the right to a better remuneration for better work. This is the ideological background, so to speak, of present-day inequalities.

Major changes have taken place in the structure of income in post-war Poland. The distance between manual and non-manual work has in practice been eliminated. Some kinds of non-manual work have been degraded to a level below certain manual jobs. In public opinion, as well as in sociological and statistical studies, clerical workers are a separate group whose incomes are lower than those of skilled workers. In this respect the situation in Poland does not differ from that in other countries. Before the war the ratio of white-collar to blue-collar workers was 1:5; it is now 1:2. However, even some categories of professional people and university men receive lower salaries than skilled and even semi-skilled workers. At the top of the social ladder are representatives of the private sector (private commerce, industry and gardening) and the most prosperous peasants. Opinions differ about the ratio between the incomes of farmers and the incomes of persons employed in non-agricultural branches of the economy, but it is certain that farmers occupy a relatively high position in the hierarchy, much higher than before. Certain groups of workers whose work is now the main prop of the economy (coal miners) also belong to the elite as far as incomes are concerned.

These remarks seem to indicate that class division is no longer the main cause of social inequality, at least in regard to income. Some corrections must however be made in this general picture in view of the high income of a part of the private sector and the privileges enjoyed by the political-administrative elite (opportunities of buying goods at reduced prices and purchasing unobtainable commodities, access to services in short supply, etc.). This is naturally not reflected in statistics.

The distribution of the national income was as follows in 1983 (in thousand million zlotys):

Table 5

Wages and salaries	1.730,8	29,2
Other incomes	92,8	1,6
Net income of farmers	709,8	11,9
Net income of owners of non-agricultural business	154,9	2,6
Social insurance contributions and other payments	1.527,1	25,8
Taxes	400,0	6,8
Profits and losses (balances)	+ 1.308,6	22,1
Total	5.924,0	100,0

Source: *Rocznik Statystyczny 1984* (Statistical Yearbook, 1984) Central Statistical Office.

Note: Depreciation has been deducted from the national income.

These figures cannot be compared with the pre-war estimates made by Kalecki and Landau in view of differences in the meaning of the term "national income" and in the methods used in calculations. It seems that the share of wages is similar, but there has been a drop in the share of businessmen (but their number has decreased too).

Table 6

Groups of population	Ratio of incomes		
Years	1975	1980	1981
Hired labour	1.18	1.09	1.03
of which			
senior officials of economic administration social and political organizations, other state functionaries	2.26	2.05	1.78
Other groups of hired labour	1.08	1.01	0.95
Farmers	0.79	0.99	1.25
Pensioners	0.61	0.70	0.68
Persons living on social assistance	0.21	0.25	0.24
Total	1.00	1.00	1.00

Source: M. Jarosz, *Nierówności społeczne* (Social Inequalities), p. 87.

The table shows the extent of differences as well as a trend towards their reduction, typical of periods of crisis. I have already said that the position of farmers has improved. According to Jarosz, the differences in the incomes of hired labour have been reduced since 1982. This has been confirmed by the results of the latest research (not yet published) conducted by the Institute of Sociology of the Polish Academy of Sciences, which, moreover, indicates that the highest position is held by owners of commercial and industrial establishments (the private sector). Jarosz has not taken this sector into account; if she had, the inequalities would have been greater. The index for senior officials has been calculated only on the basis of their salaries and other forms of monetary remuneration [13].

There is much information on differences in wages and incomes in the earlier periods of the 40 post-war years. It would be a laborious task to analyse trends in the development of inequalities during that time. I shall confine myself to the last few years. The average monthly remuneration of manual and non-manual workers changed as follows:

Table 7

Year	1978	1980	1981	1982	1983
Manual workers	4.565	5.762	7.388	11.158	14.124
Non-manual workers	4.931	5.843	7.353	11.099	13.667

Source: *Rocznik Statystyczny* (Statistical Yearbook, 1984), p. 156.

In addition to a rise in nominal wages (inflation), the table shows a clear change in proportions between the wages of blue-collar and white-collar workers. According to other data, the difference between the average wage of unskilled workers and the salary of specialists with university education (the two extreme rungs of the social hierarchy) was approximately 1:2 previously (e. g. in the 1960s), which is a moderate difference [14]. However, these average figures conceal great differences. Let us have a look at incomes per household member in 1980 (Table 6). The picture presented in Table 6 is of course influenced by family structure (especially the number of children).

In an analysis of wages, the group of hired labour can now be taken as a whole

13) There is yet another, specific factor of prosperity in Poland, namely, contacts with western countries (relatives, parcels, work) owing to the extremely high black-market (semilegal) rate of exchange of convertible currencies.

14) For instance, Zróżnicowanie społeczne (Social Differences), ed. W. Wesołowski (Warszawa, 1974), pp. 159 - 160. But the differences in total incomes (not only wages and salaries) were greater.

since the incomes of manual and non-manual workers do not differ much. The differences between them are now much smaller than before the war (research into this question has been conducted by M. Kalecki and L. Beskid), especially if we exclude miners, who for some time past have been an exceptionally privileged group. However, there are still considerable differences within the group of hired labour. In 1983, the highest pay of the lowest income bracket (up to 6.000 zlotys a month), which embraces 1.6 per cent of all persons employed, was five times lower than the lowest pay of the highest income bracket (30.000 zlotys and more a month) embracing 2.4 per cent of all employed people. On the whole, egalitarian trends have been strong and are now dominant, but there are also opposite trends which, though weaker, lead to a differentiation of wages. Class division is the basis of inequality mainly in the highest income bracket (owners of private businesses) and the lowest one (unskilled workers). In the middle of the scale class division no longer exerts an influence on income.

Table 8

Households with a monthly income per person of:	Manual workers	Non-manual workers	Peasants
(in 1980)	100.0	100.0	100.0
less than 1.500 zlotys	4.7	1.2	14.3
1.500 - 2.000 zlotys	10.8	5.4	13.3
2.000 - 2.500 "	16.4	9.0	17.2
2.500 - 3.000 "	17.6	14.6	14.4
3.000 - 4.000 "	26.7	26.4	17.2
4.000 - 5.000 "	13.9	20.0	9.7
more than 5.000 zlotys	9.9	23.4	13.9

Source: M. Jarosz, *Nierówności społeczne*, p. 94.

I have devoted so much space to inequalities in income that there is not much left for other kinds of inequality. Differences in housing correspond to the division into classes, but they are not sharp.

Table 9

Housing Conditions in 1980

Specification	Working class families	Families of non-manual workers	Peasant
Average living space in square metres	47.7	49.9	61.3
Average number of rooms per dwelling	2.9	3.2	3.2
Average living space per person in square metres	13.0	15.8	16.6
Average number of persons per room	1.2	1.0	1.1

Source: J. Jarosz, *Nierówności społeczne*, p. 111.

In view of the specific features of certain occupations (intellectuals, producers working at home etc.), the differences are not significant. But these figures, as well as other data used by myself, do not embrace members of the most prosperous social groups who refuse to fill in questionnaires. If they were included, the inequalities would be much sharper.

The data on inequality in educational chances are extremely interesting. The general level of education has greatly risen since pre-war times. During the last 40 years the authorities have unchangingly aimed at ensuring equal chances in education, even by giving preferential status to working class and peasant youths in admission to the higher levels of education, especially to universities. Great successes were achieved in this respect during the stormy period of social changes in the early 1950s. But since then working class and peasant youth has been more and more underrepresented at the higher levels of the educational system, while young people from the families of white-collar workers have been overrepresented.

Table 10
Graduation Levels according to Social Origin
during the 1979 - 1980 School Year

Type of school	Years of schooling	Blue-collar workers	Peasants	White-collar workers	Artisans	Others	Total
Elementary	1-8	51.9	24.3	18.1	1.8	3.9	100.0
Primary vocational	9-10/11	59.8	28.6	7.2	1.9	2.5	100.0
Lycées	9-12	37.4	10.5	47.6	2.5	2.0	100.0
University schools	13-16/18	32.4	10.9	52.2	2.1	2.4	100.0

Source: M. Jarosz, *Nierówności społeczne*, pp. 137 - 150.
Note : Evening schools and correspondence courses have not been taken into consideration. They would have rectified the picture in favor of working class and peasant youth, but they are considered to be on a lower level than their counterparts.

One can say that two models of education have come into being: a model typical of working class and peasant youth (primary vocational schools) and another type for children of white-collar workers (lycées ending with matriculation). The problem is all the more important as education is the main channel facilitating social mobility. On the other hand, the fact that the income of blue-collar workers is now the same or even higher than those of white-collar workers has eliminated one of the incentives of social mobility, and makes it difficult to determine its direction (upward or downward). As a result, social positions and even some professions (e. g. that of physicians) are becoming hereditary to some extent.

It is difficult to define the post-war changes in the system of social inequalities unequivocally because of their multidirectional character. Besides, I have disregarded some important aspects of the problem, e. g. inequality in work places, where great changes have also taken place [15]. Compared with previous periods, important changes have been made to level differences (changed proportions in the remuneration of manual and clerical workers, much easier access to secondary and university schools for the previously unprivileged classes, elimination of the old propertied classes). However, not all inequalities have been removed, and new sources of wealth and prosperity have appeared (new categories of privileged persons, new types of wealth and prosperity in the case

15) The position of workers has certainly improved and that of lower-rank clerical workers has deteriorated. An analysis of workers' pronouncements (1956, 1970, 1980) shows that inequalities and conflicts between workers and managers have not been removed.

of the private sector and persons who have relatives or jobs abroad). The ideology of egalitarianism has gained wide popularity. The last ten years have witnessed a partial disintegration of the old class inequalities between workers, peasants and salaried employees as well as symptoms of an ossification of social positions and structures and a reduction of social mobility. One can also notice an undesirable accumulation of negative social factors in certain groups, and this has led to the emergence of new unprivileged groups. One can say that on the whole social differences are sharper than one would assume on the basis of statistical data.

The conclusion that can be drawn from this survey is that the evolution of social inequalities in Poland can be divided into two main periods separated by World War II. A characteristic feature of the system of social inequalities up to 1939 was the parallel existence of structures typical of the capitalist system and of considerable relics of the pre-capitalist pattern. The developing capitalist-urban society generated sharp inequalities that slightly relaxed since the late 19th century. Inequalities within rural society slightly decreased up to 1939 as well. During the last 40 years many old inequalities have been eliminated, especially those connected with the big industrial and landed property and with the differences between wage earners and salaried. However, new inequalities have appeared. They result from the privileged position of superior state and party officials and similar groups and from the existence of a private sector of the economy offering possibilities of getting rich. It is difficult to state whether new inequalities are more or less considerable than the old ones were. In my opinion, however, the top (private big business, big landed property) and bottom (lowest categories of journeymen, unemployed) of the old hierarchy have been cut and therefore the new inequalities, though important, are less sharp than the former ones. So the process of attenuating inequalities goes on.

III. ECONOMIC, SOCIAL, AND POLITICAL TRANSITIONS

Transitions from Agricultural to Industrial Societies: Some Introductory Remarks [1]

Patrice Bourdelais

From the end of the 18th century on mankind has experienced the most fundamental transformation since the stone age -- the industrial revolution. Its impact is so profound that contemporaries began to analyze it and the term "industrial revolution" appeared in the writings of Marx and Engels as well as John Stuart Mill in the middle of the 19th century. By nineteen hundred it had become common usage (Arnold Toynbee). Thus the question discussed below, if broadened to include the whole process of transition from rural to industrial society, is one of the great "classics" of contemporary historiography. The innovation in approaches derives not only from the application of recent quantitative methods, but also from a change of perspective, since historians usually analyze the past in the light of their own time.

I. The evolution of the problem

At the beginning of the present century, Mantoux in the first major work on the industrial revolution placed primary emphasis on industry and technological change [2]. At that time the phenomenon was limited to England, Germany and France, since the power of the United States was not perceived until the First World War. Growth seemed uninterrupted, driven by periodic revolutions in steam, electrical and then oil technology. But this view was strongly criticized in the 1950s, since the Great Depression suggested the idea that growth was not solely dependent upon technology. J. U. Nef showed that the acceleration of technical progress occurred about 1780 rather than in 1750, if one looks at the metallurgical sector and the use of steam power instead of limiting oneself to changes in textile production [3]. For him the industrial revolution is not a break but simply an acceleration; it is a part of a long term development of technical progress. The countries involved in this speed-up had already experienced a first revolution of metallurgical and mining techniques during the Renais-

1) Translated by H. Best and Hannelore F. Jarausch as well as edited by K. H. Jarausch.

2) P. Mantoux, La Révolution industrielle au XVIIIe siècle (Paris, 1905).

3) J. U. Nef, La Naissance de la civilization industrielle et le monde contemporain (Paris, 1954).

sance. According to T. S. Ashton, technical innovation was therefore of secondary importance [4]. How could it have had such a powerful effect, if favorable conditions had not already existed in the non-industrial sectors? Such prerequisites for the profitable introduction of new techniques might consist of agricultural improvement, the accumulation of capital and labor as well as the formation of internal and external markets.

This controversy which might seem out of date has, on the contrary, been revived by sophisticated quantitative studies. For example, M. Yamaguchi takes a macro-approach on the sources of Japanese economic development (1880 - 1970). He attempts to measure the effects of differential rates of technical change in the agricultural and non-agricultural sectors as well as of population growth on Japanese economic development in every decade for this period. His originality lies in the utilization of a model which includes nine exogenous variables and eight endogenous variables. The model distinguishes an agricultural sector, a non-agricultural one, intersectoral relationships and demand factors (population, per capita income, terms of trade, and import as well as export. He concludes that in the whole period technical change contributed more to growth than traditional factors, perhaps because of its weight since the Second World War. Population growth had a bad effect on per capita income, because resources for increased food production had to be drawn from the non-agricultural sector. Technical change had a double effect: in agriculture it tended to push resources out, and in the non-agricultural sector it tended to draw resources in. Further, it would be very interesting to distinguish different periods in the factor of growth so as to answer the questions: how was accumulation, which allowed initial investments for technical change, possible and when did it occur? How did people leave agriculture and go into industrial work?

Gradually analyses of transitions from rural to industrial societies have begun to emphasize the extent and irreversibility of growth. Economic historians are trying to measure growth-rates to determine the timing of the take-off and the stages of growth [5]. But Marxist historians oppose such a reduction of their role and of their subject matter. For instance, P. Vilar, in distinguishing different phases in the transition between "feudalism" and capitalism, refuses to separate the study of production levels and fluctuations from their social context [6]. As will become clear, this refusal is shared by numerous non-Marxist historians.

The scope of historical research has increased greatly since the 1960s [7]. The widespread discovery of underdevelopment and of social inequality during

4) T. S. Ashton, The Industrial Revolution (London, 1937).

5) W. W. Rostow, The Process of Economic Growth (New York, 1952).

6) For example, P. Vilar, "Développement historique et progrès social. Les étapes et les critères", La Pensée, No. 4, 1961.

7) E. Le Roy Ladurie, Le Territoire de l'historien (Paris, 1973 and 1978), 2 vols.

growth has stimulated a concern for the differences of growth in each country and the inequities which it produces or simply perpetuates.

For that reason we prefer to speak in the plural of "transitions" from agricultural to industrial society. The "industrial revolution" participates more or less directly in the passage of one type of economy or society to another, because neither the causes nor the sequence of transitions should be measured by the onset of growth in North-West Europe. This is so because the impact of the initially developed countries on the international market changes the conditions for the development of the rest of the world. Industry does not necessarily stay put at its birthplace [8].

The essay of F. Dopico, for example, presents a new interpretation of the relative chronology of Spain's backwardness in the transition. The notion of advancement or retardation must be seen in the context of the situation in other countries. Therefore, F. Dopico reconsiders the demographic and economic levels and the terms of international comparisons. He shows that Spain was not in as good a position to benefit from industrialization as Great Britain, France or Germany. But if one compares it to neighboring Mediterranean countries, Spain's backwardness is not so striking. For example, at the beginning of the 20th century, the per capita gross national product was similar in Italy and Spain (but then we have to explain the slowness of growth in the Mediterranean world). After the Second World War, the differences became greater and greater. In 1950 Spanish per capital income was 79 % of Italy's and by 1960 it was only 69 %. That seems to be a result of the civil war and of the autarchic policy of the Franco era. This is a good example of the national peculiarity of the transition and of the influence of political choices in retarding economic and cultural development.

In other countries and different continents growth may take place without industrialization. In the case of Argentina between 1880 and 1930, a good example of Latin America development, capitalist control of the agricultural sector through credit and the domination of the banking system by the United States stimulated and organized growth, but limited it at the same time (Castillo-Tulchin). More important than industrial development was the maintenance of social control by a fraction of the dominant class through the use of usurious credit and the exploitation of Argentine agriculture by international investors via the manipulation of the commercial and financial structure. Regional differences in modes of agrarian production, population density, degree of urbanization, immigration patterns and so on seem to have been decisive for the degree and direction what development did take place.

Without question the focus of much research has remained relatively traditional, namely the economic and political preconditions of growth. The prin-

8) L. Bergeron, Les Révolutions européennes et le partage du monde (Paris, 1968).

cipal reason is apparently the unevenness of historical literature. While there are relatively numerous case studies and syntheses on the big European nations, analyses of countries remote from these centers are terribly few [9]. Moreover, in the latter area historians are still working on those aspects traditionally considered most basic, such as economic and political conditions.

During the last twenty years, the frontiers of historical investigation have, nevertheless, expanded considerably. Today historians explore the changes of daily life and popular culture. Physiological anthropology has become a promising field of research on the past, perhaps even an auxiliary science of history! For example the relationship between industrialization and the wellbeing of a population has become a controversial issue among historians. J. Komlos analyzes the case for the Habsburg monarchy in the eighteenth century by studying the relationship between the height by age profile of young males and the nutritional status of the population. He shows that the spread of malnutrition preceded the rapid industrialization of the 1760s and 1770s and that the diminution in real income took place before the onset of industrial growth. The height profile suggests that weavers, for example, were not poor because they wove, "rather they wove because otherwise they would have been poorer". The standard of living had begun to deteriorate prior to the spread of industrialization because of the growth of the agricultural labor force. "Protoindustrialization in Bohemia helped prevent the utter collapse of the local economy".

The connection between nutrition and height may not be as simple as it seems here. But the utilization of an unusual indicator makes it possible to conclude that the deterioration of living standards precedes the onset of protoindustrialization and in some ways supports it. Therefore, this study contributes to the reevaluation of the positive aspects of industrialization which have long been neglected in favor of the hard working conditions, emphasized by social and moral observers in the 19th century.

II. The interplay of time and space

Through these different contributions, the great debate about the territorial dimension of social analysis seems to be implicitly–and provisionally– closed. But for the subject treated here, it remains crucial. The French sociological school of the turn of the century reproached geographers for their regional approach whose overly narrow framework concealed the true explanatory relationships. Beginning with a definition of the phenomenon to be studied, Simiand proposed multiplying the sites of observation instead of starting with a division of the territory to which one limits one's investigation. In our session,

9) For example, H. Habakkuk, M. Postan, The Industrial Revolution and after (Cambridge, 1965), vol. 4 of the Cambridge Economic History of Europe. Cf. also F. Braudel, E. Labrousse, Histoire économique et sociale de la France (Paris, 1976).

most of our colleagues have chosen the national perspective. Is this the most relevant level of analysis for the transition or is this choice only dictated by the availability of sources? Lucien Febvre affirmed his preference for the case study approach, the only one compatible with the need for data of quality and for the collection of multiple pieces of information [10].

Finally, numerous historians have followed the path suggested by Max Sorre [11]. It satisfied sociologists without at the same time offending geographers! By the diversity of sites selected, the region has become a kind of "spatial laboratory". It offered, through the range of combinations found elsewhere, the possibility of multiplying comparisons and observing repetitions and divergences. By distinguishing several larger regions in the series of cross-sections which he analyses in relation to economic transformations, Komlos remains faithful to this approach.

But given or contrived space is only a simple framework. When one observes the diversity of the countries and periods involved in the question of "transitions", one may legitimately wonder how space and time interact in a complete historical analysis. In present practice, reductionism seems to dominate. There are many ways of conflating one of the two dimensions with the other so as to work along a single axis! The Braudel of *La Mediterranee* offers one main example [12]. For him space is a way of introducing into history the dimension of the longest time, neglected until now. Geography "helps to rediscover the slowest structural realities, to organize perspective according to the slope of the *plus longue duree*". But if space is "solidified time", should one not fear the risk that it may vanish as a distinctive dimension of human activity? The evolution of Braudel's thought seems to indicate that he had not underestimated this danger. In *Le Capitalisme* the analysis of preindustrial France which he proposes rests on a double system: the progression from basic cells to the "country", to the region, then finally to the national market and various zones, such as mountains and plains, north and south, interior and periphery [13]. A complex order of time corresponds to this pluralistic organization of territory. This approach can easily and successfully be transposed to another country and a more recent period (Castillo-Tulchin). Playing with the linkages of time and space, establishing the points at which these two dimensions coincide is no longer in the realm of speculation.

10) L. F e b v r e, La Terre et l'évolution humaine. Introduction géographique à l'histoire (Paris, 1922); and F. S i m i a n d, "Méthode historique et science sociale", Revue de Synthèse historique, 1903.

11) M. S o r r e, Les Pyrénées méditerranéenes. Etude géographie biologique (Paris, 1913).

12) F. B r a u d e l, La Méditerranée et le monde méditerranéen à l'époque de Philippe II (Paris, 1949), 2nd ed., 1966).

13) F. B r a u d e l, Civilisation matérielle, Economie et capitalisme, XVe - XVIIe siècle (Paris, 1979).

III. New directions of research

There are, of course, numerous aspects of the question which have barely been touched upon [14]. For instance changes occurring in the agricultural sector, the transportation network or the banking system accompanied economic development. The very important phenomenon of proto-industrialization is only indirectly dealt with (Komlos). With the exception of Castillo-Tulchin, social aspects have remained outside the discussion, not to mention cultural changes such as reading and writing, religion, the world view, the conception of the family or demographic patterns [15]. Treating them was not the assignment of the contributors.

Instead of enumerating the aspects of change which could not legitimately be included due to the brevity of time devoted to this vast question, I would like to linger over one approach which seems particularly promising: the linkage of individual data. To the extent that grand economic and social syntheses are available, historical questions have become finer and more demanding. Now the discussion focuses on the familial and individual factors of the rural exodus, on following the social itinerary of emigrants towards the city. Marriage strategies, voluntary birth control, regular school attendance must be linked with individual trajectories [16]. As a framework for potential social or professional mobility and as crucible for a new acculturation, the firm becomes the critical place. This level of the causes and consequences of the transition from an agricultural to an industrial society cannot be treated by methods of aggregate analysis, even if they are sophisticated. One must therefore have recourse to the collection of nominal data in a necessarily restricted spatial area, unless one chooses to draw a national sample [17]. In the latter case, the investigation can be enriched by defining regional disparities, but it lacks the support of several types of nominal sources.

When one limits the scope of research on the connection between mobility and industrialization to the small region of Creusot and a few communes which provided numerous groups of immigrants (and consequently to a sample of emigrants outside of the industrial center), it remains possible to link the data

14) D. L e v i n e, Family Formation in the Age of Nascent Capitalism (New York, 1979); i d e m, Proletarianization and Family History (London, 1984); and P. B a i r o c h and A. M. P i u z, eds., Les passages des économies traditionelles européennes aux sociétés industrielles (Genêva, 1985).

15) H. M e d i c k, Industrialisierung von der Industrialisierung (Göttingen, 1977).

16) Besides the research cited below, there are the projects directed by Cl. Desama at the University of Liege (in Belgium) and by Y. Lequin at the University of Lyon (in France).

17) Survey of "three thousand families" directed by J. D u p a q u i e r, presented in "l'enquête des 3000 familles", Population, No 2, 1984.

of census lists and of pupils enrolled in school with the information supplied by personnel records of the Schneider factories. Thus multivariate analyses can be conducted and homogenous groups constituted over several decades [18]. Undoubtledly this means returning to the monographic case study which–although territorially structured in a different way–opens, as Lucien Febvre saw it, the way to a new synthesis.

18) For example, G. B o u c h a r d, Les Saguenayens. Introduction à la population du Saguenay (Quebec, 1986); and P. B o u r d e l a i s, "L'industrialisation et ses mobilités (1836 - 1936)", Annales ESC, No 5, 1984.

Patterns of Children's Growth in East-Central-Europe in the Eighteenth Century *)

John Komlos

Recent research has established a clear link between human stature and the nutritional status of populations [1]. My intention here is to exploit this known link and on the basis of the cycling in human stature in the eighteenth century make inferences on the economic conditions, primarily agricultural, of the time.

My analysis of the stature of boys in the Habsburg monarchy in the eighteenth and early nineteenth centuries is based on three sources which include some of the earliest data on heights hitherto extracted from any archive [2]. The first source is the military academy founded by Maria Theresia in the 1750s to train officers. Five hundred sixty observations have survived on aristocratic adolescents born in the 1730s and 1740s [3]. The second data set of 366 observations stems from an orphanage, the Josephinische Waisenhaus, founded by Maria Theresia's son Joseph II, and contains information on children of various ages born in the 1760s and 1770s [4]. The third, and major, source of data for this study is schools run by the military for sons of ordinary soldiers [5]. Exactly

*) The support of an NICHD National Research Service Award 2T32 HD07168 from the Center for Population Research is gratefully acknowledged. Computation was done at the computing center of the Wirtschaftsuniversität, Vienna. I appreciate the hospitality of the rector of the university, Professor Herbert Matis, and the help of Walter Story, director of the center, in bringing this study to fruition. I gratefully acknowledge the assistance of Klaus Erhard, Erich Foltyn, Paul Mageli, Asha Narang, and Nona Schlegel in extracting the data from the archives and rendering them machine readable. Markus Hein helped with the computation diligently. I benefited greatly from comments by Professors J. M. Tanner and Richard Steckel. This study is a slightly revised version of a paper forthcoming in the Annals of Human Biology, republishd here with permission of the editors of that journal. I would also like to express my gratitude to Professor Robert Fogel for awakening my interest in the history of human stature.

1) Robert Fogel, S. Engerman, Roderick Floud, R. Margo, K. Sokoloff, Richard Steckel, J. Trussell, G. Villaflor, and Kenneth Wachter, "Secular Changes in American and British Stature and Nutrition," Journal of Interdisciplinary History 14 (1983), p. 445; Robert Fogel, S. Engerman, and J. Trussell, "Exploring the Uses of Data on Height: The Analysis of Long-Term Trends in Nutrition, Labor Welfare, and Labor Productivity," Social Science History 6 (1982), p. 401.

2) James M. Tanner, A History of the Study of Human Growth (Cambridge, 1981). James M. Tanner, Fetus into Man: Physical Growth from Conception to Maturity (Cambridge, Mass., 1978).

3) Kriegsarchiv, Vienna, Theresianische Militärakademie, Faszikel, 434.

4) Kriegsarchiv, Vienna, Josephinische Waisenhaus, Faszikel, 3922.

5) Kriegsarchiv, Vienna, Erziehungshäuser Musterlisten, Faszikel, 3925, 3926, 3927. All

25,071 valid data have been put on tape from this source. Besides height (to the nearest 0.6 centimeter), age (year and month) and birthplace of the boys were also recorded [6].

Regression analysis indicates that height of aristocratic adolescents generally did not depend on their place of birth (Equation 1, Table 1). Those born in Bohemia, however, were significantly taller than the average. A number of features of the height of the aristocrats stand out (see Table 1).

1. Those born between 1735 and 1744 were shorter than those born during the next decade (Table 2). Stature of the youth increased significantly in the late 1740s and early 1750s by three to six cm, depending on their ages.

2. Inspite of the increases in average height, aristocratic youth aged 14 and above were not taller than boys in the orphanage born two decades later (Table 2).

That average height of the aristocratic youth born between 1745 and 1755 increased implies that their nutritional status was improving. All increases in stature were attained prior to entering the military academy, and hence could not be attributed to changes in the diet boys received at the institution. Adult Hungarian peasant recruits into the Habsburg army at the same time experienced similar increases in stature [7]. This pattern is plausible since we know that agricultural conditions were good and improving in Europe and North America in the 1730s and 1740s [8]. Although one might have thought that the income of

data from Faszikel 3926 and 3927 have been recorded. From Faszikel 3925 only those children's heights were recorded who were born in Galicia, Moravia, Hungary, Bohemia, and Lower Austria. Consequently the data set could be expanded from this faszikel by a few thousand records of children of other nationalities. Although serial measurements are available on many of the boys, these were not obtained, since looking up the names of the boys in subsequent years would have been quite a task. Although it would have been a statistically more accurate method than the one chosen, especially for calculating growth velocities, it was not feasible within the time available to me. Children entered the military school system at all ages and remained in it usually for a number of years. Hence, many multiple observations are in the sample.

6) Eighteen nationalities were distinguished. The name and religion, also available, were not recorded. Height was measured in Austrian units: Schuh, Zoll, and Strich; 4 Strich = 1 Zoll and 12 Zoll = 1 Schuh; 1 Schuh = 31,6 cm. Age is as of the previous birthday.

7) John K o m l o s, "Stature and Nutrition in the Habsburg Monarchy: The Standard of Living and Economic Development in the Eighteenth Century." American Historical Review, 90 (Dec., 1985), pp. 1149 - 1161.

8) R. M. H a r t w e l l, "The Causes of the Industrial Revolution: An Essay in Methology", in: R. M. H a r t w e l l (ed.), The Causes of the Industrial Revolution in England (New York, 1967), p. 87. Herbert M a t i s, "Die Rolle der Landwirtschaft im Merkantilsystem - Produktionsstruktur und gesellschaftliche Verhältnisse im Agrarbereich," in: Herbert M a t i s (ed.), Von der Glückseligkeit des Staates; Staat, Wirtschaft und Gesellschaft in Österreich im Zeitalter des aufgeklärten Absolutismus (Berlin, 1981), p. 273. In the British colonies of North America the quantity of food, particularly pork, found

	(1)	(2)
Intercept	142.6 *	143.1 *
Birth-Year		
1740/44	- 1.4	- 1.3
1745/49	3.2 *	3.3 *
1750s	5.6 *	5.9 *
Birthplace		
Moravia	1.1	
Bohemia	2.7 *	
Galicia	- 2.2	
Hungary	0.3	
Lower Austria	- 0,4	
Italy	- 0.3	
Age		
11	-10.4 *	-10.4 *
12	- 7.2 *	- 7.4 *
13	- 3.0 *	- 3.1 *
15	5.6 *	5.7 *
16	9.5 *	9.9 *
N =	556	556
R^2 =	.40	.39
F =	23.8 *	36.7 *

Table 1. Equations 1 - 2. Dependent variable: Height in centimeters of Habsburg Aristocrats, 1735 - 1755.

* Significant at the 1% level

Equation (1): Intercept indicates the height of a 14-year-old born outside of the six provinces before 1740.

Equation (2): Intercept indicates the height of a 14-year-old born before 1740. Birthplace is not taken into consideration.

Note: All independent variables are dummy variables.

Age at Last Birthday

	N	H	s. d.	N	H	s. d.	N	H	s. d.	N	H	s. d.
	6yrs.			7 yrs.			8 yrs.			9 yrs.		
1735/55 [a]		n.a.			n.a.			n.a.			n.a.	
1765/69 [b]		n.a.			n.a.			n.a.			n.a.	
1770/74 [b]	20	108.7	5.4	29	114.2	3.2	38	117.3	4.3	44	121.9	6.1
1775/79 [c]		n.a.			n.a.			n.a.			n.a.	
1780/84 [c]		n.a.			n.a.			n.a.		11	119.5	6.3
1785/89 [c]		n.a.			n.a.			n.a.		17	122.3	4.6
1790/94 [c]	19	107.8	5.1	108	112.1	4.8	217	117.0	4.7	263	120.6	5.1
1795/99 [c]	94	106.9	4.9	234	112.1	5.1	263	116.1	5.1	496	119.8	5.3
1800/04 [c]	164	107.8	4.6	401	111.8	5.2	700	115.9	5.4	659	119.4	5.7
1805/09 [c]	99	109.1	4.7	274	112.1	4.5	436	116.2	5.3	699	119.6	5.5
1810/14 [c]	118	109.2	4.4	311	112.9	4.4	344	117.1	4.6	196	121.1	4.9

	10 yrs.			11 yrs.		
1735/55 [a]		n.a.		30	131.5	6.4
1765/69 [b]	50	127.6	5.3	27	134.4	7.5
1770/74 [b]		n.a.			n.a.	
1775/79 [c]		n.a.			n.a.	
1780/84 [c]	18	123.7	6.8	15	130.8	5.5
1785/89 [c]	12	123.9	4.5	72	129.2	5.4
1790/94 [c]	315	124.0	5.7	312	128.7	6.0
1795/99 [c]	422	124.0	5.9	634	128.2	6.3
1800/04 [c]	649	123.6	6.1	387	127.8	6.3
1805/09 [c]	986	123.8	5.9	1031	128.0	6.2
1810/14 [c]	27	125.5	4.5			

	N	H	s. d.	N	H	s. d.	N	H	s. d.	N	H	s. d.
	12 yrs.			13 yrs.			14 yrs.			15 yrs.		
1735/44 [a]	55	134.2	7.2	114	138.4	7.2	88	142.7	7.8	49	148.9	8.1
1745/55 [a]	18	140.4	5.2	51	144.2	7.7	68	145.7	6.4	43	152.4	8.6
1760/64 [b]		n.a.			n.a.			n.a.		20	154.0	6.5
1765/69 [b]	41	137.0	6.7	40	141.4	6.7	32	146.2	6.3		n.a.	
1770/74 [b]		n.a.			n.a.			n.a.			n.a.	
1775/79 [c]		n.a.			n.a.			n.a.		27	149.9	11.7
1780/84 [c]		n.a.			n.a.		22	144.8	7.3	30	148.6	9.4
1785/89 [c]	188	132.5	6.5	238	137.3	6.3	242	141.1	6.8	383	147.0	8.4
1790/94 [c]	353	132.2	5.9	366	137.0	6.8	478	141.5	7.2	442	146.7	8.3
1795/99 [c]	720	132.0	6.6	855	136.4	7.1	661	140.6	7.5	573	146.3	8.5
1800/04 [c]	460	132.0	6.2	535	136.5	6.6	735	140.9	7.4	814	145.9	8.2
1805/09 [c]	2	132.0	6.5	434	136.2	6.4	223	141.3	7.3	21	147.2	8.4

	N	H	s. d.	N	H	s. d.	N	H	s. d.
	16 yrs.			17 yrs.			18 yrs.		
1735/44[a]		n.a.*			n.a.			n.a.	
1745/55[a]	22	156.2	3.8		n.a.			n.a.	
1760/64[b]	16	156.2	7.2		n.a.		9	163.7	5.5
1765/69[b]		n.a.			n.a.			n.a.	
1770/74[b]		n.a.		9	157.4	6.4		n.a.	
1775/79[c]	14	153.8	10.2	9	161.2	4.5		n.a.	
1780/84[c]	110	154.8	7.5	207	160.8	7.2	49	161.7	5.2
1785/89[c]	365	154.3	8.0	208	160.2	6.1	48	163.3	4.0
1790/94[c]	553	151.6	8.3	430	157.3	7.6	115	159.1	5.9
1795/99[c]	336	152.0	2.9	270	158.4	7.4	61	160.0	6.1
1800/04[c]	648	152.1	8.2	447	158.3	7.8	39	161.5	6.1
1805/09[c]		n.a.			n.a.			n.a.	

Table 2: Height of Boys in the Habsburg Monarchy (all nationalities)

a = Aristocrats
b = Orphans
c = Students in military boarding schools
N = number of observations
H = mean height in cm
s. d. = standard deviation of the height in cm
Source: Kriegsarchiv, Vienna. Standestabellen Erziehungshäuser Faszikel 3925, 3926, 3927 and Josephinische Waisenhaus, Faszikel 3922.
* Datum discarded because it was an outlier due to sampling or measurement error.

the aristocracy was sufficiently large so that their food intake would not have been affected by favorable harvest conditions, that is not born out by the evidence. Cadets attending the academy were recruited from the lower ranks of the aristocracy, sons of aristocrats who lacked sufficient finances to educate their sons themselves, although those whose father served in government administration for 20 years or who were sons of "brave" officers were also admitted. Maria Theresia usually chose the poorest candidates [9]. As a consequence of this selection bias, it is more plausible that the nutritional status of the lower aristocracy was improving at that time. The fall in cereal prices could have made sufficient impact on their real income to affect their nutritional status. One might note that their higher income compared to the rest of the population could have provided a greater quantity of food, but not necessarily better quality. In addition, they drank the same water and were exposed to the same diseases which laid claim to nutrients as the population at large [10].

In spite of the increases in their stature, aristocratic youth in the Habsburg monarchy remained relatively short. They were shorter than German aristocrats in the Carlschule [11] who, in turn, were shorter than English aristocrats of the same age attending Sandhurst Military Academy [12]. This pattern supports the notion that aristocrats in different countries were accustomed to a different diet, probably because of different real incomes. Since real incomes of various classes of the population differed from one another, so did their height [13]. German aristocrats were taller than middle class boys of the same age in spite of their consuming the same institutional food after they were eight years old [14], indicating the importance of early nutrition to human growth.

Since data on German and Habsburg aristocratic youth are separated by a generation, a direct comparison is not totally warranted during a period when

in inventories increased greatly in the 1730s and 1740s. This correlates well with contemporaneous increases in stature in the colonies. Sarah M c M a h o n, "Provisions Laid up for the Family: Towards a History of Diet in New England, 1650 - 1850", Historical Methods 14 (1981), 1, pp. 22 - 30; Robert F o g e l, "Nutrition and the Decline in Mortality since 1700; Some Preliminary Findings," in: Stanley E n g e r m a n and Robert G a l l m a n (eds.), Long Term Factors in American Economic Growth (Chicago, 1987).

9) Th. L e i t n e r von L e i t n e r t r e u, Geschichte der Wiener Neustädter Militärakademie (Hermannstadt, 1852).

10) Susan C. W a t k i n s and Etienne v a n d e W a l l e, "Nutrition, Mortality, and Population Size: Malthus' Court of Last Resort," Journal of Interdisciplinary History, 14 (1983), p. 224.

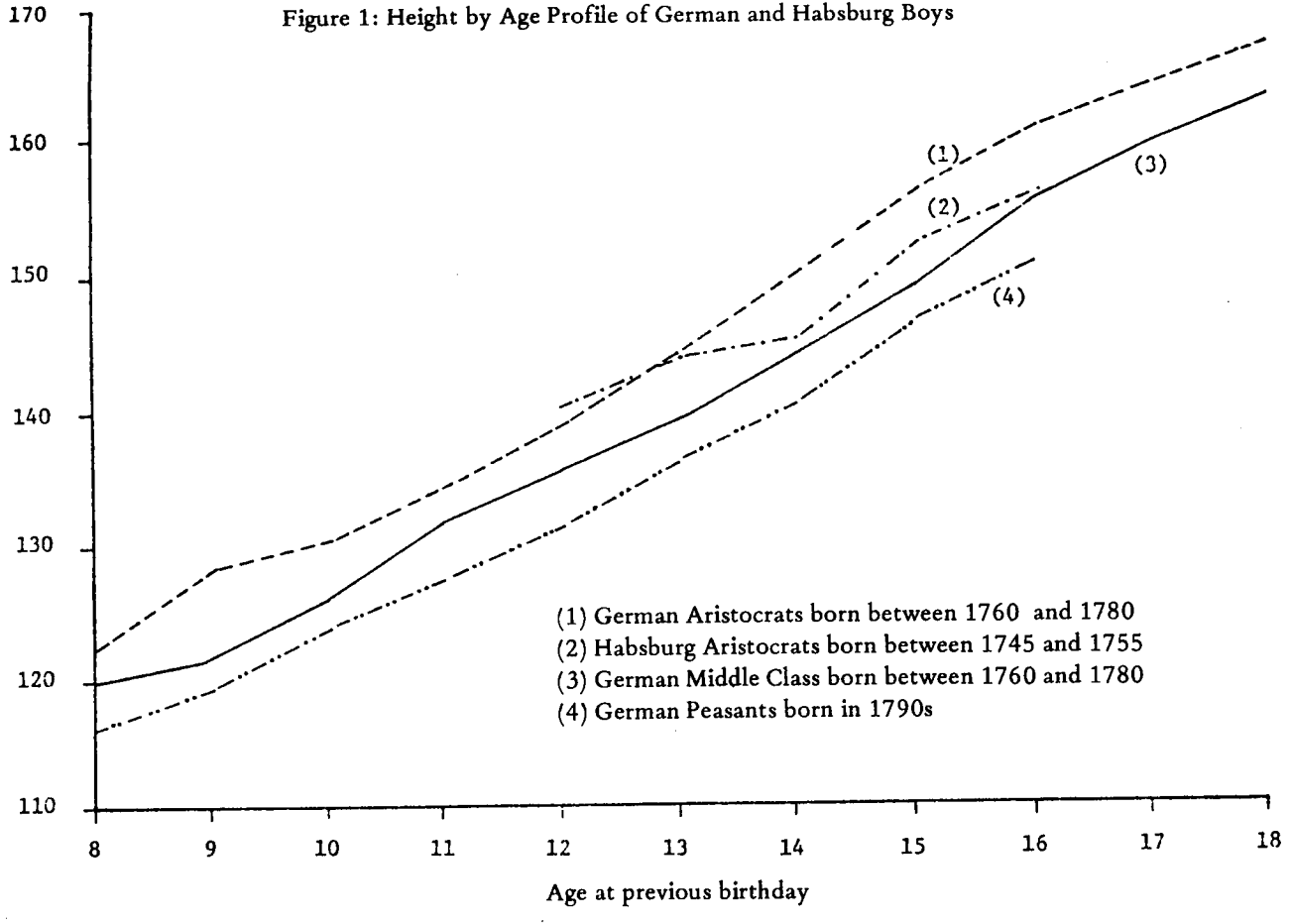
11) Waltraud H a r t m a n n, "Beobachtungen zur Akzeleration des Längenwachstums in der zweiten Hälfte des 18. Jahrhunderts" (Doctoral dissertation, Frankfurt, 1970), pp. 87 - 119; and Table 10.

12) Personal communication from Professor Roderick Floud.

13) Richard S t e c k e l, "Height and Per Capita Income," Historical Methods 16 (1983), 1, pp. 1 - 7.

14) H a r t m a n n, "Beobachtungen," pp. 9, 25.

Figure 1: Height by Age Profile of German and Habsburg Boys



nutritional status was changing rapidly in Europe. Nonetheless, one might note that Habsburg aristocrats born between 1745 and 1755 were about the same height as German aristocratic youth born between 1760 and 1780 until age 13 (Figure 1). Thereafter, German aristocratic youth experienced an earlier and greater adolescent growth spurt than Habsburg aristocratic youth, whose height became closer to that of German middle class boys between the ages of 14 and 18.

That the Habsburg aristocratic youth were not taller than boys in the Austrian orphanage is truly puzzling because one would have expected that the diet of orphans was inferior to that of aristocrats. The two data sets, however, are separated from one another by two decades, so it is conceivable that the aristocrats' height continued to increase and by the 1760s they would have been taller than the orphans.

The pattern of variation of the lower class boys' height by place of birth is complex because differences in the growth pattern appear over time as well as at various ages. Among orphans born in the 1760s and 1770s, Galician boys alone were significantly shorter than average (Table 3, Equation 3). Considering the whole period thereafter, only Carinthian and Croatian boys were consistently taller than average. Croatians were on average 2.4 cm taller than Bohemians. (There are, however, only 412 Croatians in the sample). Boys of Bohemian, Lower Austrian, and Hungarian birth, whose stature averages were not significantly different from one another, comprised 40 percent of the whole sample (Table 3, Equation 4).

	1760-79[a] (3)	1760-1815[b] (4)
Intercept	106.0 *	109.6 *
Birthyear		
1760		2.8 *
1770		- 0.5
1790		- 1.5 *
1800		- 1.6 *
1805		- 1.5 *
1810		- 0.7 *
Birthplace		
Moravia	- 0.7	- 0.6 *
Silesia	2.3	- 1.7 *
Galicia	- 6.6 *	- 1.2 *
Styria	- 0.8	- 1.0 *

Hungary	0.7	0.2
Upper Austria	- 5.2	- 1.0 *
Lower Austria	- 4.3	0.2
Other	- 0.6	0.2
Carinthia	0.6 *	
Italy	0.0	
Germany	- 0.3	
France	- 0.5	
Tyrol	- 0.8 *	
Transyl-vania	0.4	
Croatia	2.4 *	
Age		
7+	8.2 *	4.4 *
8+	11.3 *	8.4 *
9+	16.4 *	12.0 *
10+	22.6 *	15.9 *
11+	28.4 *	20.1 *
12+	30.4 *	24.0 *
13+	34.7 *	28.4 *
14+	40.2 *	33.0 *
15+	46.6 *	38.3 *
16+	50.0 *	44.6 *
17+	51.6 *	50.3 *
18+	58.0 *	52.3 *
F =	120.7	3251.6
P =	.0001	.0001
R^2 =	0.83	0.81
N =	489	25,071

Table 3. Equations 3 - 4. (Dependent variable: Height in cm)

Equation (3): Intercept indicates the height of a 6-year-old boy born in Bohemia.

Equation (4): Intercept indicates the height of a 6-year-old Bohemian born in the 1780s.

Note: a = orphans, b = students

All independent variables are dummy variables.

* Coefficient significant at the 1% level.

	Age											
	7			8			9		10		11	
	1790s	1800s	1810s	1790s	1800s	1820s	1790s	1800s	1790s	1800s	1790s	1800s
Moravia		111.98			115.96	117.20	119.54	119.30		123.01	129.55	127.61
Bohemia	112.53	113.40	113.40	117.23	116.50	118.20	120.40	119.70	124.04	123.85	127.77	127.99
Silesia										123.66		126.59
Galicia		110.90			115.20			118.00		122.29		126.51
Other	110.66	112.05		116.10	116.00			120.78	124.22	124.80	128.24	129.16
Steyermark								118.95		123.50		127.38
Hungary		110.39	113.00		115.80	116.00	120.55	119.10	124.65	123.80	128.00	128.88
L.Austria					116.40		120.58	119.40	126.00	124.08	130.20	127.80
Germany				116.28			119.40		123.89		127.60	
Transylvania								119.86		123.40		128.36

	Age											
	12		13		14		15			16		
	1790s	1800s	1790s	1800s	1790s	1800s	1780s	1790s	1800s	1780s	1790s	1800s
Moravia	132.10	131.70	136.51	135.90	139.96	139.97	145.00	145.56	144.50	154.23	151.60	152.00
Bohemia	131.70	131.85	135.71	136.30	140.70	141.40	148.10	146.30	146.10	155.04	151.80	152.50
Silesia												
Galicia	130.22	131.54		136.52	140.06	140.20		144.81	145.90		150.40	
Other	132.30	132.90	136.20		141.44	142.00		146.50	148.30		152.28	153.00
Steyermark		132.26										
Hungary	132.52	133.09	138.45	136.90	142.00	142.25		147.50	146.20	156.53	152.37	151.20
L. Austria	133.30	131.86	137.50	137.00	140.30	140.85		147.69	145.80		151.36	
Germany	131.46		136.40		140.61			146.79			151.09	
Transylvania		133.20		135.10								

	Age 17		
	1780s	1790s	1800s
Moravia	159.20	157.90	157.90
Bohemia	161.60	157.60	
Silesia			
Galicia			
Other		157.24	158.90
Steyermark			
Hungary		158.71	
L. Austria			
Germany			
Transylvania			

Table 4. Height of boys in the Habsburg Monarchy by place of birth in centimeter.

The overall pattern varied greatly from decade to decade (Table 4), and differences in stature by place of birth were generally very small (Figures 2 - 5). Nonetheless, the following features are evident. Hungarian boys born in the 1790s experienced the adolescent growth spurt earlier than other nationalities and were therefore taller than average after age 13 (Figure 2). The growth experience of Lower Austrian boys born in the 1790s was just the reverse of that of the Hungarians. They were taller than average at younger ages, but the difference vanished after age 14 (Figure 3). Lower Austrian boys born in the 1800s were substantially taller than average at all ages (Figure 4). During the decades of the 1800s, Galician boys were somewhat shorter than average until age 11, but not thereafter (Figure 5). Because of these variations no definitive conclusion can be made on height differences by place of birth.

While the analysis of boys' height by place of birth remains ambiguous, a striking trend in stature emerges over time. Increases in height at all ages experienced by the aristocratic youth in the 1740s and 1750s were reversed after the 1760s. Orphans as well as students in military schools declined in stature consistently at all ages throughout the period between 1760 and 1800 (Figure 6 and Table 2). The difference between heights attained in the 1760s or 1770s and those of the 1780s ranged from 0.3 to 4.5 cm at various ages. Even though the number of observations in the beginning of the period is small, the pattern is consistent at all ages, thereby supporting this generalization. This phenomenon is all the more extraordinary since one would have expected boys in orphanages, on which the sample of the 1760s and 1770s is based, to have been less well nourished than those in military schools. The decline in height is not because the data stem from different institutions: the stature of boys of all ages continued to decline until the early nineteenth century. In the 1790s the decline was no longer substantial. It was generally less than one cm with the exception of boys 15 years or older. Their average height declined in the 1790s by three cm or more (Table 2). The nutritional status of the boys did not stabilize until those cohorts who were measured after the end of the Napoleonic Wars (Figure 7). The growth curve of those born in the 1800s is not depicted in Figure 7; however, it coincides with the curve marked 1790s. Eighteen-year-olds born after 1800 were, however, taller than those born in the 1790s. This pattern is unexpected because unusually bad harvests prevailed throughout Europe in 1816 - 17, and the end of the Napoleonic Wars has not been associated with an increase in the standard of living, or with increased economic activity 15).

15) John P o s t, The Last Great Subsistence Crisis in the Western World (Baltimore, 1977). John K o m l o s, The Habsburg Monarchy as a Customs Union: Economic Development in Austria-Hungary in the Nineteenth Century (Princeton, 1983), p. 99.

Figure 2: Height by Age Profile of Habsburg Boys, born between 1790 and 1799

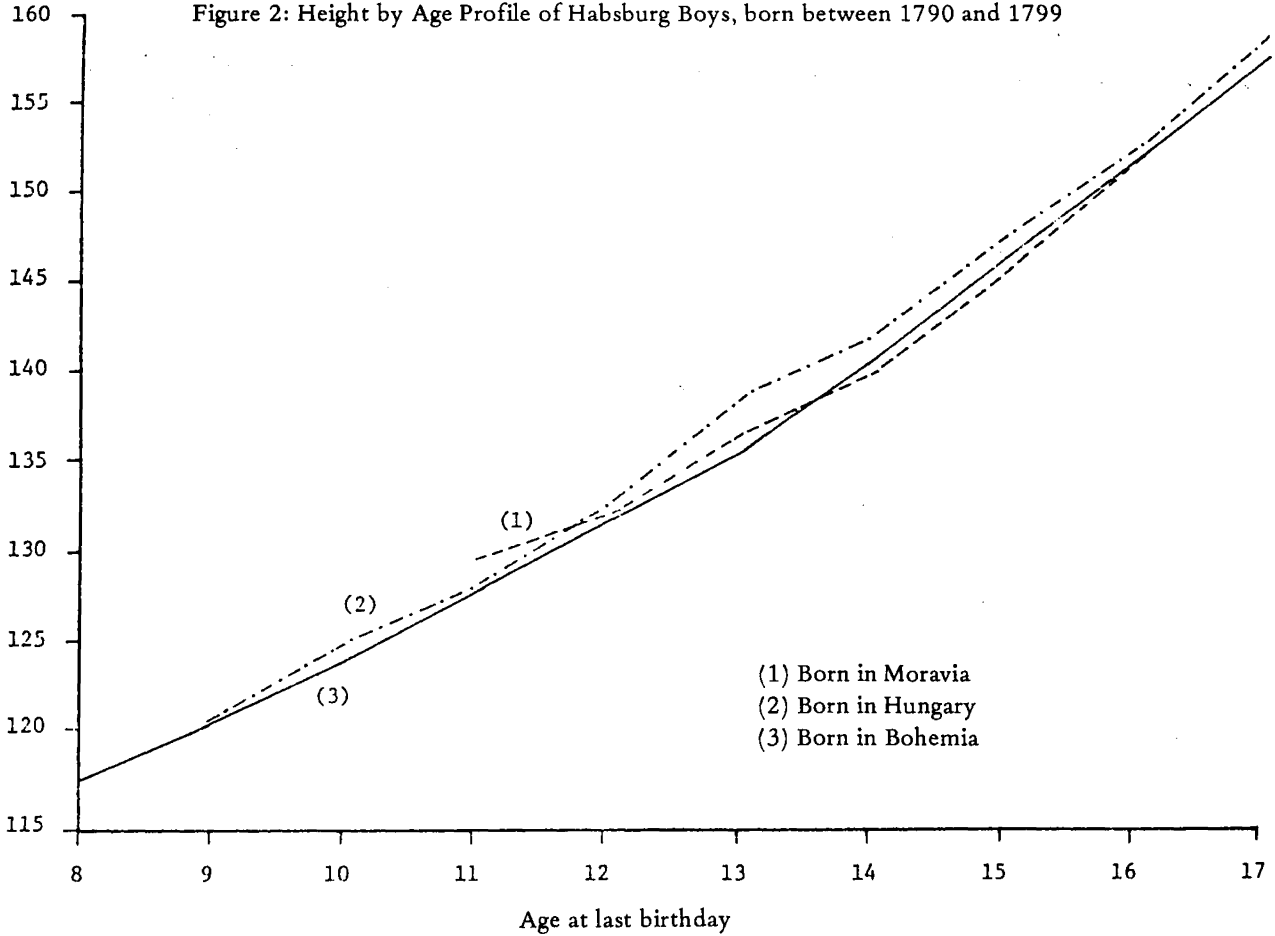


Figure 3: Height by Age Profile of Habsburg Boys, born between 1790 and 1799

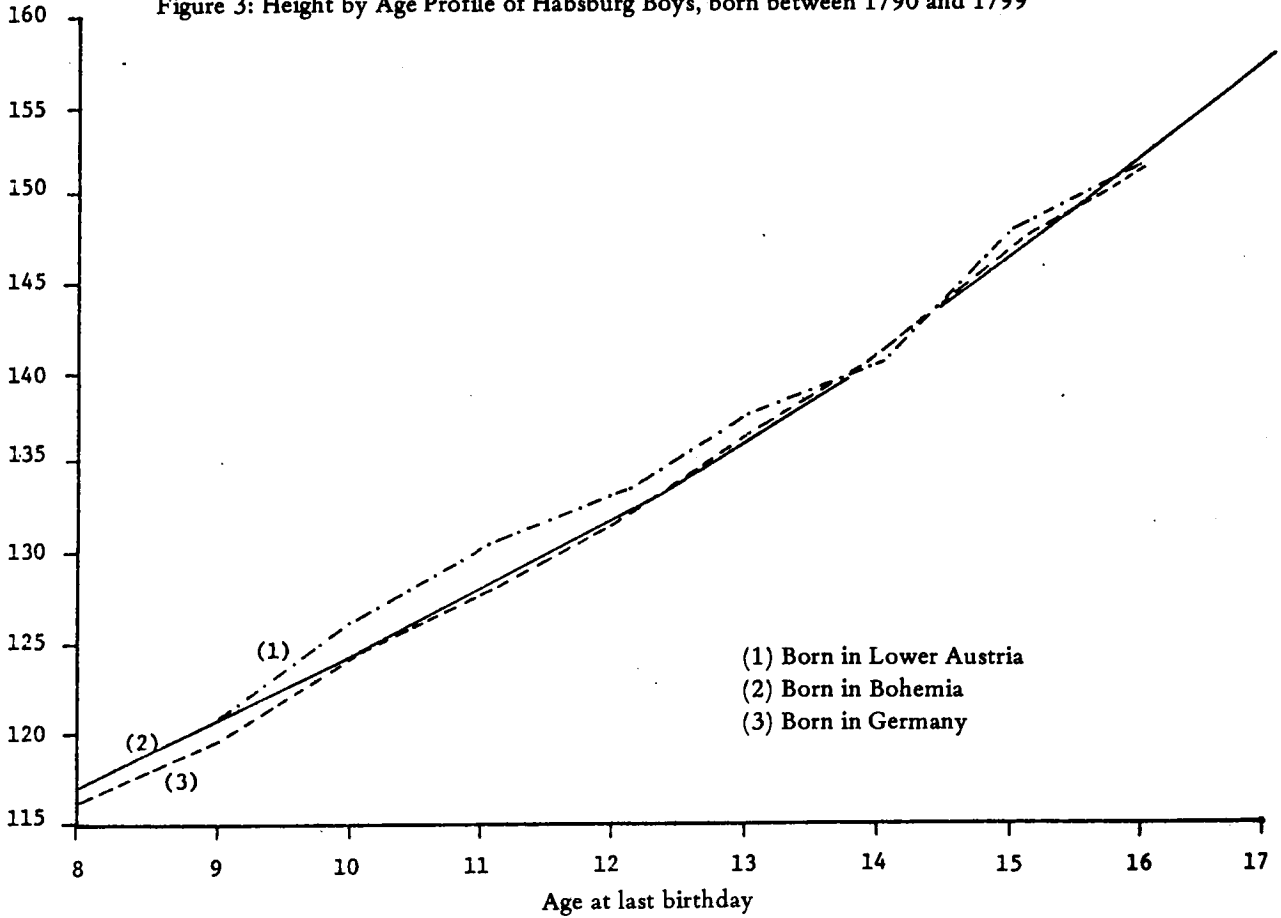
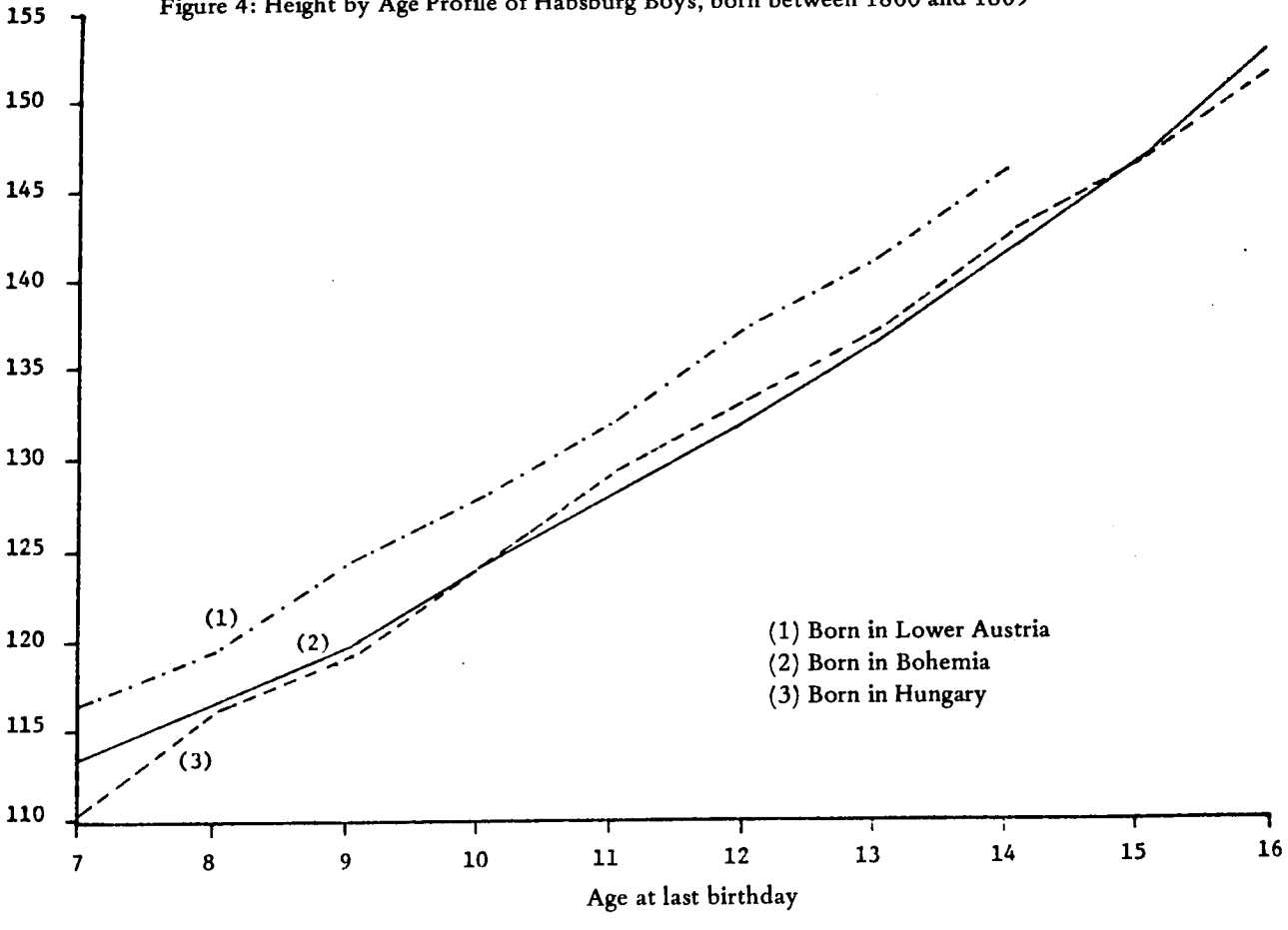


Figure 4: Height by Age Profile of Habsburg Boys, born between 1800 and 1809



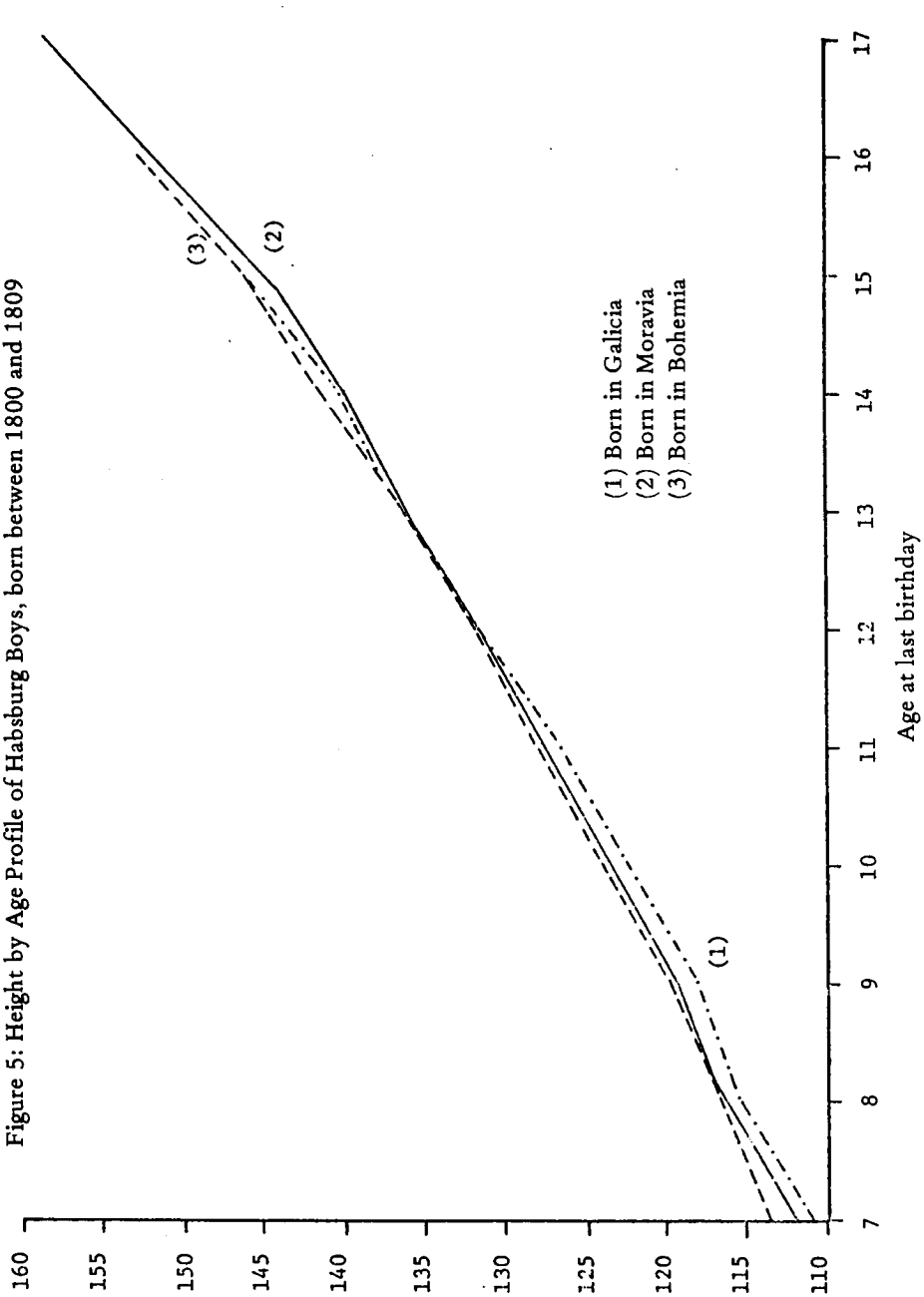


Figure 5: Height by Age Profile of Habsburg Boys, born between 1800 and 1809

Figure 6: Height of Boys in the Habsburg Monarchy by Date of Birth

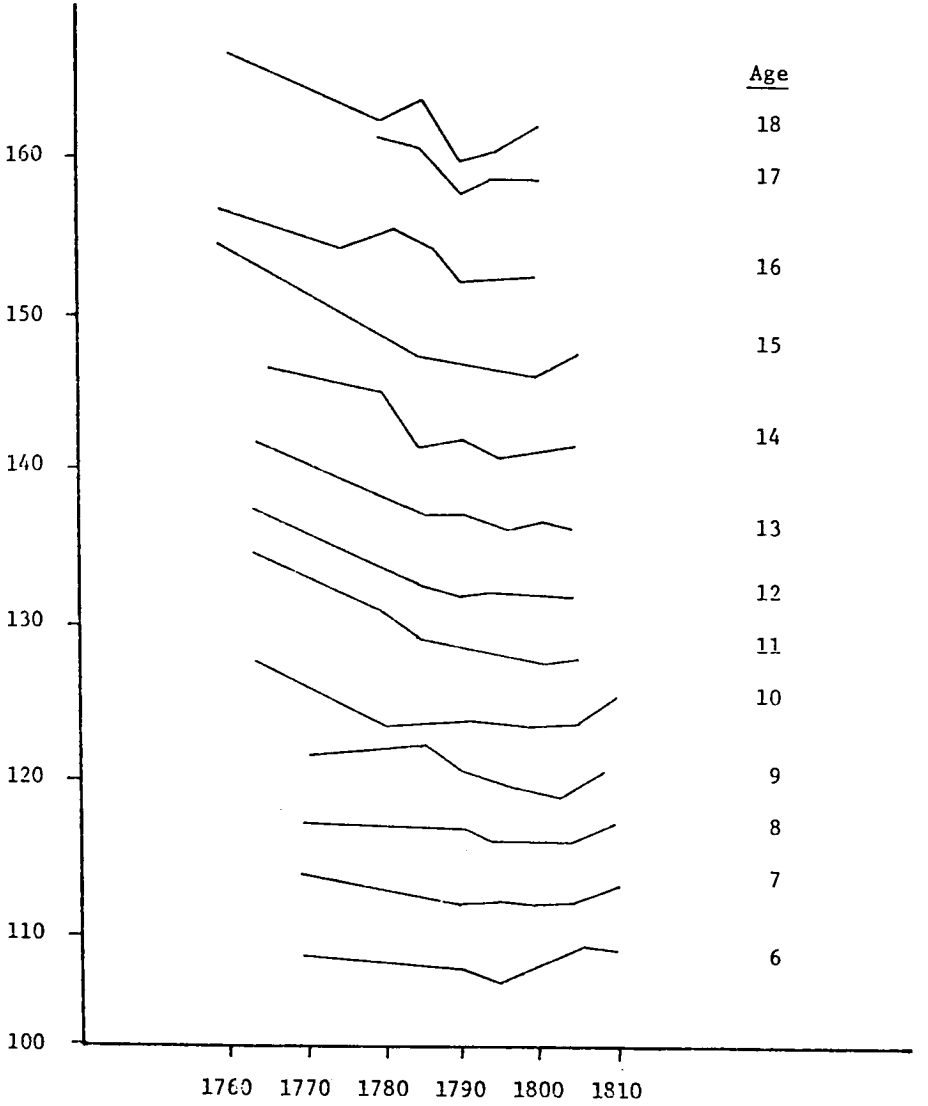
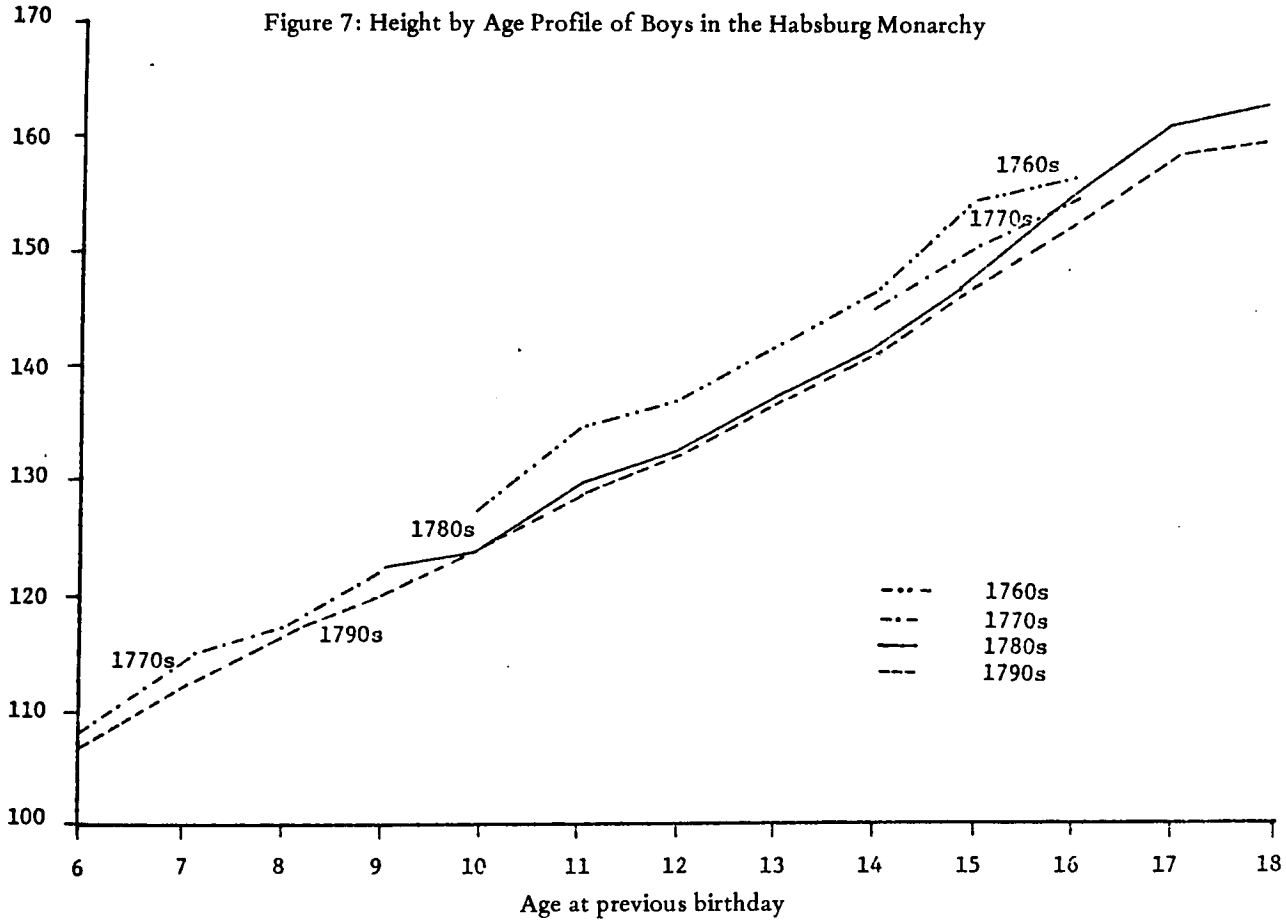


Figure 7: Height by Age Profile of Boys in the Habsburg Monarchy



	6 yrs	10 yrs	13 yrs	14 yrs	15 yrs	16 yrs	18 yrs
1) 1800 Habsburg Monarchy	108	124	137	141	146	152	162
2) 1760/80 German Middle Class		128	140	144	150	155	163
3) 1760/80 German Aristocrat		131	144	151	156	161	167
4) 1800 London poor			132	135	142	147	
5) 1800 London gentry			148	156	161		
6) 1800 France						167	170
7) United States slave		127	142	146	152	159	166
8) 1840 United States						167	171
9) 1900 Russian poor Jews					147	153	162
10) 1920 Vienna					152	155	160
11) 1923 Vienna					151	158	164
12) 1981 Austria	124	141		166			180

Table 5. Comparison of the Height of Boys of Selected Ages in Various Countries 1800 - 1981 (cm)

Sources:
Row 1: Table 2.
Rows 2 and 3: Hartmann, 1970.
Rows 4 and 5: Personal communication from Professor Roderick Floud.
Row 6: Jean Sutter, René Izac and Tran Ngoc Toan, "L'Évolution de la Taille des Polytechniciens," Population (July - Sept., 1958) pp. 373 - 406.
Row 7: Richard Steckel, "Slave Height Profiles from Coastwise Manifests," Explorations in Economic History, 16 (1979), 363 - 380. Average stature during early nineteenth century.
Row 8: Archive, United States Military Academy, West Point. Number of observations: 514. Stature at ages other than reported above was: 17: 169.2 cm; 19: 171.6 cm; 20: 172.7 cm.
Rows 9, 10 and 11: Nobel, 1924.
Row 12: Österreichischen Statistischen Zentralamt.

Growth increments (growth per annum) during adolescence are another indicator of nutritional status. The age at which the greatest increment is reached, and its size is sensitive to nutritional status. The lower the status, the later is the greatest increment experienced, and the smaller it is. Analysis of the growth increment over time confirms that the nutritional intake of boys under consideration was declining between 1760 and 1800, and that the decline was reversed thereafter [16].

The diminution of height throughout the late eighteenth century is in accordance with what is known about economic circumstances of the period, particularly about agricultural conditions [17]. The rise in grain prices and concomitant fall in real wages imply a decline in the standard of living; data on the trend in stature substantiate this notion with direct evidence. Adult male heights in the Habsburg monarchy also diminished during the latter half of the century [18]. Data on Swedish conscripts evinced a similar pattern, with the decline particularly noticeable among 19-, 20-, and 21-year-old soldiers, but less so with those over 25 [19]. Slum boys in London also suffered enormously during the last decades of the eighteenth century. They did, however, experience a phenomenal increase in stature after the end of the war in 1815. The increase in a matter of years was as much as 12 centimeters. The pattern of the stature of American slaves, too, followed a very similar cycle of deterioration and recuperation around the turn of the century [20]. This evidence indicates that the nutritional crisis was not confined to East-Central Europe, but the free American population, with access to a vast frontier, was not affected [21].

The nutritional status of boys in military boarding schools compares favorably with the height of poor London boys. Boys in our sample were four to six cm taller than poor London boys. American slaves, however, were considerably taller in the early nineteenth century (Table 5). Gentry boys attending Sandhurst Military Academy in England were also much taller. Compared with early twentieth-century standards, boys of the Habsburg monarchy were small in stature. At age

16) For a more extensive analysis of this aspect of the data, see the version of this article in the Annals of Human Biology.

17) Wilhelm A b e l, Agrarkrisen und Agrarkonjunktur (Hamburg, 1966; 1st ed., 1935), p. 241. Wilhelm A b e l, Massenarmut und Hungerkrisen im vorindustriellen Europa (Berlin 1974), p. 14.

18) K o m l o s, "Stature and Nutrition in the Habsburg Monarchy".

19) Lars G. S a n d b e r g and Richard S t e c k e l, "Soldier, Soldier, What Made You Grow so Tall?" Economy and History 23 (1980), 2, pp. 91 - 105. I thank Richard Steckel for sending me an updated version of their calculations.

20) Richard S t e c k e l, "Slave Height Profiles from Coastwide Manifests," Explorations in Economic History, 16 (1979), pp. 363 - 380.

21) Roderick F l o u d and Kenneth W a c h t e r, "Poverty and Physical Stature, Evidence on the Standard of Living of London Boys, 1770 - 1870," Social Science History 6 (1982), 4, pp. 432 - 433; F o g e l, "Nutrition and the Decline in Mortality since 1700".

14, for instance, they lagged ten cm behind the norm in Western Europe established around 1900. At the turn of the twentieth century there were, however, still some European populations with whom the Habsburg boys were comparable, such as poverty-stricken Russian Jews (Table 5). Viennese children who lived through the First World War were only slightly taller in 1920. Shortly after the war, however, their nutritional status begann to improve 22).

Compared with contemporary Austrian children, boys in the Habsburg military schools appear to have been tiny (Table 5). They were between 16 to 18 cm shorter – a difference of about four years of growth. In fact, there is not a single European population or population in North of South America of European ancestry with whom the Habsburg boys of the eighteenth or early nineteenth century are comparable. Children of Taipei, Hong Kong, Japan, Alaska, and South Korea are also all taller. One can find comparable heights only among such truly underdeveloped nations as Thailand, India, rural Burma, some areas of Mexico, or among the Maya in Guatemala, the Hutu in Rwanda, the Bush negroes of Surinam, and Bolivian children of mixed ancestry 23).

In conclusion, this study, based on the earliest data hitherto discovered on the height of boys and adolescents, shows that stature of those born in the late 1740s increased. This process was reversed for those born after the 1760s. This evidence confirms directly for the first time the notion often expressed in the literature that the rise in cereal prices during the second half of the eighteenth century had a detrimental effect on the standard of living 24). The deterioration, however, was not a consequence of industrialization since the data stem from an overwhelmingly agricultural society. Nor was the deterioration caused by the Napoleonic Wars; the diminution in stature preceded the outbreak of conflict. To be sure, the adverse effect of the war is detectable: height recovered somewhat after its conclusion, but not nearly to the levels of the 1760s. The decline in nutritional status is most easily explained by the acceleration of population growth which caused per capita agricultural output to diminish because of diminishing returns to labor in this sector. In sum, the secular pattern of stature of boys in the Habsburg monarchy enables one to gain an insight into the changes in economic conditions of this society.

22) C. Pirquet, "Eine einfache Tafel zur Bestimmung von Wachstum und Ernährungszustand bei Kindern," Zeitschrift für Kinderheilkunde 6 (1913), p. 255; E. Nobel, "Anthropometrische Untersuchungen an Jugendlichen in Wien," Zeitschrift für Kinderheilkunde 36 (1924), pp. 13 - 16.

23) Phyllis B. Eveleth and James M. Tanner, Worldwide Variation in Human Growth (Cambridge, 1976), pp. 277, 307, 331, 388.

24) Abel, Massenarmut.

The Transformation of Spanish Society 1800 - 1950
State of the Art

Fausto Dopico

I. The Problem of Statistics

The study of Spanish economic history has improved markedly in the last few decades, as anyone familiar with the limitations and tenuousness of research in this field in the past 50 years will appreciate. For the wealth of information, both qualitative and quantitative, now available about our economic past, we can thank the pioneering works of Ramon Carande, Jaume Vicens Vives and Luis Garcia de Valdeavellano, and contributions of foreign researchers such as E. J. Hamilton and P. Vilar. Nonetheless, there has always been a striking difference in the amount and availability of information about the 19th and 20th centuries as compared to the 16th - 18th centuries; this difference is due both to the different world roles played by Spain in these periods and to the difficulties in obtaining adequate documents about the 19th and 20th centuries.

Though archival documents from the 16th to 18th centuries have attracted the attention of researchers the world over, the documentation of the period 1800 - 1950 is, if not downright scanty, certainly irregular, scattered, unsystematic and often of dubious quality. The vicissitudes of political life and the persistent public debt, combined with corruption and neglect, all contributed to a notorious incapacity of Spanish governments in this period to periodically register, file, maintain and publish adequate statistical series and data about the principal economic activities of the country.

Still and all, the beginnings of what has come to be called the "statistical era" had been very promising in Spain. In the 18th century, the royal government expended considerable effort to determine the number, income and goods of people and institutions. The most spectacular result of this effort, which attempted to establish the basis for a far-ranging fiscal reform, was the publication of the *Castro del Marquês de la Ensenada,* an extraordinarily useful document for demographic and socioeconomic research about the twenty-two registered provinces (which, around the middle of the 18th century, represented 70 % of the Spanish population).

Towards the end of 1786 and the beginning of 1787, the Floridablanca Census was taken. This census, originally done with no fiscal purpose in mind, is extremely good for its time, without doubt the most complete census of that period in Spain. Covering the whole country, it includes age distributions which, if not completely adequate by present-day standards, certainly allow an analysis of its reliability and permit the formulation of important hypotheses about the behavior of the Spanish population at the time.

The wars with England and France, the Napoleonic invasion, the crisis of the Ancien Regime, the Carlist Wars and military insurrections led to a political instability which was evident in the central administration's inability to continue the statistical ordering begun by the Enlightenment Bourbons. During the first half of the 19th century, there was almost no systematic preparation of statistics about the state and evolution of the principal socioeconomic indicators. In 1841, the author of the first Spanish translation of a statistics text wrote, "In Spain (this is something very difficult and shameful to admit) both those who govern and those governed are in the dark about everything from the exact number of the population to the slightest information about our present strengths, resources and production from this rich and privileged earth... This lack of statistics is felt equally in the tributary system and in the fields of agriculture, manufacturing and commerce. The Government obviously wants to protect these latter, but to make available scanty statistical information which is insufficient and inaccurate usually only prejudices, rather than protects, these three main branches of industry." (A.P.F. de Sampaio, 1841). As an example of this dearth of information, what should be a straightforward study of the overall evolution of the population during the first half of the 19th century is severely restricted by the lack of reliable data, since the surveys available are crude reckonings undertaken for administrative and fiscal purposes - a far cry from what can be considered a statistically acceptable census.

In spite of these problems, abundant and varied - though scattered - documentation does exist at local, municipal and provincial levels. These documents have served as the basis for numerous monographs, whose usefulness, because of differing methodologies, does not nearly match the effort required to produce them. This is also true for hundreds of studies on land disentailment (G. Rueda, 1981), in which the same stereotypes and generalizations are repeated over and over again, doubtless because of the absence of well-designed, collective and large-scale surveys.

The situation improved somewhat with the creation, in 1856, of the King's Statistical Commission. In 1857 the first population census designed by an organization dedicated exclusively to statistical studies was done, and shortly thereafter, the first statistical annuals and information on vital statistics (births, deaths and marriages) appeared. These publications were full of errors, inadequacies and breaks in chronology, but little by little, Spain began regulating the gathering and analysis of statistics. There have been regular population censuses and information on vital statistics since the beginning of the present century, and Statistical Annuals have appeared since 1914.

The Spanish Civil War of 1936 - 1939 aggravated the already troublesome problem of statistical documentation. In 1945, in the preamble to the law creating the National Institute of Statistics, the Franco government itself admitted to the backwardness and sorry state of existing statistical services. That

same year the first estimate of national income published by a state body, The Committee on the National Economy, appeared. Derived indirectly from production statistics, it is burdened by conceptual and methodologic deficiencies, as well as by the limited reliability of the sources on which it is based (E. Fuentes, 1969).

In 1950, Spain still had no national accounting (begun only in 1954), nor anything that could remotely be called a census of wealth, agrarian production or industrial production. There was no one official statistical series that could be used to attempt an overall evaluation of a key problem in Spain's economic, social and political history: the structure of land ownership. Until the end of the 1950's, the situation remained frankly unsatisfactory, and only following the statistical restructuring of 1957 did official bodies begin to produce more or less reliable information and to improve both their methods and the reliability of their data.

If we accept the idea of a relationship between the degree of a country's social and economic development and the quality of its statistics, we can hardly wonder at Spain's backward state in this field. In 1950, the real per capita gross domestic income was 22 % that of the United States, 37 % that of Great Britain, 32 % of Belgium's, 45 % of France's, and 79 % of Italy's. Other indicators give us a picture of a country with half its active population dedicated to agriculture, and with an infant mortality rate of about 70 °/oo etc.

The calculation of the principal indicators of wealth and of national economic flow is a constant preoccupation of socioeconomic thought, at least of the "political arithmetic" of the 17th century. Per capita income is certainly inadequate for providing an accurate picture of the development of a country's socioeconomic structures and international position; still, when some sort of indicator is needed, it is undeniably useful for measuring and comparing degrees of development.

In our case, there are serious obstacles in determining the evolution of per capita income. The first estimate of national income, made by Arthur Young (1793), was considered totally untenable by G. Tortella (1983). Even assuming its reliability, difficulties still exist in comparing this estimate to later ones. There are no price series that allow the deflation of macroeconomic indicators from such an early date. It is not simply a technical question (the choosing and weighting of sufficiently significant sets of series), but also a methodological one. If one cannot speak, until well into the 19th century, of an integrated Spanish market, what theoretical sense is there in, and how does one devise, a representative series of prices for the Spanish economy as a whole?

Given the difficulties for direct calculation of the national income, especially during the last century, Tortella (1983) proposed a very useful series (G. Tortella, 1974; F. Bustelo and G. Tortella, 1976). Tortella assumes the existence during the last century, Tortella (1983) proposed an approximation based on money supply data, about he has provided a very useful series (G. Tortella,

1974; F. Bustelo and G. Tortella, 1976). Tortella assumes the existence of a remarkable stability in the evolution of income velocity, which is confirmed, in his opinion, by the Spanish data. While the proposal -already tried in other countries- is interesting, it cannot blind us to the statistical difficulties inherent in its application. Also, monetary series are subject to error, especially because of the incomplete accounting of banking deposits. Further, there is the problem of the direction of the relationship between money supply and money income, with the convenience of using delayed variables in one direction or the other. And finally, there is the basic theoretical discussion about the assumed stability of money demand (N. Kaldor, 1982).

Lacking more reliable data, researchers have availed themselves of M. G. Mulhall's estimates for a number of years of the past century. Tortella feels that Mulhall's numbers, duly corrected by L. Prados (1982), are provisionally acceptable, given their agreement with money supply data and their dovetailing with J. Alcaide's national income series (1976). Still, these series are not sufficiently consistent to verify each other's accuracy.

In any case, given that this is a formative period marked by internal market consolidation, one would expect, as a consequence of increasing monetarization of the economy, a continued decline in income velocity. Such a trend is not seen in the last third of the nineteenth and first years of the twentieth centuries.

I will return in some detail to Alcaide's estimates later. Mulhall's, because of his rudimentary method and the limitations of his sectorial data, cannot provide an adequate basis for staging and evaluating the rhythms of growth of the Spanish economy.

For the period 1900 - 1936, various estimates exist for particular years; undertaken privately, they are meticulously done, but the results are debatable and their utility questionable. Subsequently, the Consejo de Economia Nacional (CEN, or National Economic Council) produced an historical series going back to 1906. Its methodological errors are considerable (J. Velarde, 1973; P. Schwartz, 1977) and its use for the period in question is therefore highly questionable. J. Alcaide (1976) has reviewed the CEN's calculation of the national income, correcting some of the most obvious errors, but he does not adequately explain serious problems which remain with the methodology used for the new estimate. In addition, inadequacies of the primary statistics used as the basis for the indices are becoming evident as they are compared with present research on production in the different economic sectors.

Economic historians have spent a great deal of effort explaining the historical bases of economic development - or underdevelopment. Placing a country in its international context, and determining the stages of transformation of its social and economic structures, is difficult when there is no handy indicator with which to measure per capita production, per capita income or work productivity. It is for this reason that I have emphasized the deficiencies in Spanish statistics and the limitations of the commonly employed macroeconomic indicators.

We should not wonder, then, at the *a priori* and ideological positions which plague explanations of Spain's relative backwardness compared to western European development. In the last few years, however, our knowledge of basic aspects of Spanish society in the last two hundred years has improved considerably, and many unfounded stereotypes are giving way to more substantial hypotheses.

II. Demographic Transition

One would think, given the existence of a few general censuses for the end of the eighteenth century (1787 and 1797) and the progressive regularization of census and vital statistics publications in the second half of the nineteenth century, that the evolution of the Spanish population from 1800 to 1950 would be fairly well characterized: researchers should have been able to discern the principal characteristics of Spain's demographic transition with no more than the usual problems.

In 1968, Massimo Livi Bacci, attracted by the wealth of demographic data for the end of the eighteenth century, undertook a study of the evolution of the population during the eighteenth century and of demographic variables, especially marriage and fertility, from the end of the eighteenth to the beginning of the twentieth century. The force and influence of Livi Bacci's personality in Spain, his pioneering use of careful methodology based on the theory of stable populations and on Princeton's life tables, as well as the unquestionable quality of the study itself, were factors which discouraged, rather than encouraged, greater clarification about the transition in fertility during these years; thus, some of his main conclusions have still to receive a proper analysis.

Livi Bacci, noting a constant age structure in the Aranda (1768), Floridablanca (1787) and Godoy (1797) censuses, concluded that the Spanish population was growing at an annual cumulative rate of about 0.43 %. Based on this, he proposed a series of estimates for mortality and marital fertility which he compared with data from the second half of the nineteenth century and the first years of the twentieth.

Analyses of the censuses of the second half of the eighteenth century using similarity indices show considerable constancy in age structure. One is led to the conclusion, then, that there was a partially stable population and that therefore the stable population model with regard to fertility, mortality and population growth could be applied here.

A careful study of the Aranda, Floridablanca and Godoy censuses, however, reveals a systematic bias in their age composition, so that they do not accurately reflect the population distribution of the actual population. The main problem is an underestimation of the number of girls in the first years of life. The annual growth rate (the other parameter necessary to select the appropriate table) is also of doubtful value, as it has been calculated assuming the same degree of

hidden population for the 1768 and 1797 censuses -a risky assumption, since the two were taken using different criteria.

The distortions are even more important when we analyze the situation by regions, since the methodology employed when one assumes a homogeneous mortality throughout the country tends to overestimate fertility in areas of relatively low mortality, and vice versa. Work in progress shows that these distortions can be significant and that therefore some of Livi Bacci's main conclusions must be critically examined with this in mind. An example is his conclusion that there was a substantial decline in marital fertility between 1787 and 1860. This would require us to accept the idea that birth control was widely used throughout the country at the time. Armand Saez (1979) studied the generations of 1871 - 1875, whose fertile period was between 1886 and 1920. The completed fertility rate for these generations is 4.58, comparable to that of Finnish and Italian women and higher than that found in other western European countries, with the exception of Portugal. This indicates that Spaniards were not among the first to adopt family planning, as there is much evidence that the decline in fertility before 1900 was moderate, and limited principally to Catalunya, the Baleares and Madrid.

Figures for the country as a whole conceal the existence of different regional demographic behavior with regard to marriage, fertility and mortality. R. Rowland (1985) believes there are probably two different marriage patterns, extending into Portugal and divided by a line extending approximately from the western Pyrenees to Lisbon. To the north and west of this line, women traditionally married later, and their average age at marriage was about the same as that of women from the northwest of Europe. To the south and east of the line, marriage took place earlier. The factors which explain these two different patterns lie essentially in the different underlying family structures, in inheritance patterns and in the structure of authority within the home. Though these are factors which tend to be quite stable, the influence of migratory movements grew increasingly until, in the twentieth century, traditional patterns were replaced by newer ones.

Different demographic patterns, different patterns of landholdings and different patterns of land inheritance led in turn to different regional patterns of socioeconomic evolution. Thus, in some parts of the north and northwest, the intensification of some factors which limited marriage possibilities and the existence of a structured emigration within the system itself acting as a safety valve, served as moderating forces in the unraveling of traditional society and encouraged a process of "growth without modernization" (M. X. Rodriguez Galdo, 1985). In the south and central parts of the country, the consequences of the unraveling of the traditional agrarian system and of population growth were more explosive, with the demands of the common people for agrarian reform - demands which were very difficult to accede to without profound changes in

the system - becoming extremely intense and occasionally desperate.

Both the demographic transition process and migratory movements explain the change in the size of the Spanish population from the end of the eighteenth century to 1950 (Table III). As with many other European countries, Spain showed a negative migratory balance up to 1950. Emigration was moderate, though considerable, in some regions (F. Dopico and M. X. Rodriguez Galdo, 1981; J. Hernandez Garcia, 1977) in the first half of the nineteenth century, increased in the second half (J. Nadal, 1984; V. Perez Moreda, 1984) and became particularly significant in the first decades of the twentieth century (A. Garcia Barbancho, 1967). Internal and external migrations, closely related to the ups and downs of the industrialization and urbanization processes and to the international economic situation, caused striking regional differences which intensified after 1950.

III. Agrarian "Backwardness"

It has been said that the state of agricultural development at the beginning of this century was so poor, and production and consumption so meager that agricultural growth in the nineteenth century must have been restricted to the minimum needed to keep up with population growth. There is certainly evidence to support this assertion, the clearest being the high percentage of the total active population dedicated to the primary sector: in 1910 this was more than 70 % (Table IV). Such an overwhelming percentage would prove too big a burden for any consolidated process of economic modernization.

The hypothesis of an "agriculture rooted in the past, changing hardly at all in 100 years" (R. Tamames, 1973) was, until very recently, believed valid also for the first third of the twentieth century. The only exception to this was the recognition given to the dynamism of exporting agriculture of the eastern coastal region (R. Perpiñá, 1952).

With such a perspective, it is hardly surprising that agrarian stagnation should be seen as one of the principal causes of Spain's backwardness. Agriculture could not possibly have fulfilled the functions normally assigned to it in the industrializing process: the freeing of manpower, the production of cheap food, the creation of a demand for industrial products, the accumulation of capital which could be poured into other sectors, etc.

All these aspects need to be examined more closely, however. In the first place, Spanish agriculture should not be thought of as homogeneous, and less still can its evolution be compared to that of large-scale agriculture, as occasionally is done in texts and review articles. In Spain, family agriculture constitutes the structure of much agrarian life, even in those areas traditionally considered more "latifundistas" (agriculture of large estates), such as Andalusia. In the second place, the image of a rigid, unresponsive agriculture is far from accurate for the nineteenth and twentieth century.

The nineteenth century was a period of fundamental changes in agrarian ownership and production. The writings of enlightened and liberal thinkers, calling for the dismantling of the "obstacles" that hindered agrarian development, were not merely an ideological reflection of the progressive thinking of the time. The conversion of feudal land to private land; the disentailment of ecclesiastical and municipal properties; the abolition of entailed estates; the banning of a series of privileges and servitudes, were all of such magnitude that they could not possibly have left the agrarian structure untouched, no matter how much the bourgeois revolution in Spain respected the nobility's land rights and no matter how often the nobility was favored - which it sometimes was.

The cultivation of lands that had previously lain fallow, made easier by the disentailment of ecclesiastical and communal goods, was a constant throughout a good part of the nineteenth century. The traditional and generally accepted view sees in this increase in cultivable land the key to the increase in production, which reached its height in the middle of the century. This kind of process always carries with it the danger of the use of marginal lands. There came a point, which G. Tortella (1984) puts around 1850, when yield from land worked and productivity of the work force began to decrease. According to the traditional view, the agricultural decline was the triggering factor for the food crises of 1856 - 57 and 1868, and led to a particularly delicate situation in the 1880's, when the European agrarian crisis became evident in Spain.

The thesis that agricultural backwardness was the fundamental, or at least a very important, factor in industrial development is coherent and convincing, and may be at least partially true, at least for big-scale grain agriculture. However, there are no production and productivity statistics which might back up this thesis for agriculture more generally. Furthermore, it is much too simple an explanation for something as complex as Spanish agriculture.

In those areas where small scale agriculture predominated, the sowing of new land was important, but insufficient, to cover new rural needs arising from population growth and increased monetarization of the economy. The decrease in fallow land, the introduction of new crops, the intensification of land use, the increased use of stables to house livestock, the ordering of the rotating crop system, and the selective reorientation of lands, were all important factors in the Basque, Cantabrian, Asturian and Galician countryside in the nineteenth century.

The dynamism of agriculture on the Mediterranean coast during the second half of the nineteenth century is generally recognized. Even such authors as E. Temime, A. Broder and G. Chastagnaret (1982), who paint a picture of a particularly stagnant Spanish agriculture at the time, admit that small and medium scale farms, which centered principally on the increase in production and profit from oranges and other horticultural products, progressed notably.

Nor is it accurate to talk of agriculture in the south and in Castile as semiparalyzed during this time (A. M. Bernal, 1984; A. Garcia Sanz and J. Sanz, 1984). And the country's important vineyards showed admirable flexibility, increasing production significantly when external circumstances - the spread of phylloxera in France - opened the way for a remarkable increase in exports (L. Prados, 1982).

Though the end-of-the-century agricultural crisis arrived somewhat later in Spain, it hit hard (R. Garrabou, 1975). The important agrarian landowners and entrepreneurs now supported protectionist policies, thus uniting them with Basque and Catalan industrial interests and making possible that phase of Spanish economic evolution which has been called the "nationalist road of Spanish capitalism" (J. Muñoz, S. Roldan, A. Serrano, 1978).

Protectionism was not the only response to the crisis. In the first part of the twentieth century the sowing of new lands continued, especially in regions where "latifundista" agriculture predominated. Most important, however, were the changes in crop structure and the introduction of industrial input.

Tables V and VI summarize some of the changes in the crop system during these years, such a reorientation to those goods more easily commercialized within the country, or for which there was some foreign demand (oil, citric products, nuts and dried fruits, beets). The increase in the production of potatoes is testimony to the intensification of crops in regions in which they were grown. The significant growth in the value of livestock products was due basically to better quality animals and some specialization in cattle in the north.

Those factors which from a technological point of view define an agrarian modernization process (use of artificial fertilizer, mechanization, species selection, sanitary improvement, etc.) were barely in evidence at the end of the nineteenth century. The situation changed substantially in the following decades, as is shown by the use of mineral nutrients: in 1907, 5.2 kg. of inorganic nutrients ($N + P_2O_5 + K_2O$) per sownhectar were used; in 1930 this had increased to 17.6 kg per hectar. Although total overall use remained modest in comparison to more advanced European agriculture, this represents a considerable increase.

If we use advanced European agriculture as the reference point, then acquisition of machinery and metal equipment was modest, but if we take into account the state of Spanish agriculture at the time, it was substantial: by 1932 Spain had one harvester or mowing machine per 84 hectars sown, one threshing machine for every 1544 hectars and one traction engine for every 4820 cultivated hectars.

The value of the total agrarian product grew at a rate of 1.4 % between 1900 and 1931. Production per active male population increased in the same period by a rate of 1.8 %.

From 1910 on, increase in productivity was favored by a significant rural exodus and by the mechanization process. Agriculture more than fulfilled its function as a supplier of a work force to other sectors, to the point that not everyone could be absorbed and many had to emigrate, especially to Latin America.

The increase in production, the acquisition of equipment and the low agricultural salaries lead us to assume there was a certain ability to accumulate capital on the part of proprietors and entrepreneurs. Buying land was considered a good "investment", and the price of land tended to rise not only where small scale agriculture was the norm, but also in the south of the country.

The liberal agricultural policy caused a considerable increase in the number of hired hands in the countryside during the nineteenth century. Seasonal unemployment and low wages, however, limited to an enormous extent the acquisition of consumption goods. The response to the demand for production goods, on the other hand, had to be met by imports as well as by national production. And in some areas of family agriculture the percentages of selfconsumption and replacement as a means of production remained high.

Agriculture only partially fulfilled those functions normally expected of it in the industrialization process, and did not help reduce industrial costs in this period, probably because of the strong protectionism which prevailed at the time. Nonetheless, it is hardly the "guilty party" that traditional historiography makes it out to be. Precisely because economic growth is the result of a series of complex forces which influence and interconnect with each other, agriculture was, in general terms, also part of the slowness (in comparison to more advanced western European countries) of the modernization process in Spain.

One thing, however, is particularly difficult to evaluate adequately in quantitative terms: the social price of the growth model ultimately chosen. The "agrarian problem" was one of the great unsettled questions inherited by the Second Republic. The conflict became extremely accentuated in regions of large estates, where laborers demanded wide-ranging reforms which would give them control of the lands they worked. This was the focus of some of the greatest tensions in Spanish society in the years before the Civil War, and undoubtedly contributed to its outbreak.

IV. Characteristics of the Industrialization Process

Ten years ago Jordi Nadal published *El fracaso de la Revolucion Industrial en España, 1814 - 1913,* refining and completing his contribution to *The Fontana Economic History of Europe.* The book is an interpretative synthesis of the evolution of Spanish society in the hundred years between 1814 and 1913, and is backed up by the author's own abundant research and impressive erudition. Even today, Nadal's own critics are obliged to refer continually to his hypothesis and data and admit that his lines of argument, or at least many of them, are

still the axis around which the continuing discussion about Spanish industrialization before the First World War rotates.

Since then, numerous monographic works have appeared about the industrialization process, especially in regard to the analysis of the principal industrial sectors, the role of banking, the role of foreign business, the conduct of political and economic authorities and the unique situations of the different regional economies. Nadal himself recently published a review of these studies (1984). I will limit myself here to an analysis of those few which are of special interest because of their contribution to our knowledge of the evolution of industrial production, because of their statistical methods or because of the polemical character of their conclusions.

Nadal believes that the Spanish case "is less that of the 'late joiner' than that of an attempt, mostly aborted, to be one of the 'first comers'." But the fact that during the nineteenth century the difference between Spain and other European countries grew does not mean that the point from which each started was the same. Most authors of the Enlightenment and a great number of rulers were conscious of Spain's backwardness in comparison to countries such as Great Britain, France or Holland, and more than once tried to discover in these countries' evolution the magic formula which would overcome it. Few of them, despite their patriotism, would have accepted I. Berend's and G. Ranki's statement, "At the beginning of the nineteenth century, Spain was one of the wealthier countries of Europe." (1982).

Spanish society of late feudalism was not, however, incompatible with the development of some industrial production, in spite of the very grave treasury problems, the extremely unequal distribution of wealth and the lack of an integrated "national" market. In addition to a series of initiatives in manufacturing and rural industry, there were some singular attempts to adopt the most advanced technology of the time: for example, as in experiments in the Andalusian iron and steel industry and in the industrial nucleus of Sargadelos in Galicia.

The most notable industrial development during these years was, beyond any doubt, that of Catalunya. Pierre Vilar (1964 - 1968) has studied the specialization process of Catalunyan agriculture in the eighteenth century, the increase in production and exportation of wine and "aguardiente" and the expansion of Catalunya's internal market. Both agricultural changes and the increase in monetarization of the economy, in a region with a certain industrial and commercial tradition and a fairer distribution of income than that seen in the rest of Spain (J. Maluquer de Motes, 1984), made it possible for the cotton industry to serve as the foundation for the development of a significant industrialization. The cotton industry became more and more mechanized during the 1800's, and toward the middle of the century was holding its own quite nicely (J. Nadal, 1975; J. Maluquer de Motes, 1976). The Catalan textile industry successfully took advantage of the possibilities offered by the West Indies (until the loss of

the last remaining colonies in 1898), the slow increase of internal textile consumption and the increasing substitution of wool and linen by cotton. In 1890, the consumption of textiles was 3.3 kg per inhabitant; of this, more than 80 % was cotton (N. Sanchez-Albornoz, 1981).

Though at the end of the nineteenth century the Catalan industrial structure was centered on textile production, the repatriation of capital from the West Indies, the development of the internal market and an important urbanizing process led to significant diversification in the first decades of the twentieth century. An indication of this growing dynamism is Catalan energy consumption, which in 1933 rose to 1035 kg equivalents of coal per inhabitant, or about 2.3 times the national average.

In the second third of the nineteenth century, various circumstances -agricultural expansion, mechanization of the cotton industry, renovation of the navy, the first stage of railway construction- increased the demand for iron and steel products. Still, production was unable to respond adequately, mainly because of the duty free status declared in 1855 for construction materials necessary for the building and initial functioning of the railroad. Nadal believes this policy was a serious obstacle for the consolidation of the iron and steel industry. A. Gomez Mendoza (1982) disagrees, and maintains the industry would not have been able to increase its capacity to meet demand, that costs would have increased and, when construction declined, the industry would have found itself with an excess capacity.

There were other factors limiting increased availability of iron and steel products, particularly the difficulties in obtaining quality coal. This was a principal factor in the decline of the Andalusian iron and steel industry, which had been predominant until the beginning of the 1860's (J. Nadal, 1975; C. Garcia Montoro, 1978). Asturias, which produced more than half of Spain's coal, took over in the following years, but its coal was inferior in quality and expensive to convert to coke.

Around Bilbao there were mines of iron ore which, because they were easily exploited and because the ore had a very low proportion of phosphorus, were well suited to the Bessemer method. Between 1878 and 1900, 58 million tons of ore were exported to Great Britain (M. Flinn, 1955; M. Gonzalez Portilla, 1981). A substantial part of the profits from these exports remained in Basque hands, contributing significantly to development of the iron and steel industry, to naval construction, to the rise of the hydroelectric industry, to the chemical and paper industry and to growth in the insurance and banking sectors (E. Fernandez de Pinedo, 1983). The momentum of the Basque iron and steel industry -which, benefitting from protectionist laws would soon supply a considerable proportion of the national demand- was futher aided by being able to import English coal on the same boats that sent iron ore to England.

Catalunya and the Basque country were clearly the stars in Spanish industrial development during this period. Their long tradition of business and industry and their comparative advantages allowed them to make the most of the formation and consolidation of the national market. The limits of this market, however, restricted the possibilities of their main productive sectors, while at the same time restricting initiatives arising in other parts of the country. In some cases, other regions suffered deindustrialization and the substitution of their traditional products by those of the more industrialized areas. Thus, heavy regional concentration (in particular, Catalunya and the Basque country) became a principal characteristic of the Spanish model of industrialization.

Another is the importance of the consumer goods industry, a point made by J. Nadal (1975) in his testing of Hoffman's thesis for Spain.

The complete dominance of the textile and food industries is evident in fiscal statistics for the middle of the nineteenth century (J. Nadal, 1984) and in statistics of industrial production (A. Carreras, 1983). This predominance, which was not surprising at the time, given the minimal development of the secondary sector, later became a structural constant. With the exception of a significant decline in the years of Primo de Rivera's dictatorship, consumer goods and those intermediate goods needed for their production represented about half of all Spanish industrial production. This began to change after the Civil War (Table VII).

During the period between the two world wars, the analysis of price evolution gave rise to considerably increased use of quantitative techniques in historical studies. In Spain, the most sophisticated statistical methods have been used to study agricultural prices and associated topics (the formation of a national market, the development of transportation). These methods generally go no further than traditional econometric methods, with the exception of certain demographic studies (F. Dopico, 1985; R. Rowland, 1985) or regional studies (J. Cruz, 1980; F. Dopico, 1982; X. Cordero and M. X. Rodriguez Galdo, 1981; X. Cordero, F. Dopico and M. X. Rodriquez Galdo, 1984).

Gonzalo Anes' study, *Las crisis agrarias en la Espana moderna* (1970), points up the lack of an integrated Spanish market during the final years of the Ancien Regime. N. Sanchez-Albornoz (1974, 1975, 1981), using correlation matrices and factorial analysis, studied the behavior of agricultural prices from 1856 to 1890, the economic regions defined by these prices, and the movement toward a unified market. The Grupo de Estudios de Historia Rural (1980, 1981) extended this series up to the first years of the present century.

The Box-Jenkins methodology has opened up new possibilities in the analysis of time series. D. Peña and N. Sanchez-Albornoz (1983, 1984) have been pioneers in the application of this type of technique to historical studies, using once again agricultural price series.

In the 1880's Spain achieved a remarkable integration in the grain market, much greater than in previous periods, and the convergence of regional prices continued thereafter. Capitalism's degree of penetration in the economic fabric should not, however, be judged solely by the establishment of a uniform national price. Thus, at the end of the last century there were still certain regions with high levels of self-consumption on their farms.

The improvement of transport does not by itself create a national market, but it does contribute powerfully to its formation and expansion, encourage the division of labor and aid regional specialization. The characteristics of the construction of the Spanish railway network and its significance for the overall economy have been the object of a prolonged debate which continues despite the wealth of research on the subject.

Without denying the advantages the railroad offered, G. Tortella (1975) and J. Nadal (1975) have described negative aspects of its construction, particularly its rate of construction, geographic layout and financing and tariff protection. A Gomez Mendoza undertook a radical re-examination of these various aspects (1982), and whether or not one agrees with the author's ideas and conclusions, *Ferrocarriles y cambio economico en España, 1855 - 1913* is clearly the most rigorous and thorough application of the methods and techniques of the "new economic history" yet offered on a Spanish topic.

The role played by foreign business in Spanish economic evolution is also the subject of some controversy in Spanish historiography. In a book with a suggestive subtitle, "Growth and Underdevelopment", J. Nadal Farreras (1978) points out the subordinate role Spain played in economic and business relationships with Great Britain. L. Prados (1982, 1984), on the other hand, maintains that classical (and neoclassical) arguments in favor of foreign business are applicable to Spain.

Closely related to this is the subject of foreign investment, and it is no less polemical a topic. R. Anes (1970), A. Broder (1976) and M. T. Costa (1983) have studied foreign financing before World War I. From 1855 to 1890 investments were concentrated mainly in railroads and mining, and later diversified (water, electricity, transport, the chemical industry, etc.). While G. Tortella (1981) emphasizes the positive and dynamic aspects of foreign investment, J. Harrison (1980) sees in foreign control of the principal mining companies a symptom of underdevelopment; J. Nadal and Broder insist that a sizeable portion of the money from foreign sales never returned to the country. The characteristics of foreign business and foreign financing in Spain led J. Muñoz, S. Roldan and A. Serrano (1978) to speak of the existence of a "subordinate" model of industrialization in the second half of the last century.

This is not the place to embark on a discussion of the different ways in which the state can participate in the industrialization process. However, J. Harrison's forceful statement attributing most of the backwardness to "a series of govern-

ments bent on a variety of mistaken and counterproductive policies" needs to be qualified and applied to particular cases. Nonetheless, it is certainly true that the Spanish state took a leading role throughout the industrializing process, and not only in the usual ways (establishment of the institutional framework, fiscal policy, monetary policy, taxes, etc.). The effects of monetary policy have recently been studied by P. Martin Aceña (1981, 1984). Fiscal policy was in general regressive and discriminatory, and led to a sizeable and chronic debt (R. Anes and P. Tedde, 1976; J. Fontana, 1977; P. Tedde, 1981, 1984). Foreign trade policy was strongly protective, except for the short period following the Figuerola Tariff of 1869. Some other decisions did decisively influence the evolution of Spanish capitalism: the opening up of the country to foreign investment in 1855, the mining legislation of 1868, the consolidation of protectionism in the tariff of 1891 and its subsequent accentuation, the interventionism and corporativism of Primo de Rivera's dictatorhip (1923 - 1930) and the profound consequences of Franco's autarchic policy after the Civil War. In short, there emerged a framework characterized by protectionism, interventionism and political authoritatianism. Still, This cannot be seen as the effect of decisions by a series of incompetent rulers (which obviously not all of them were), but as the result of complex conditionings and powerful interests and of their reactions when faced with the opposition of the dominated social classes.

V. The Evolution of Industrial Production

A. Carrera's (1983, 1984) careful construction of an annual index of industrial production permits us to estimate a growth rate and to detect certain significant stages.

Although the annual cumulative growth rate of 4.6 % obtained for the period 1831 - 1861 is little more than guesswork, it confirms the considerable industrializing momentum of the mid-1800's which Nadal's book and other works have already made clear. The growth rate was noticeably less in the following years (2.3 % between 1861 and 1890 and 2.0 % between 1890 and 1913), almost as though it were suffering the consequences of the previous growth, although in reality the industrializing process was only just beginning.

Between 1913 and 1916 industrial production grew at an annual rate of 2.9 %. Both energy production and capital goods production continued to grow from 1916 to 1918, thus compensating for the decline in production of consumer goods. There was a modest post-war decline, and then, in 1922, levels once again approached those of 1916 and 1918. Spanish neutrality in the first World War had other consequences: a positive balance of trade (it had traditionally shown a deficit); changes in the industrial structure, including the growing replacement of imported goods by national products, a trend strengthened by increasing protectionism; the substantial rise in business profits; the expansion of the banking sector, etc. (S. Roldan, J. L. Garcia Delgado and J. Muñoz, 1973; J. Fontana and J. Nadal, 1976).

The deterioration of the social and political situation, pressures from powerful economic groups and the conspiracy within the upper echelons of the military, led to the military dictatorship of Primo de Rivera in September 1923. A Carrera's industrial production index shows a 5.5 % per annum increase from 1922 to 1929, completely in step with European growth at that time. J. Velarde (1968) believes the key to economic growth during this period was the growth in public investment - especially the policy of public works - and the numerous effects derived from this growth. This policy has been called pre-Keynesian; even if we accept that judgment, it was a pre-Keynesianism that was imposed by circumstances rather then chosen by economic authorities, who were most decidedly in favor of a balanced budget (A. Melguizo, 1979).

In fact, a considerable portion of industrial growth during the dictatorship came from the production of producer goods (Table VIII). This type of growth has its limits and costs, however, as recent works have shown (J. L. Garcia Delgado, 1983).

The statements of Indalecio Prieto, the first Minister of Finance and later Minister of Public Works in the first years of the Republic, have served as the basis for sometimes merciless criticism of Republican policy. This criticism revolves around the reduction in public investment - already begun in the transition government of Berenguer - and around the failure to draw up an anticyclical policy which would have allowed the government to cope with the international economic crisis. A recent article by F. Comin and P. Martin Aceña (1984) tries to de-mythify the state's role both in the growth of the twenties as well as in the subsequent stagnation. They show that the Republican governments followed neither a monetary nor a restrictive fiscal policy, and that the behaviour of the private sector was decisive in shaping the economic situation.

Between 1929 and 1935, the index of industrial production showed a 0.4 % annual rate of decrease, certainly moderate in the context of the world depression. The Depression affected the different industrial sectors differently. While production of consumer goods, aided by the Republic's wage policy, rose moderately, that of capital goods declined sharply.

Though both the economic and international political context posed a number of difficulties for the Republican governments, limiting their manoeuvrability, their main problems were structural. Hundreds of years of tradition had resulted, in the first third of the twentieth century, in a highly uneven distribution of wealth, property and income, so that the coming to power of a Republican government built up hopes in those on the lower end of the scale for economic and social change. Myriad ideological and political factors served to radicalize the situation increasingly until the outbreak of the Civil War.

VI. Conclusions

Most historians recognize Spain's backwardness in the transition from an agrarian to an industrial society. This backwardness, however, is a function of seeing the country in relation to development in the advanced western countries. Many economic, social and cultural factors hindered a growth which would be both centered in Spain and possessed of sufficient momentum to bring forth a transformation comparable to that of such countries as Great Britain, France or Germany. Nor was Spain in a condition to benefit, as were Belgium, Switzerland and Denmark, from the effects of industrialization in the larger European countries. Their geographic characteristics, business and production structures and links with other countries were all quite different. Still, Spain had sufficient capacity and geographic and economic proximity so that capitalist development was not just the mere creation of enclaves within the country.

If we look at other neighboring countries such as Portugal or the Mediterranean countries, then Spain's backwardness is not so striking. Portugal, which followed a very different growth strategy, had a per capita income in 1950 that was one third less than that of Spain. I have already expressed my skepticism about Spanish estimates for the first decades of this century, but if we accept the validity of P. Bairoch's estimates (1976) for very broad comparisons then we can see that the per capita gross national product at the beginning of the century was similar in Italy and Spain. Though in the first part of the century Italian growth was already somewhat greater and its industrial structure more diversified and competitive (A. Carreras, 1973), the differences became especially marked in the years after the Second World War: Spanish per capita income in 1950 was 79 % of Italy's and in 1960 only 69 % (R. Summers, I. B. Kravis, A. Heston, 1980).

There is little doubt about the economic cost to Spain of the Civil War and the autarchic era of Franco's rule (1939 - 1957).A level of industrial production equivalent to the pre - war level was not reached until 1949 and, according to Alcaide's figures, per capita income did not recoup until 1953. Spain's economic recovery after its Civil War was much slower than that of other European countries after World War II, despite the fact that the latter experienced more extensive destruction of their structures of production than did Spain. A large part of the population suffered the consequences of this, and lived on the edge of poverty for years.

If Spain was strongly protectionist even before 1939, after the Civil War it completely isolated itself from the outside. Import and export restrictions, bilateral clearing agreements and the control of foreign exchange held sway over foreign trade policy; this was combined, within the country, with the state's strict regulation of production processes and international trade, a powerful political presence in the assigning of sources and widespread corruption in the halls of power.

Of course, a variety of international circumstances propelled the first governments of the Franco era to choose an isolationist policy. But this autarchic path upset neither the new rulers nor the classes which supported them, and dovetailed very nicely with the fascist desire for self-sufficiency. In 1939, General Franco declared, "Spain is a privileged country which can take care of itself. We have everything we need to live on, and our production is sufficently abundant to guarantee our own subsistence. We have no need to import anything."

One cannot, however, dispose of the first decades of the Franco regime with a simplified disqualification of its economic policy. They were also years of a significant redistribution of income and accumulation on the part of certain groups and privileged economic sectors. These groups were finally able, after the changes in economic policy from 1957 on, to connect with European expansion and control the powerful industrializing process of the sixties and early seventies. Perhaps the most terrible consequence of the Civil War was not economic, but cultural and political. Spain was for too many years completely - and purposely - closed off from the main trends of European life, thought and culture. The enormous cost of this harsh reality to generations of Spaniards is something no systematic model will ever adequately assess.

Acknowledgements:

In March 1985 a group of professors from various Spanish universities were kind enough to accept the invitation offered by the University of Santiago to participate in a conference on the topic of this talk. Pablo Martin Aceña spoke about the evolution of the money supply between 1900 and 1935; Domingo Gallego about technical changes in agriculture from the end of the nineteenth century to the Civil War (I am indebted to him for the data I have used on fertilizers and machinery); Francisco Comin about the evolution of the agricultural product between 1891 and 1949; Antonio Miguel Bernal on property and land prices between 1800 and 1950. Maria Xose Rodriguez Galdo spoke about the decline in fertility, and Rafael Anes about coal mining; Carles Sudria summed up the conclusions of a study on the energy sector which he did with J. Nadal, J. Maluquer de Motes and A. Carreras. Xaime Garcia-Lombardero and the other members of the Economic History Department of the University of Santiago also participated. The papers and comments of all were most interesting, and I am only sorry not to be able to acknowledge all of them here. Robert Rowland read the manuscript and offered useful suggestions. To all these colleagues, my heartiest thanks. The focus of the paper, and any errors it may contain, are of course solely my responsibility.

Table I

Completed fertility rate per woman

Generations	Completed fertility rate	Generations	Completed fertility rate
1871 - 75	4.58	1906 - 10	3.05
76 - 80	4.44	11 - 15	2.88
81 - 85	4.32	16 - 20	2.61
86 - 90	4.04	21 - 25	2.48
91 - 95	3.86	26 - 30	2.52
1896 - 1900	3.53	31 - 35	2.66
1901 - 1905	3.25		

Source: A. Saez (1979)

Table II

Life expectancy in Spain

Year	e_o
1900	34.8
1910	41.7
1920	41.1
1930	50.0
1940	50.1
1950	62.1

Source: Instituto Nacional de Estadistica.

Table III

Evolution of the Spanish population

Year	Population (*)	Annual cumulative growth rate
1787	10393	
1860	15645	0.56
1900	18594	0.43
1930	23564	0.79
1950	27977	0.86

Source: Population censuses. Does not include Ceuta, Melilla and previous African possessions.

*) Population in thousands.

Table IV

Sectorial distribution of the active male labor force (%)

	1877	1910	1930	1950
Agriculture	72.2	71.6	50.6	54.3
Industry	13.2	14.5	25.3	25.6
Services	14.6	13.9	24.1	20.1

Source: Population censuses and Instituto de Cultura Hispanica (1957).

Agriculture includes the fishing industry; industry includes mining, manufacturing electricity, gas, water and construction; services is everything else.

The active female labor force is not included because of inadequate data.

Table V

Distribution of the Spanish agricultural product (% of total)

		1900	1931
1.-	Agriculture	77.3	76.9
	Grain	44.7	34.5
	Wine	9.5	6.0
	Olives	5.1	5.7
	Trees and fruit trees	4.3	8.0
	Roots, tubers and bulbs	6.2	11.1
	Specialty crops (textile crops, beets)	2.0	2.9
	Garden crops	3.4	6.0
	Cultivated grazing lands	1.7	2.7
2.-	Forests, pastures and fodder	9.5	4.1
3.-	Livestock	15.4	19.0
		100.0	100.0

Source: Group for Rural Historical Studies (G.E.H.R.), 1983.

Table VI

The value of the Spanish agricultural product in 1931 compared to 1900

		1931/1900 %
1.-	Agriculture	154
	Grains	119
	Wine	98
	Olives	175
	Oranges	342
	Almonds	236
	Potatoes	306
	Sugar beets	583
	Garden crops	254
	Cultivated grazing lands	220
2.-	Forests, pastures, fields	68
3.-	Livestock	223
	Milk	248
	Wool	133
	Meat	217
	Total Production	155

Source: G. E. H. R., 1983, Production has been valued in terms of the 1910 pesetas.

Table VII

Contribution by sector to the Spanish industrial production index (in %)

Year	Sector 1	2	3	4	5
1861	2.7	31.7	7.4	8.2	50.0
1891	6.6	24.2	12.9	8.1	48.2
1913	11.3	19.3	11.4	11.4	46.6
1922	13.0	9.9	9.2	11.9	55.9
1929	14.3	10.4	13.6	20.0	41.7
1935	17.4	6.5	9.7	16.5	49.9
1940	24.3	5.2	11.5	19.1	39.8
1950	27.2	5.9	12.4	18.6	35.9

Source: A. Carreras (1983).

Sector 1 includes energy. Sector 2, mining, does not include minerals used for energy. Sector 3, producers of intermediate goods for equipment goods. Sector 4, producers of investment goods. Sector 5, consumer goods and intermediate products for the production of consumer goods.

Table VIII

Percent of growth of industrial production according to sector (1922 - 1929)

Energy	16.9 %
Mining	11.4 %
Intermediate goods	21.9 %
Investment goods	35.3 %
Consumer goods	14.5 %

Source: Adapted from A. Carreras (1983).

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The Transition from Agricultural to Industrial Society: Japanese Case *)

Mitoshi Yamaguchi

I. Introduction

The relationship among technical change, population growth, and economic development are poorly understood. Also, Japan's success in economic development since the Meiji Restoration of 1868 continues to attract attention. In this paper an attempt is made to measure the effects of differential rates of technical change in the agricultural and nonagricultural sectors and of population growth on Japanese economic development in every decade for the period 1880 - 1970.

The model includes an agricultural sector and a nonagricultural sector. It extends conventional growth accounting to include intersectoral relationship and demand factors (population, per capita income, terms of trade, and imports/ exports) more directly. This tells the difference of the role of technical change, population growth, capital stock and other variables in the transition from agricultural to industrial society.

II. General Outline of Japanese Economic Development

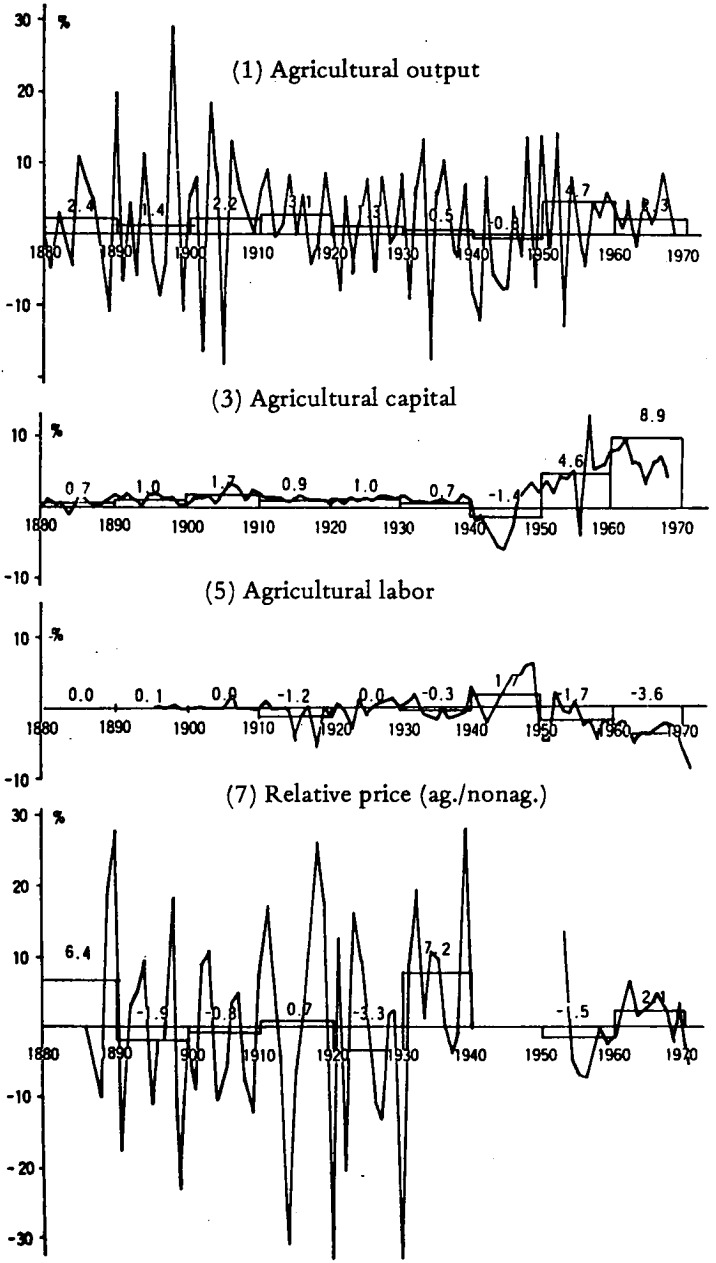
Figure 1 shows the annual growth rates of agricultural and nonagricultural outputs, inputs (the capital and labor in each sector), the relative price (agricultural price/ nonagricultural price) and per capita income for the period 1880 - 1970. These are the eight endogenous variables in our model which has the matrix form $Ax=b$. The histogram in Figure 1 also gives the historical average growth rate of each of the 8 endogenous variables in each decade. For example, the value of the nonagricultural output in the 1880's shows 4.3 %. This means that real nonagricultural output grew at the rate of 4.3 % between 1880 and 1890. Figure 1 also shows that the growth rate of per capita income (in real term) accelerated over time. This would indicate the phenomena of the trend acceleration of the Japanese economy, pointed out by Ohkawa and Rosovsky (2). Note that the trend acceleration is especially apparent after World War II. On the other hand when we observe the annual growth rates for the variables we find numerous wave motions causing the long-term wave motions in the moving-average of the annual growth rate of each variable.

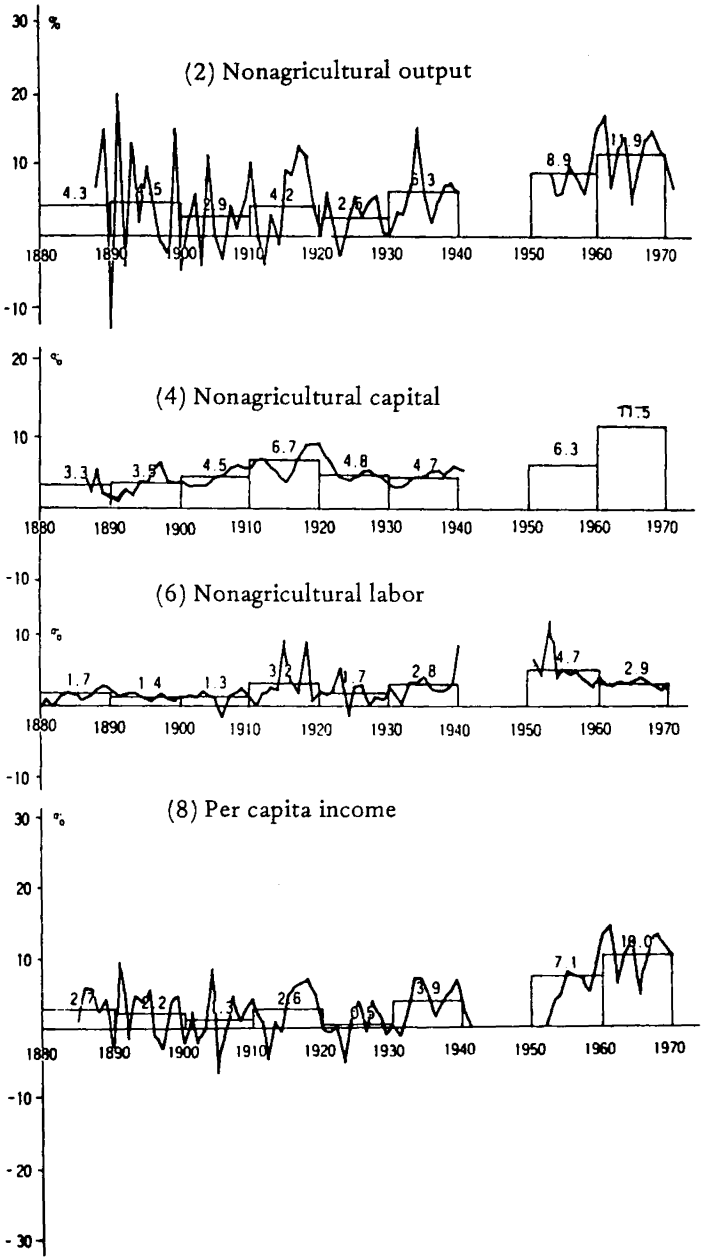
Let us now consider the depression periods in the Japanese economy. Figure 1 shows that the growth rates of per capita income and nonagricultural output

*) This paper is a summary and extension of Yamaguchi (4), (5), (6), (7). Therefore, we draw very heavily from these four papers although we recalculated the result by using a new data.

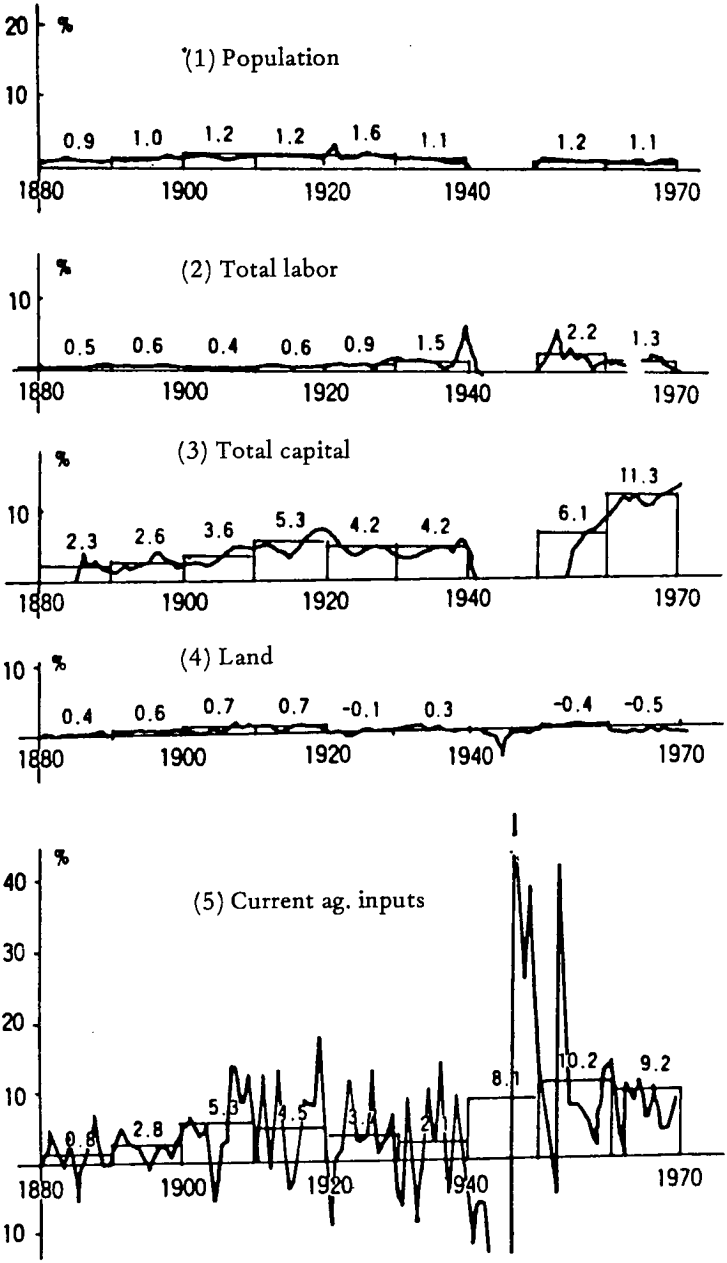
Figure 1: Annual Growth Rate of Endogenous and Exogenous Variables

Enodenous variables

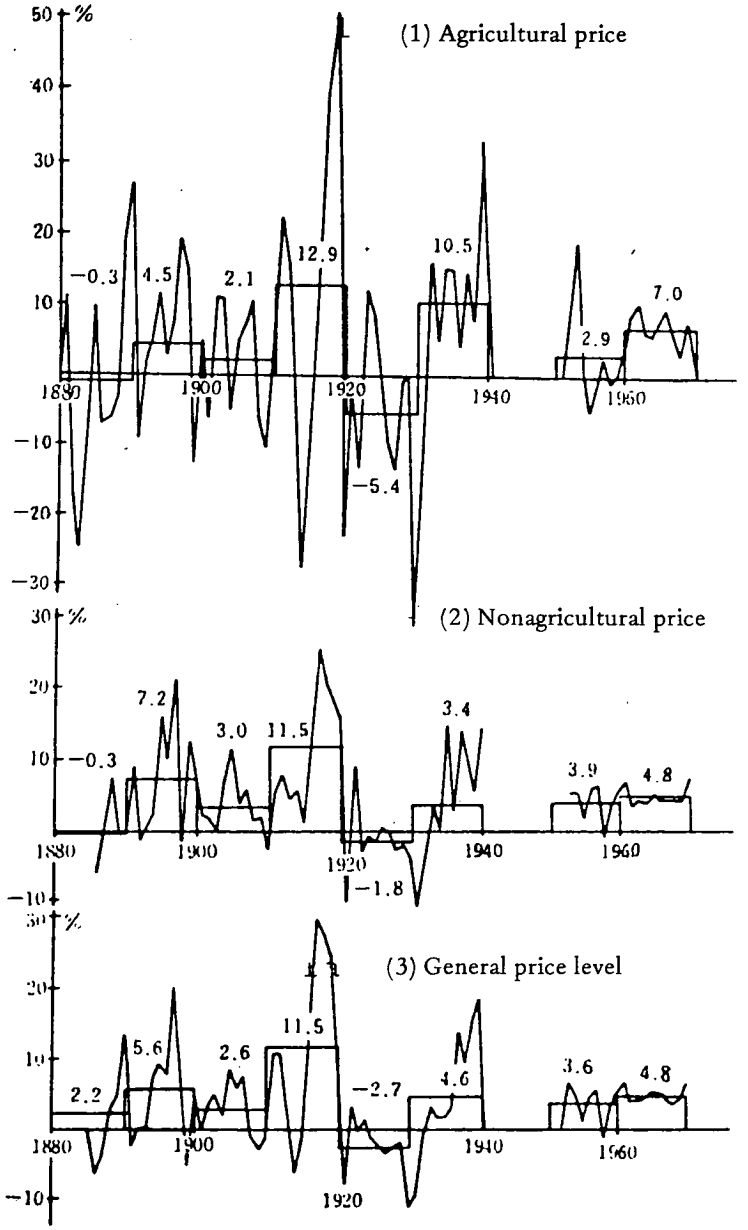



(2) Nonagricultural output
%
30
20
10
-10
4.3
3.5
3.9
4.2
2.6
6.3
8.9
11.9
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
(4) Nonagricultural capital
%
20
10
-10
3.3
3.9
4.5
6.7
4.8
4.7
6.3
11.5
(6) Nonagricultural labor
%
10
-10
1.7
1.4
1.3
3.2
1.7
2.8
4.7
2.9
(8) Per capita income
%
30
20
10
-10
-20
-30
2.7
2.2
3
2.6
0.5
3.9
7.1
10.0

Exogenous variables



Price level


(1) Agricultural price
%
50
40
30
20
10
−10
−20
−30
−0.3
4.5
2.1
12.9
10.5
7.0
2.9
−5.4
1880
1900
1920
1940
1950
(2) Nonagricultural price
%
30
20
10
−10
−0.3
7.2
3.0
11.5
3.4
3.9
4.8
−1.8
1880
1900
1920
1940
1960
(3) General price level
%
30
20
10
−10
2.2
5.6
2.6
11.5
−2.7
4.6
3.6
4.8
1880
1900
1920
1940
1960

in the years 1890, 1898, 1900 - 1901, 1907 - 1908, the depression years, have zero or negative numerical values. However as a whole, the Japanese economy experienced strong development until 1919. Economic difficulties came after the year 1920; negative or zero growth rates of per capita income and nonagricultural output were experienced in the depression year of 1920, the Kanto earthquake of 1923, the monetary depression of 1927, the Great Depression of 1930, as Figure 1 indicates. Especially after the heavy crops of rice harvested in 1930, which is indicated by a large positive growth rate of the agricultural output and a large negative growth rate of the relative price (agricultural price/ nonagricultural price) in that year, there occurred an agricultural stagnation period which roughly corresponds to the period between the two World Wars.

If we compare the growth rates of each variable in the agricultural sector with those of the nonagricultural sector, the growth rates of output and inputs in the nonagricultural sector are much larger. Note especially that the growth rates of agricultural labor are zero or negative except during the depressions and between the two World Wars and become smaller (negative) after World War II, indicating the unequal development between agriculture and nonagriculture. The proportions of labor and capital employed in agriculture, and the share of income produced by agriculture which were 71, 43 and 50 % respectively in 1880 decreased to 16, 6 and 6 % respectively in 1970 (see Table 3).

Next observe the output growth of each sector. The variation in the output of agriculture was very large in the beginning of the whole period (the period of Meiji era) and decreased trendwise over time. This was due to the fact that agricultural technology was still in its infancy so that agricultural output was severely dependent on the weather and natural conditions. Note that the agricultural depression period which occurres in the 1930's rather than 1920's (the depression period of the Japanese economy as a whole) was characterized by very low growth rates of agricultural output and input. On the other hand nonagricultural output shows a pattern similar to that of per capita income and we can observe the trend acceleration as a whole and the depression period in the 1920's similarly. The variation in growth rates of nonagricultural output was fairly large in the beginning of the period. This stems from the fact that nonagricultural technology was still in the developing stage and was concentrated on fabrics, spinning and weaving which utilized the agricultural products as raw materials.

The agricultural sector shows a relatively smaller value in the uses of factor inputs than the nonagricultural sector. However agricultural labor decreased and agricultural capital increased (i.e., capital was substituted for labor) in Japanese agriculture, especially after World War II. It is also seen that the uses of nonagricultural labor increased but those of nonagricultural labor decreased and became negative in the depression periods and during the two World Wars.

The relative price of agricultural output shows the largest variation owing to the low price elasticity of agricultural products and the large variation in agricultural output. However the variation of this relative price decreased quite markedly after World War II, partly due to the agricultural price policy, the development of agricultural technology and the improvement of plant breeding. We can also observe in Figure 1 that in the year of rice riot (1918) agricultural products had an extremely high relative price.

The annual and decadal growth rate of the 5 principal exogenous variables in our model are also graphed in Figure 1; these are population, land, total labor, total capital and current agricultural inputs. The growth rates of population and labor are around 1 % and remain almost constant but note that the growth rates of labor and population are different in the short run. Population has a relatively high growth rate in the periods between 1900 - 1930 but labor has a relatively high growth rate in the 1930's and the 1950's. Land increased until 1920 but decreased sharply in the 1940's and again after 1960. Population, labor and land increased at fairly constant rates of 1.2, 0.9 and 0.2 % etc., while total capital and current agricultural inputs increased at much higher rates (about 5 or 6 % on the average over the entire period) even though their rates of increase slowed somewhat in the depressions. Generally speaking the growth rate of each exogenous variable has been fairly stable except for the growth rate of current agricultural inputs which fluctuated much more as Figure 1 shows.

III. Model and Data

The model is shown in Table 1. It is an agricultural and nonagricultural two sector model (see Yamaguchi (4), (5), (6), (7) in detail). Eight endogenous variables (Y_1, Y_2, K_1, K_2, L_1, L_2, P, E) and eight exogenous variables (K, L, Q, B, T_1, T_2, m_w) are listed in Table 2.

The static version of the model can be transformed into an eight-equation model of the form, Ax=b, where A is the matrix of structural parameters, x a vector of rates of change of the eight endogenous variables, and b a vector of rates of change of the exogenous variables. This system is summarized in Table 1, where dots on the variables denote growth rates.

The inverse of A displays growth rate multipliers (GRM). For example, the 8, 4 element of A^{-1} is the partial derivative $\partial \dot{E}/\partial \dot{L}$, which indicates by how much an increase in the growth rate of labor will increase the growth rate of per capita income.

Estimates of the parameters of the matrix A and the inverse GRM were obtained for five-year intervals from 1880 to 1965. Changes in the GRM trace structural changes in the economy.

Table 1 Static und Dynamic Versions of the Mathematical Model

Static model		
Equation No.	Equation	
(1)	$Y_1 = aQP^{\eta} E^{\epsilon}$	Agricultural demand function
(2)	$Y_1 = T_1 L_1^{\alpha} K_1^{\beta} B^{(1-\alpha-\beta)}$	Agricultural production function
(3)	$Y_2 = T_2 L_2^{\gamma} K_2^{\delta}$	Nonagricultural production function
(4)	$L_1+L_2=L$	Adding up constraint
(5)	$K_1+K_2=K$	
(6)	$w_1 = \alpha P_1 (Y_1/L_1)$	Value of marginal product equals factor price
(7)	$w_2 = \gamma P_2 (Y_2/L_2)$	
(8)	$r_1 = \beta P_1 (Y_1/K_1)$	
(9)	$r_2 = \delta P_2 (Y_2/K_2)$	
(10)	$w1=m_w w2$	Factor mobility condition
(11)	$r1=r2$	
(12)	$P_1Y_1+P_2Y_2=P'QE$	Income identity

m_w = agricultural wage rate as a proportion of nonagricultural wage rate
a = agricultural demand shifter
η, ϵ = agricultural price and income elasticity
α, β = output elasticity of agricultural labour and capital
γ, δ = output elasticity of nonagricultural labour and capital
λ = proportion of income generated in agriculture

Dynamic model

Equation no.	Coefficients of the A matrix of structural parameters								Vector x of endogenous variables	Vector b of exogenous variables
(13)	1	0	0	0	0	0	$-\eta$	$-\epsilon$	$\dot{Y}_1$	$\dot{a}+\dot{Q}$
(14)	1	0	$-\beta$	0	$-a$	0	0	0	$\dot{Y}_2$	$\dot{T}_1+(1-a-\beta)\dot{B}$
(15)	0	1	0	$-\delta$	0	$-\gamma$	0	0	$\dot{K}_1$	$\dot{T}_2$
(16)	0	0	0	0	1_1	1_2	0	0	$\dot{K}_2$	$\dot{L}$
(17)	0	0	κ_1	κ_2	0	0	0	0	$\dot{L}_1$	$\dot{K}$
(18)	0	0	1	-1	-1	1	0	0	$\dot{L}_2$	$\dot{m}_w$
(19)	0	0	$\beta-\delta$	0	$a-\gamma$	0	1	0	$\dot{P}$	$\dot{T}_2-\dot{T}_1-(1-a-\beta)\dot{B}+\gamma\dot{m}_w$
(20)	λ	$1-\lambda$	0	0	0	0	0	-1	$\dot{E}$	$\dot{Q}$

$i = 1,2$ = agricultural and nonagricultural sector, respectively

Y_i, L_i, K_i, B = sectoral outputs, labour inputs, capital inputs, and agricultural land

P_1 = sectoral output prices

P = P_1/P_2 = terms of trade

P' = general price level

w_i, r_i = sectoral wage and capital rental rates

T_i = sectoral level of technical efficiency

Q = population

E = per capita income

Table 2: Average Annual Growth Rates of Endogenous and Exogenous Variables (Percentages)

	Endogenous variables							
	$\dot{Y}_1$	$\dot{Y}_2$	$\dot{K}_1$	$\dot{K}_2$	$\dot{L}_1$	$\dot{L}_2$	$\dot{P}$	$\dot{E}$
1880 - 1890	3.4	3.7	0.7	3.3	0.0	1.7	6.3	2.7
1890 - 1900	1.7	3.9	1.0	3.5	0.1	1.4	- 1.9	2.2
1900 - 1910	2.2	2.6	1.7	4.5	0.0	1.3	- 0.8	1.3
1910 - 1920	3.2	4.0	0.9	6.7	- 1.2	3.2	0.7	2.6
1920 - 1930	1.1	2.4	1.0	4.8	0.0	1.7	- 3.3	0.5
1930 - 1940	0.4	5.7	0.7	4.7	- 0.3	2.8	7.2	3.9
1940 - 1950	- 0.5	–	- 1.4	–	1.7	- 1.0	–	–
1950 - 1960	3.6	9.2	4.6	6.3	- 1.7	- 4.7	- 1.5	7.1
1960 - 1970	2.2	11.9	8.9	11.5	- 3.6	2.9	2.1	10.0
Average	1.9	5.4	2.0	5.7	- 0.6	2.1	0.4	3.8

	Exogenous variables						
	$\dot{K}$	$\dot{L}$	$\dot{Q}$	$\dot{B}$	$\dot{T}_1$	$\dot{T}_2$	$\dot{a}$
1880 - 1890	2.3	0.5	0.9	0.4	3.2	1.7	3.2
1890 - 1900	2.6	0.6	1.0	0.6	1.3	2.0	- 2.5
1900 - 1910	3.6	0.4	1.2	0.7	1.8	0.2	- 0.4
1910 - 1920	5.3	0.6	1.2	0.7	3.5	- 0.7	0.5
1920 - 1930	4.2	0.9	1.6	- 0.1	1.0	- 0.3	- 2.6
1930 - 1940	4.2	1.5	1.1	0.3	0.4	2.2	1.0
1940 - 1950	–	0.2	1.6	- 0.4	- 1.2	–	–
1950 - 1960	6.1	2.2	1.2	0.4	4.1	4.1	- 1.7
1960 - 1970	11.3	1.3	1.1	- 0.5	0.1	6.5	- 3.6
Average	5.0	0.9	1.2	0.2	1.6	2.0	- 0.8

Sources:

$\dot{Y}_1$ - Ohkawa and Shinohara; $\dot{Y}_2$ - LTES 1, Ohkawa and Shinohara, and $\dot{Y}_1$; $\dot{K}_1$ - Yamada and Hayami; $\dot{K}_2$ Ohkawa and Shinohara and $\dot{K}_1$; $\dot{L}_1$ - Ohkawa and Shinohara; $\dot{L}_2$ - Ohkawa and Shinohara and $\dot{L}_1$; $\dot{P}$ - LTES I. and Ohkawa and Shinohara; $\dot{E}$ - LTES 1. and Ohkawa and Shinohara; $\dot{K}$ - Ohkawa and Shinohara; $\dot{L}$ - Ohkawa and Shinohara; $\dot{Q}$ - Ohkawa and Shinohara; $\dot{B}$ - LTES 9; $\dot{T}_1 = \dot{Y}_1 - \alpha\dot{L}_1 - \beta\dot{K}_1 - (1 - \alpha - \beta)\dot{B}$; $\dot{T}_2 = \dot{Y}_2 - \gamma\dot{L}_2 - \delta\dot{K}_2$; $\dot{a} = \dot{Y}_1 - \dot{Q} - \eta\dot{P} - \epsilon\dot{E}$.

Table 3 Parameter Values Used in the Model

Year	(1) Labour's share in agric. output $\alpha = \frac{w_1 L_1}{P_1 Y_1}$	(2) Capital's share in agric. output $\beta = \frac{r_1 K_1}{P_1 Y_1}$	(3) Labour's share in nonagric. output $\gamma = \frac{w_2 L_2}{P_2 Y_2}$	(4) Capital's share in nonagric. output $\delta = \frac{r_2 K_2}{P_2 Y_2}$	(5) Rel. price elast. of agric. goods η	(6) Income elast. of agric. goods ϵ	(7) Prop. of labour in agric. $1_1 = \frac{L_1}{L}$	(8) Prop. of capital in agric. $k_1 = \frac{K_1}{K}$	(9) Share of income produced by agric. $\lambda = \frac{P_1 Y_1}{PQE}$
1880	0.58	0.12	0.84	0.16	- 0.60	0.80	0.71	0.43	0.50
1885	0.57	0.12	0.84	0.16	- 0.60	0.80	0.70	0.42	0.35
1890	0.54	0.12	0.78	0.22	- 0.60	0.80	0.68	0.39	0.39
1895	0.54	0.11	0.74	0.26	- 0.60	0.80	0.66	0.37	0.33
1900	0.56	0.10	0.69	0.31	- 0.60	0.80	0.65	0.33	0.29
1905	0.55	0.11	0.65	0.35	- 0.60	0.71	0.63	0.31	0.25
1910	0.56	0.11	0.65	0.35	- 0.60	0.71	0.62	0.27	0.24
1915	0.55	0.12	0.58	0.42	- 0.60	0.71	0.57	0.23	0.22
1920	0.55	0.12	0.67	0.33	- 0.60	0.71	0.51	0.18	0.22
1925	0.59	0.11	0.67	0.33	- 0.60	0.71	0.48	0.15	0.22
1930	0.61	0.12	0.64	0.36	- 0.60	0.71	0.47	0.13	0.13
1935	0.55	0.13	0.62	0.38	- 0.60	0.71	0.44	0.11	0.14
1940	0.55	0.10	0.58	0.42	- 0.60	0.71	0.40	0.09	0.13
1945	0.55	0.10	0.58	0.42	- 0.60	0.80	0.44	0.10	0.14
1950	0.55	0.10	0.58	0.42	- 0.60	0.71	0.44	0.09	0.14
1955	0.65	0.12	0.75	0.25	- 0.60	0.61	0.37	0.09	0.16
1960	0.57	0.13	0.70	0.30	- 0.60	0.61	0.30	0.08	0.09
1965	0.60	0.16	0.71	0.29	- 0.60	0.61	0.23	0.07	0.06
1970	0.60	0.16	0.70	0.30	- 0.60	0.61	0.16	0.06	0.06

Sources:
Columns 1 and 2 are from data in Yamada and Hayami, Columns 3 and 4 are from Minami and Ono. Column 5 is from the data series used for equation (1). Column 6 is from Ohkawa. Columns 7, 8 and 9 are from Ohkawa and Shinohara.

By multiplying the GRM of each decade by the corresponding decade rates of change of the exogenous varibles as they occured in Japan (Table 2), one can measure the contribution of the exogenous variables to the observed rate of changes of the endogenous variables, i. e.,

$$(\partial \dot{E}/\partial \dot{L})_t \dot{L}_t = (A^{-1})_{8,4} \dot{L}_t = ELC,$$

where ELC (E for income, L for labor, C for contribution) is the measured contribution of the growth rate of labor to per capita income growth at time t.

The structural parameters used for the A matrix are shown in Table 3. Throughout the period the nonagricultural sector is more labor intensive than the agricultural sector ($\gamma > \delta$). Also, agriculture's share of total income was 50 % in 1880 and decline steadily to 6 % in 1970.

The rates of change of the exogenous variables are summarized in Table 2. The rates of technical change were measured using equations (14) and (15) of Table 1. This is the familiar Solow approach. The average rate of nonagricultural technical change exceeded the agricultural rate of technical change, but the former fluctuated much more than the latter. Population growth rates were low and larger after the turn of the century than before. The labor force grew at about the same average rate as did population, but these rates differed strongly in the short run.

Table 2 also summarizes the rates of change of the endogenous variables. The decline of agriculture's share in income is shown clearly in the absolute decline of the agricultural labor force and the much slower rise of agricultural capital than of nonagricultural capital. Terms of trade turned in favor of agriculture throughout most of the period.

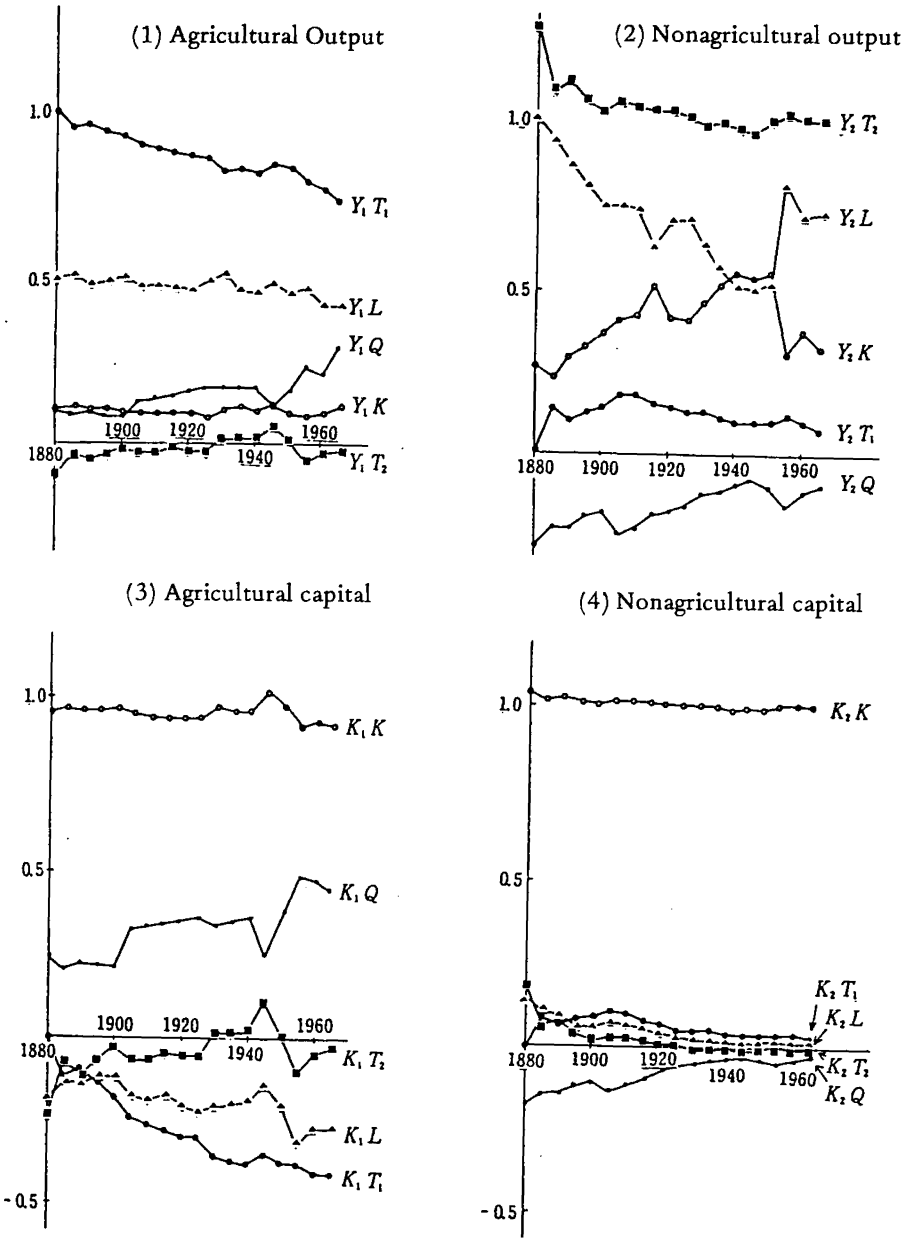
IV. Results

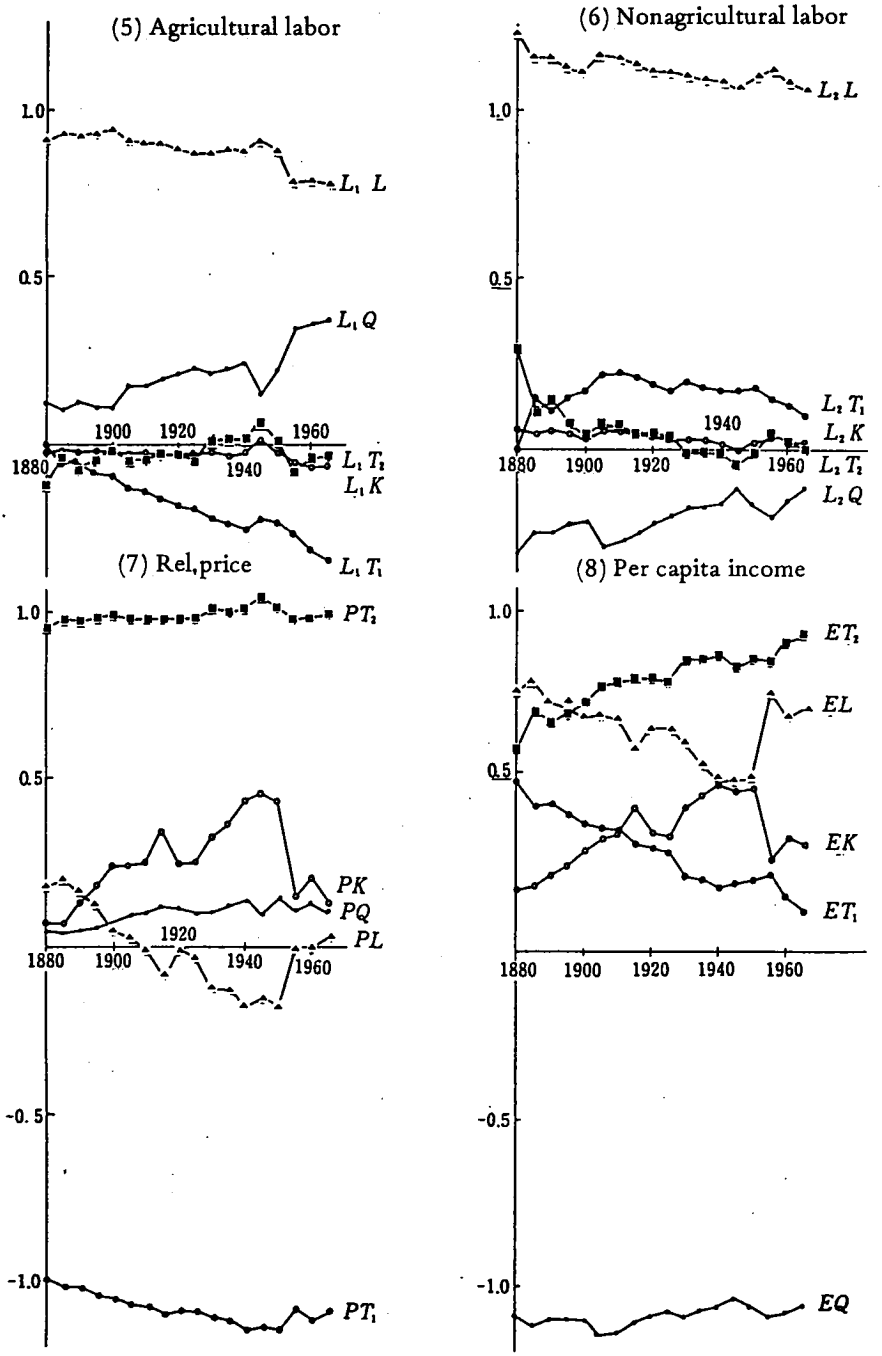
Figure 2 shows GRMs for five exogenous variables such as agricultural and nonagricultural technical change, population, labor and capital on each of the eight endogenous variables for each five-year period from 1880 to 1970. Here we focus only the effect of technical change on eight endogenous variables and the effect of population on per capita income.

With respect to the agricultural sector, agricultural technical change (T_1) has a large influence on output (Y_1). Its influence is greatest in 1880, where a one-percent increase in T_1 causes a 1.00 percent increase in Y_1. The influence of nonagricultural technical change (T_2) on Y_1 is negative or zero. Agricultural capital (K_1) and labor (L_1) are pushed by agricultural technical change (K_1T_1, $L_1T_1 < 0$) and are pulled by nonagricultural technical change ($K_1T_2, L_1T_2 < 0$) to the nonagricultural sector.

With respect to the nonagricultural sector, nonagricultural technical change (T_2) has a large influence on output (Y_2). Its influence is greatest in 1880, where a one-percent increase in T_2 causes a 1.28 percent increase in Y_2. Agricultural technical change has a small, positive influence on Y_2. Nonagricultural

Figure 2: Growth Rate Multiplier




(5) Agricultural labor
1.0
0.5
$L_1 L$
$L_1 Q$
1900
1920
1960
1880
1940
$L_1 T_2$
$L_1 K$
$L_1 T_1$
(6) Nonagricultural labor
1.0
0.5
$L_2 L$
$L_2 T_1$
1940
$L_2 K$
1880
1900
1920
1960
$L_2 T_2$
$L_2 Q$
(7) Rel.price
1.0
0.5
PT_2
PK
PQ
1920
PL
1880
1900
1940
1960
-0.5
-1.0
PT_1
(8) Per capita income
1.0
0.5
ET_2
EL
EK
ET_1
1880
1900
1920
1940
1960
-0.5
-1.0
EQ

capital (K_2) and labor (L_2) are positively influenced by both agricultural and nonagricultural technical change (K_2T_1, L_2T_1, K_2T_2, $L_2T_2 > 0$), corresponding to the push and pull effects of T_1 and T_2.

The relative (agricultural/nonagricultural) price, P, is strongly influenced by technical change in both sectors. The influence of agricultural technical change is negative ($PT_1 < 0$), while the influence of nonagricultural technical change is positive ($PT_2 > 0$).

Per capita income is increased by technical change in the agricultural sector ($ET_1 > 0$) and the nonagricultural sector ($ET_2 > 0$), the latter having the strongest influence. Note that ET_1 decreases over time, whereas ET_2 increases over time.

Population growth has a more detrimental effect on per capita income the smaller the nonagricultural sector out of which resources must be drawn for an increased food production (see EQ in Figure 2).

The histogram of Figure 3 shows the historical average growth rates of the 8 endogenous variables as the sum of all the contributions of each exogenous variable in each decade. We have 8 exogenous variables but only 5 principal exogenous variables (sectoral technical change T_i, total capital K, total labor L and population Q) are shown in Figure 3 to avoid complicating the picture.

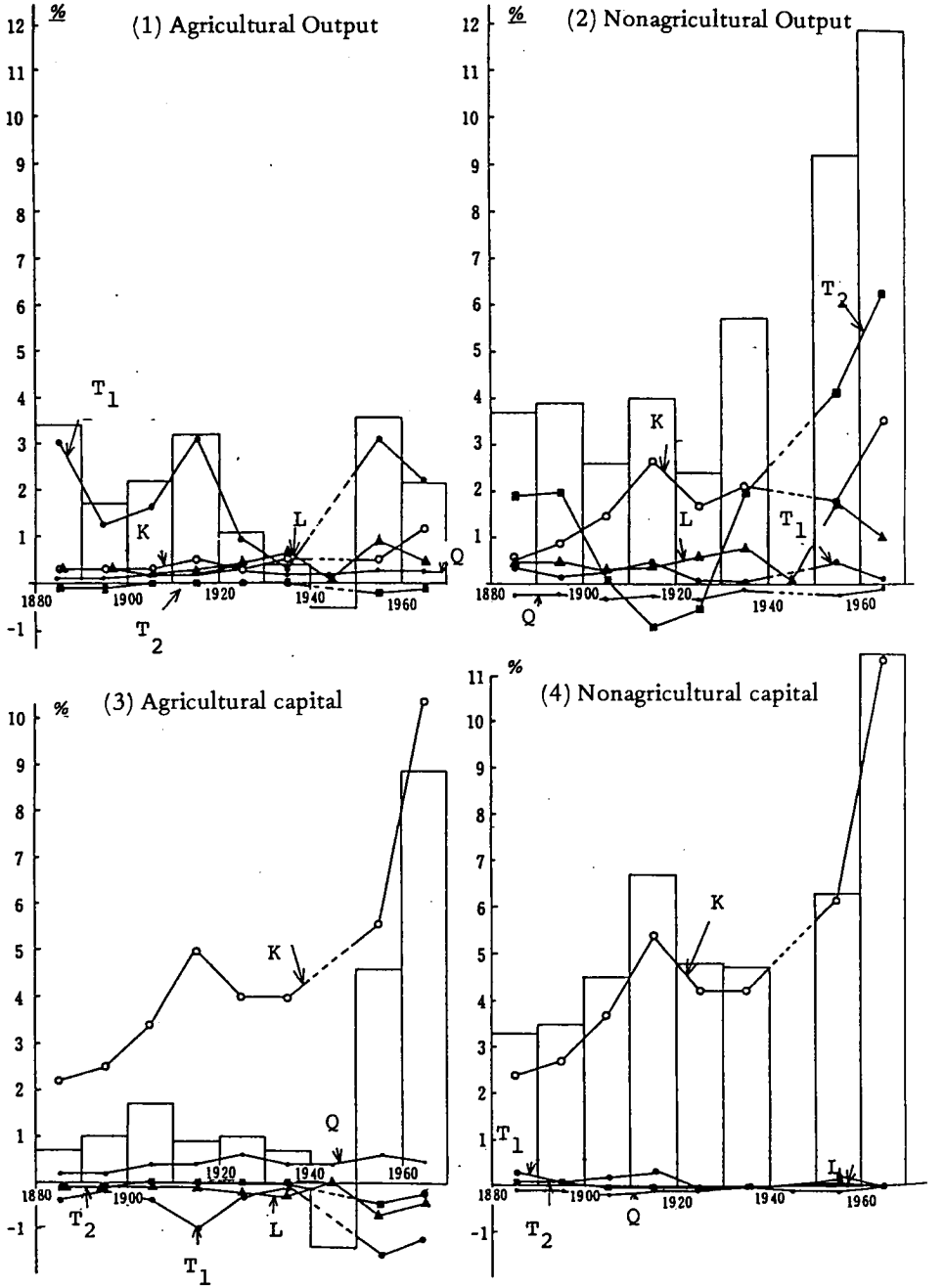
First observe the calculated results of Figures 2, 3. Very briefly, it is seen that with respect to;

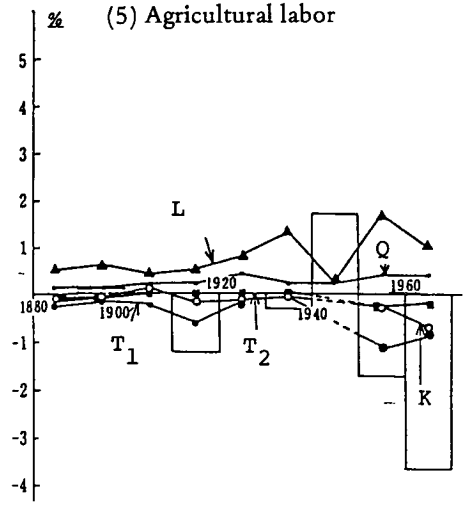
Agricultural output, the largest contribution is agricultural technical change with total labor, total capital and population following in importance. This is almost the same order as the GRM's. The order of total capital and total labor are reverse from the order of the GRM in Figure 2, since the historical growth rate of total capital is larger than the growth rate of total labor as Table 2 shows. The contribution of nonagricultural technical change has a zero or negative value in each decade;

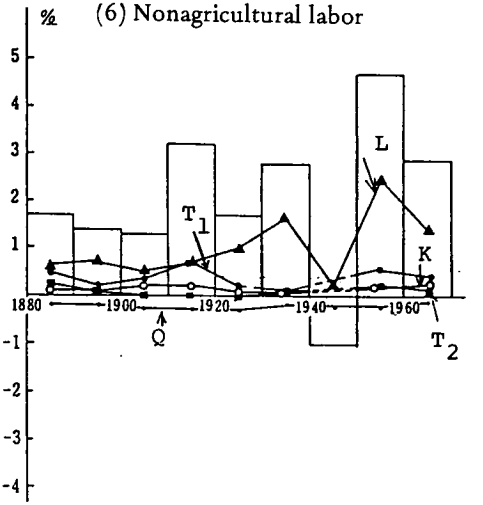
Nonagricultural output, nonagricultural technical change makes the largest contribution but the contribution varies widely. Total capital, total labor and agricultural technical change follow in importance with the order of the contribution of total capital and total labor are reversed from the order of the GRM in Figure 2. This comes from the same reasons as with agricultural output. Population growth makes a small negative contribution. Agricultural technical change on the other hand makes a positive contribution to the growth of nonagricultural output, especially in the 1910's and 1920's when agricultural technical change makes a larger contribution than nonagricultural technical change – this in contrast to the negative contribution of nonagricultural technical change to the agricultural output;

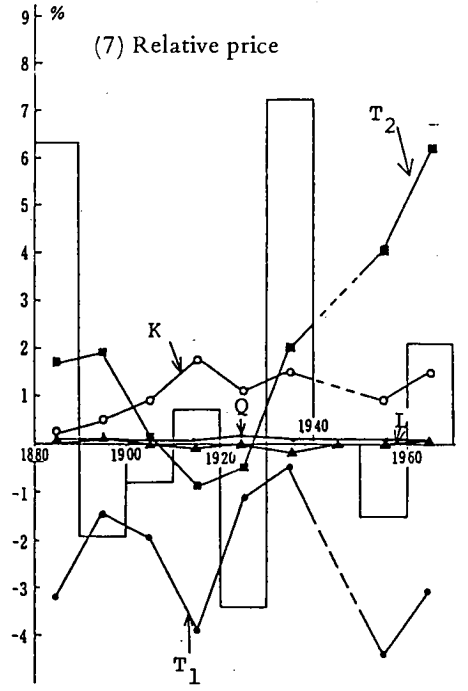
Agricultural capital stock, the largest contributor is, of course, total capital. Other contributions are fairly small. The effect (GRM) and the contributions of technical change in both sectors are negative – technical change pushes and draws agricultural factor inputs to the nonagricultural sector;

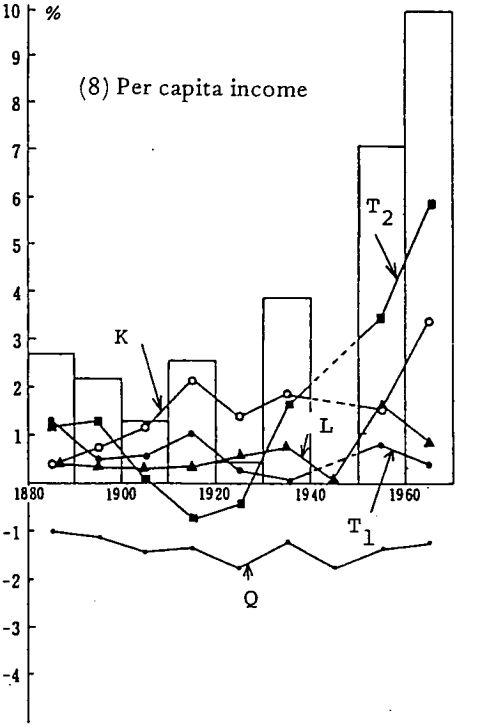
Figure 3: The Contribution of 5 Exogenous Variables
to the 8 Endogenous Variables




%
(5) Agricultural labor
L
Q
1920
1960
1880
1900
1940
T1
T2
K


%
(6) Nonagricultural labor
L
T1
K
1880
1900
1920
1940
1960
Q
T2


%
(7) Relative price
T2
K
Q
1940
L
1880
1900
1920
1960
T1


%
(8) Per capita income
T2
K
L
1880
1900
1920
1940
1960
T1
Q

Nonagricultural capital stock, the largest effect and contributor is, of course, total capital. Agricultural technical change, nonagricultural technical change and total labor follow in markedly smaller contributions. However these small positive effects and contributions correspond to the pushing and pulling effect of technical change as stated above. Finally population has a negative effect making an opposite contribution as compared with technical change;

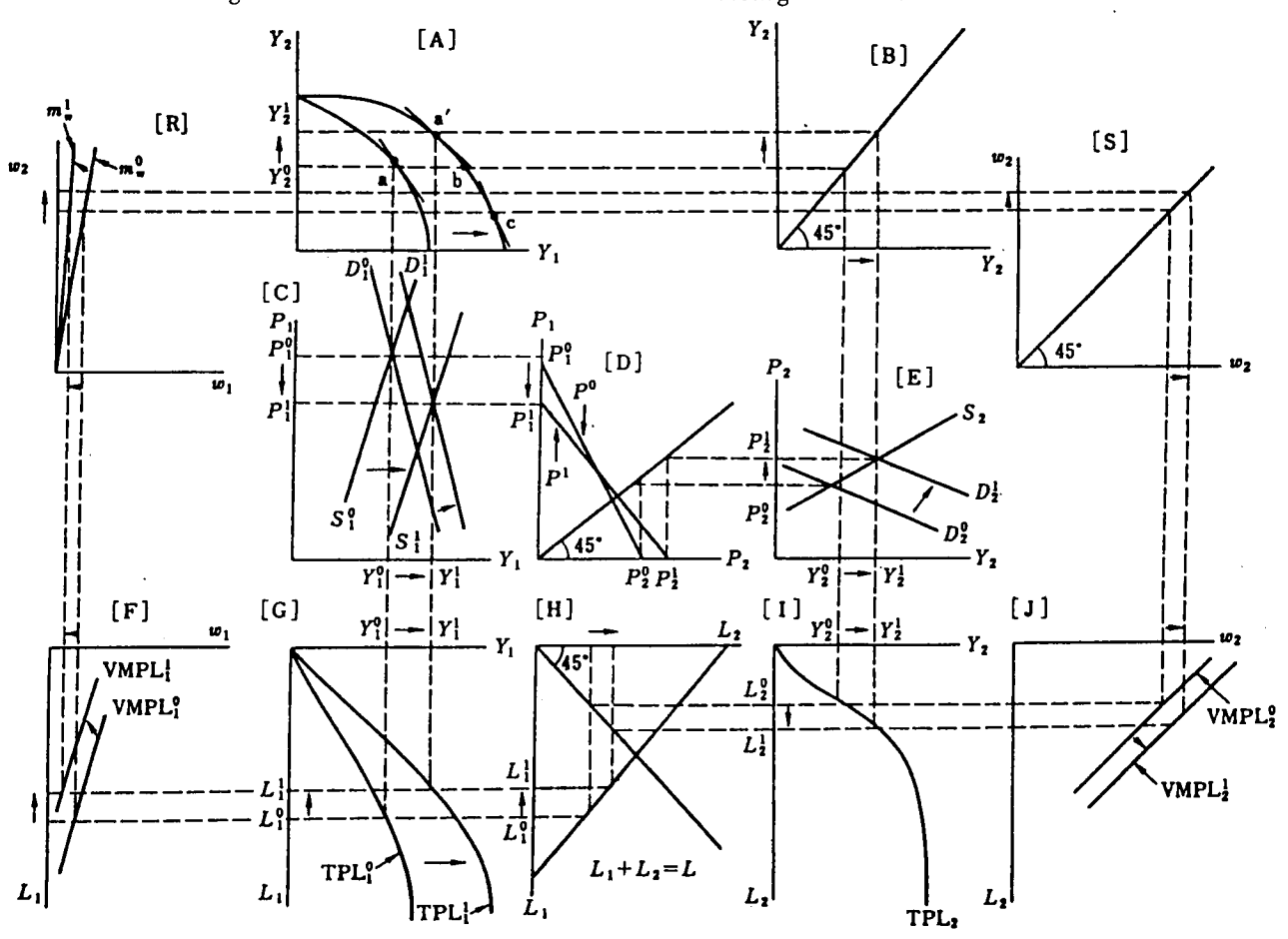
Agricultural labor, total labor makes the largest contribution (and effect) with population following. The rest of the variables have a negative effect and push and 'pull' agricultural labor to the nonagricultural sector, especially the phenomenon of agricultural technical change;

Nonagricultural labor, total labor again has the largest effect and contribution. Agricultural technical change, total capital and nonagricultural technical change follow in importance. This also corresponds to the pushing and pulling effect of technical change. Population obviously has a negative effect and contribution as stated above;

Relative price (ag. price/nonag. price), nonagricultural technical change makes the largest positive effect and contribution. Agricultural technical change makes the largest negative effect and contribution. The contributions of the other variables are very small except for the fairly large contribution of total capital (see Johnson (1));

Per capita income, nonagricultural technical change has the largest effect and contribution as a whole, due to the fact that the GRM of nonagricultural technical change has the largest value and the historical rate of technical change in nonagriculture is fairly large, especially after World War II. However its contribution depends on the decade and shows large variation. On the other hand the contribution of agricultural technical change is fairly stable and almost the same size as the contribution of total labor on average. Also the contribution of agricultural technical change is relatively larger in the early stage of economic development in Japan. This is because the GRM of agricultural technical change is larger in this period. The contribution of capital is somewhat larger than that of labor. Note that the GRM of labor was larger than the GRM of capital since the historical growth rate of capital was very large indicated in Figure 1. Population has, of course, a negative effect on per capita income. However the net contribution of population which is the sum of the contributions of population and of labor has a much smaller negative value. In the ordinary model which treats labor and population together, we can only obtain the net contribution of population. However this model allows us to evaluate the contributions of population and labor independently and see the effect of the labor participation rate as well.

Figure 4: The Push Effect of Agricultural Technical Change



V. Asymmetric Effect of Technical Change in both Sectors

As shown above we understood that there was an asymmetric effect of technical change in both sectors.

Figure 4 describes the effects of agricultural technical change (T_1) and Figure 5 describes the effects of nonagricultural technical change (T_2) on both the agricultural and nonagricultural sectors. To simplify the graphic models, it is assumed that labor is the only resource, as the treatment of capital would be analogous.

T_1 increases the productivity of agricultural labor, shown in Figure 4 as an upward movement of the total productivity curve of agricultural labor, from TPL_1^0 to TPL_1^1 in panel G. T_1 is assumed to have no effect on the total productivity curve of nonagricultural labor, TPL_2 in panel I. The increased productivity of agricultural labor implies an outward shift in the production possibility curve, depicted in panel A. This means that more Y_1 and Y_2 can be produced given the total amount of labor available (L).

The supply and demand effects of T_1 on the agricultural and nonagricultural sectors are shown in panels C and E respectively. When T_1 occurs, the agricultural supply curve shifts to the right, from S_1^0 to S_1^1 (panel C). Agricultural demand is also affected. T_1 increases per capita income and increased per capita income results in increased demand for agricultural and nonagricultural products. For agricultural products, this is shown as a shift in the demand curve from D_1^0 to D_1^1 (panel C). The amount of Y_1 produced increases from Y_1^0 to Y_1^1 and the priced falls from P_1^0 to P_1^1.

T_1 results in two cross-effects on the nonagricultural sector, both on the demand side: a decrease in demand because the fall in the price of agricultural goods has increased the relative price of nonagricultural goods (the price effect) and an increase in demand due to the increase in per capita income noted above (the income effect). Given the relatively high income elasticity for nonagricultural products, the positive income effect outweighs the negative price effect, resutling in a rightward shift in demand, from D_2^0 to D_2^1 (panel E). This increase in demand results in an increase of Y_2 produced (from Y_2^0 to Y_2^1) and increase in its price (from P_2^0 to P_2^1).

The decreased price of Y_1 and increased price of Y_2 cause the relative (agricultural/nonagricultural) price (P) to decline. This is shown in panel D where the relative price line becomes less steep (from P^0 to P^1). The optimal combination of Y_1 and Y_2 moves from point a to a' in panel A, where the new production possibility curve is tangent to the new price line. More of both Y_1 and Y_2 are produced.

The increased productivity of agricultural labor (L_1) means the increase in Y_1 can be produced with less labor, shown by a decrease in L_1 from L_1^0 to L_1^1 in panel G. Since the productivity of nonagricultural labor (L_2) has not incre-

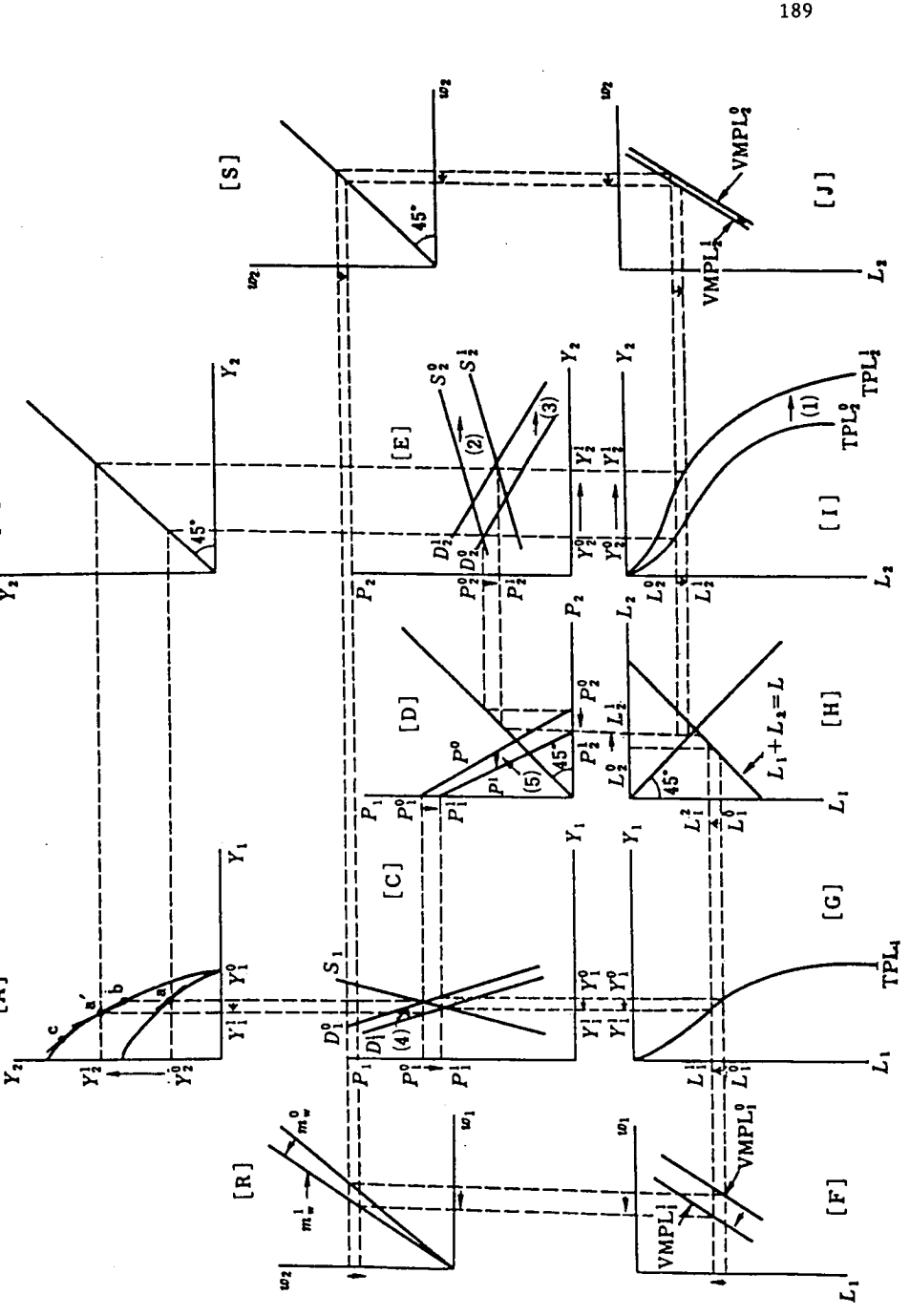


Figure 5: The Pull Effect of Nonagricultural Technical Change

ased, the increase in Y_2 produced requires an increase in L_2, from L_2^0 to L_2^1 in panel I. These changes in sectoral requirements of labor simultaneously change sectoral demand for labor. The value of marginal productivity of L_1 declines relative to that of L_2. This is shown in Figure 4, assuming $VMPL_1$ shifts downward (from $VMPL_1^0$ to $VMPL_1^1$ in panel F) and $VMPL_2$ shifts upward (From $VMPL_2^0$ to $VMPL_2^1$ in panel J). The increased demand for L_2 relative to L_1 leads to increased wages for the former relative to the latter, shown as a decline in the relative wage rate from m_w^0 to m_w^1 in panel R. The new wage rates and new values of marginal productivities for L_1 and L_2 are equated in panels F and J respectively. The result is a shift in agricultural labor ($L_1^0 - L_1^1$ in panel G) to the nonagricultural sector. Panel H ensures that the sum of labor used in each sector equals the total amount available (L).

As for the effects of nonagricultural technical change (T_2), a similar graphic model is given in Figure 5, again assuming labor to be the only resource. T_2 increases the productivity of nonagricultural labor, shown as an upward shift of its total productivity curve, from TPL_2^0 to TPL_2^1 in panel I. T_2 is assumed to have no effect on the total productivity curve of agricultural labor, TPL_1 in panel G.

T_2 causes the nonagricultural supply curve to shift to the right, from S_2^0 to S_2^1 (panel E). T_2 increases profits in the nonagricultural sector, leading to increased per capita income and increased demand for agricultural and nonagricultural products. For nonagricultural products, this is shown as a shift in the demand curve from D_2^0 to D_2^1 (panel E). The amount of Y_2 produced increases from Y_2^0 to Y_2^1 and the price falls from P_2^0 to P_2^1.

Regarding T_2's effects on the agricultural sector, the same two cross-effects on demand (as T_1 exerted on the nonagricultural sector) occur. Agricultural demand is affected negatively by the price effect, since agricultural goods are now priced higher relative to nonagricultural goods. It is affected positively by the income effect, given increased per capita income resulting from T_2. Due to the relatively low income elasticity of agricultural products, the positive income effect is outweighed by the negative price effect, resulting in a leftward shift of the demand curve, from D_1^0 to D_1^1 in panel C. The decrease in demand results in a decrease of Y_1 produced (from Y_1^0 to Y_1^1) and a fall in price (from P_1^0 to P_1^1). The fall in price of agricultural products is less than that of nonagricultural products causing P to increase. This is shown in panel D, where the relative price line becomes steeper (from P^0 to P^1).

The decreased amount of Y_1 produced requires less L_1, shown as a decrease of L_1 from L_1^0 to L_1^1 in panel G. Despite the increased productivity of L_2, the large increase in Y_2 produced requires more L_2, shown as an increase from L_2^0 to L_2^1 in panel I. These changes in sectoral requirements of labor simultaneously change sectoral labor demand. The value of the marginal productivity

of L_1 again declines relative to that of L_2. This is shown in Figure 5 (panels F an J), assuming both $VMPL_1$ and $VMPL_2$ shift downwards, the former shifting relatively more. The lowered demand for L_1 relative to L_2 leads to a decline in the relative wage rate, from m_w^0 to m_w^1 in panel R. The new wage rates and new values of marginal productivities for L_1 and L_2 are equated in panels F and J, causing a shift in agricultural labor to the nonagricultural sector ($L_1^0 - L_1^1$ in panel G).

In summary, one can compare and contrast the effects of T_1 and T_2. Their effects on labor also apply to capital. The direct effects of T_1 and T_2 are similar in that they lower product price (increased supply exceeds increased demand) and increase the marginal productivity of labor in their respective sectors.

With respect to cross-effects, T_1 and T_2 affect demand in the other sector in similar ways but different directions. T_1 leads to increases in nonagricultural demand and hence increased output in the nonagricultural sector. T_2, on the other hand, results in decreases in agricultural demand, causing a decline in agricultural output. Both T_1 and T_2 lead to increases in the VMP of L_2 relative to that of L_1.

VI. Conclusion

Some of main conclusions are summarized as follows. (1) Population growth has a more detrimental effect on per capita income the smaller the nonagricultural sector out of which resources must be drawn for an increased food production. (2) Technical change in Japan has contributed more to growth than traditional factors. Overall, nonagricultural technical change has contributed more to per capita income than agricultural technical change. However, the contribution of the latter was more stable from decade to decade and particularly important during the early economic development and depression periods. (3) Technical change in agriculture tends to push resources out of agriculture, while nonagricultural technical change tends to draw resources into nonagriculture. The asymmetric effect of technical change is due to the low price and income elasticities for agricultural goods.

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Capitalist Development and Social Structure in Argentina, 1880 - 1930

Hugo F. Castillo and Joseph S. Tulchin

The search for the historical roots of the economic, social and political problems that beset Latin America has been a constant task for several decades. Over the past thirty years there has been a staggering amount published, from different perspectives, attempting to explain why the nations of the region have not managed to create the bases for self sustaining economic growth. The problems of imerialism, of modes of production, of the world economic system have generated not only a monumental bibliographic production, but also important theoretical and political debates [1]. Recent studies have indicated that capitalism developed through various forms and mechanisms, forms that reflected and adjusted to the characteristics of each area. The rhythm of penetration and its intensity varied across time and space, giving rise to diverse combinations of productive systems and social organizations [2].

This theoretical debate is important in the sense that it provides instruments of analysis that help to explain and to articulate fundamental aspects of the development of dependent capitalism in Latin America. Many of the works have tried to explain how the expansion of the capitalist economic system integrated into the same market economies that included different productive systems that came to occupy such diverse positions or functions within the structure of that world economic system [3]. This model, which establishes fundamental differences between economies of the center and of the periphery, but which at the same time emphasizes the tight articulation

1) Andre Gunder Frank, Rodolfo Puiggros, Ernesto Laclau, America Latina: feudalismo o Capitalismo? (Bogota, Cuadernos La Oveja Negra, 1972); Sempat Assadourian, Ciro F. S. Cardoso, et al., Modos de producción en America Latina. (Cuadernos de Pasado y Presente; Buenos Aires: Siglo XXI, 1973); Ciro F. Cardoso and Hector Perez Brignoli, Historia Económica de America Latina, vol. 2, (Barcelona: Editorial Crítica, 1979), pp. 100 - 104; Richard Harris, "Marxism and the Agrarian Question in Latin America," Latin American Perspectives, vol. V, 4, 1978. The concept of "articulación de modos de producción" is formulated in Pierre Philippe Rey, Les Alliances de Classes (Paris: Maspero, 1976); see also John Taylor, From Modernization to Modes of Production. A Critique of Sociologies of Development and Underdevelopment (London: MacMillan, 1979); Harold Wolpe, ed., The Articulation of Modes of Production (London: Rutledge and Kegan Paul, 1980).

2) See Kenneth Duncan and Ian Rutledge, "Introduction: patterns of agrarian capitalism," in Duncan and Rutledge, eds., Land and Labor in Latin America (Cambridge: Cambridge University Press, 1977).

3) Fernando H. Cardoso and Enzo Faletto, Dependencia y Desarrollo en America Latina, (Mexico: Siglo XXI, 14a edic. 1978), p. 23.

between the two, has helped to explain some of the mechanisms of profit transfer from periphery to center, the distortions that capitalism undergoes in peripheral countries, as well as the unified nature of the world economy [4]. One of the most frequent criticisms of this theoretical scheme is that its macrostructural character made it difficult to link it to structures and the dynamic formation of classes in specific historical cases, with concrete forms of appropriation specific to a given productive system [5]. The debate now requires empirical historical studies.

The disintegration of the Spanish colonial empire and the subsequent organization of numerous national states coincidentally with the onset of industrial capitalism accelerated the expansion of capitalism, in the center as well as in the periphery. The growing demand for primary products and food stimulated the expansion of productive activities in virgin lands of Latin America and imposed significant changes on the areas of oldest colonization with long established productive structures. These new nations tended to specialize in the production of primary products through the sale of which they were linked to the international market [6].

In some cases, the growing international demand reenforced labor systems with mechanisms of extra-economic coercion; in others the obligations of workers were increased and their benefits curtailed, moving toward a wage labor system [7]. In still other cases, the expansion was accomplished through the incorporation and exploitation of virgin lands by colonists and landowners, creating productive structures that differed from the zones of earlier settlement, most notably in being completely integrated into the world capitalist system from the outset [8].

4) Este modelo de centro-perferia ha servido de base para diferentes formulaciones teoricas que tratan de explicar los mecanismos de reproduccion del sistema capitalista mundial, see Paul B a r a n, Political Economy of Growth (1957); Samir Amin, Unequal Development (1976); A. G. F r a n k, Capitalism and Underdevelopment (1976); I. W a l l e r s t e i n, The Capitalist World Economy (1979).

5) C a r d o s o and Perez B r i g n o l i, Historia Economica, vol. 2, 104.

6) Roberto Cortes C o n d e, The First Stages of Modernization in Latin America (New York : Harper & Row, 1974).

7) See Frederick K a t z, "Labor Conditions on Haciendas in Porfirian Mexico: some tendencies, some trends," HAHR 54; 1 (Feb. 1974); A. B a u e r, "Rural Workers in Spanish America: Problems of Peonage and Oppression," HAHR, 59; 1 (Feb. 1979); S. M. S m i t h, "Labor Exploitation on Pre-1952 Haciendas in the Lower Valley of Cochabamba, Bolivia," Caravelle, 28 (1977).

8) See C. K a y, "The Development of the Chilean Hacienda System, 1850 - 1973," in D u n c a n and R u t l e d g e , eds., Land and Labor in Latin America; A. G u e r r e r o, "Renta diferencial de la tierra y vias de disolución de la hacienda pre-capitalista," Caravelle 28, (1977); Solomon M i l l e r, "Proletarianization of Indian Peasants in Northern Peru, in Dwight B. H e a t h, ed., Contemporary Cultures and Societies of Latin

The phenomenon of frontier expansion and the incorporation of new lands has frequently attracted the attention of geographers, developmental economists, and historians because the dynamics of expansion offers an unusual opportunity to study the origins and development of social and economic structures. In this case we are particularly interested in the agrarian structures that developed in Argentina at the end of the 19th century in response to the rising European demand for foodstuffs and the demographic pressures there. The process of colonization and the organization of units of production in this case implied the appropriation of the land, the development of labor systems, and the investment of capital in the improvement of the land as well as the development of an infrastructure. We want to study and explain the characteristics of this dynamic process of expansion, paying particular attention to the dialectical relation between internal processes and external ones during the period of expansion [9].

Despite the abundance of studies of nations of recent settlement, such as Australia, Brazil, New Zealand, Argentina, Canada, etc., it is still not clear how international monopoly capital, through its action in peripheral nations, creates the objective conditions which besides allowing its reproduction also conditions the development of social and economic structures in the dependent countries [10].

In general, the mechanisms of imperialist penetration are well known: control of the commercial trade system, direct investments in transportation, communication systems, and public utilities, loans to government and direct investment in such activities as plantations, ranching and mining. For the imperialist nations, the search for markets, the need to guarantee sources of primary products, and the flow of capital determined the basic elements

America, 2nd ed (New York, 1974); Alvaro Jara, ed., Tierras nuevas: expansión territorial y ocupación del suelo en America Latina (Mexico: El Colegio de Mexico, 1969); Alistair Hennessy, The Frontier in Latin American History, (Albuquerque: Univ. of New Mexico Press, 1978); Thomas H. Holloway, "The coffee colono of São Paulo, Brazil: migration and mobility, 1880 - 1930," in Duncan and Rutledge, eds., Land and Labor; Cardoso y Perez Brignoli Historia Económica, vol. 2, pp. 63 - 84.

9) See, for example, the article by Peter Winn, "British Informal Empire in Uruguay in the Nineteenth Century," Past and Present, no. 73 (Nov. 1976).

10) For Argentina see Tulio Halperin Donghi, "La expansión de la frontera de Buenos Aires (1810 - 1852)," and also Roberto Cortes Conde, "Patrones de asentamiento y explotación agropecuaria en los nuevos territorios Argentinos (1890 - 1910)," in Alvaro Jara, ed., Tierras Nuevas; for Brazil see M. W. Nicholls, "The agricultural frontier in Modern Brazilian history, the state of Parana 1920 - 1965," in Cultural Change in Brazil: Papers from the Modwest Assoc. of Latin American Studies (Muncie: 1969). On the concept of dependent reproduction, see Ronaldo Munck, Politics and Dependency in the Third World. The Case of Latin America (London: Zed Books, Ltd, 1984) pp. 31 - 35.

of the new system of domination [11]. Given the essentially rural nature of most of the Latin American societies and the low level of investment in the countryside, it isn't strange that most of the students of the phenomenon have ignored the role of foreign finance capital in the development of agrarian productive systems in the lands of recent settlement. This problem is particularly acute in a country like Argentina where such a significant portion of its territory was settled in the 19th century and where so much of its national income came from the agricultural activity on that newly settled land.

Looked at from another angle, the settlement of empty lands constitutes an important period in the process of the consolidation of the national state, since the state is incorporating into the national sovereignty lands that had been previously beyond its direct control [12]. The political dimension of this process is made evident when we remember that the conditions that govern the access to land ownership are regulated by the central government and tend to reflect the economic interests and ideology of the dominant class. During this period of accelerating participation in the world market and of the formation of national markets, economic liberalism was the doctrine that best rationalized the changes that the ruling groups desired to introduce in production and trade. This new situation created favorable conditions for the formation of social and political alliances that supported the dominant growth model based on an economy of exports, alliances that included groups and fractions of national classes and representatives of international companies who, together, constituted what Poulantzas called "a power block [13]."

Given the existence of an international economic system that by means of political and social mediation exercises undeniable influence on national

11) Albert Szymansky, in describing the characteristics of imperialism during this period, indicates that beginning around the middle of the 19th century there occurred a radical transformation in the nature of imperialism as a result of the emergence of giant corporations and cartels that monopolized markets and which allowed them to assure themselves of a cheap supply of primary products and to secure the most favorable prices for their manufactured goods. Moreover, there was a strong concentration of their investments in infrastructure, especially in railroads. Thus, for example, the British investments in Argentina, Chile, Brazil and Uruguay increased between 44 % and 68 % from 1860 to 1913. As a result of this new pattern of accumulation, on a world scale, of this unequal exchange which was a consequence of the monopolization of markets, there was a transfer of wealth from the periphery to the center. See The Logic of Imperialism (New York: Praeger, 1981), pp. 103 - 112; and Cardoso and Faletto, Dependencia y subdesarrollo, pp. 43 - 44.

12) See Oscar Oszlak, La formación del estado Argentino (Buenos Aires: Editorial Belgrano, 1982).

13) Nicos Poulantzas, Clases sociales y poder político en el estado capitalista (Mexico: Siglo XXI, 1978), pp. 302 - 303, 311 - 327.

economic development, it is vital to establish clearly the mechanism of control used by the central countries, the exporters of capital and of manufactures, and the impact of their activities on the dependent societies and economies.

We consider that the historiographical dabate over modes of production and over the world capitalist system wil be enriched if we can study in detail how one mode of production comes to dominate others within a given social formation and what are its specific mechanisms of domination 14). In these circumstances we propose that the study of the agrarian credit system that evolved in Argentina during the period of most rapid expansion offers the possibility of exploring the problem of dependence, the mechanisms of the transfer of surpluses from the periphery to the center, and the complicated issue of capital accumulation in agriculture, with all of the implications that it has for understanding the development of internal and external structures of domination. We feel that this is a crucial aspect of Argentine socio-economic development that has been ignored, perhaps because of the attention focused on the more obvious characteristics of imperialist penetration. In this paper, we will test the hypothesis that credit and the manipulation of the commercial and financial system were the central mechanism through which a fraction of the dominant class, in alliance with international capital, secured its position of dominance and contributed to shaping the social structures and production structures which were integrated functionally into the dominant capitalist mode of production 15).

Although we have selected Argentina as a case study, we believe that the structure of domination that we will describe was present in various countries in Latin America that experienced similar export economic booms at the end of the 19th century and probably is charcteristic also of other dependent economies in the Third World even today. We have picked Argentina because it joins a variety of favorable conditions for study. It is a country that is often pointed to as a classic example of the frontier society. It is a country that has been acutely frustrated in its efforts to break out of the circle of underdevelopment despite periods of notable economic growth and despite enviable natural resource endowment. Finally, we chose Argentina because earlier studies have identified rich regional variation within the broad category of export economy, a diversity that allows for a multiplicity of forms and stages in the evolution of agrarian systems. Those studies also pointed to the importance of

14) For a brief analysis of the concept of mode of production, see Tom Bottomore, Lawrence Harris, V. G. Kiermand, Ralph Miliband, eds., A Dictionary of Marxist Thought (Oxford: Basil Blackwell Reference Pub. Ltd., 1983), pp. 335 - 337. See, also Assadourian y C. F. Cardoso, Modos de producción, p. 21.

15) A. G. Ford, El patron oro: 1880 - 1914. Inglaterra y Argentina (B. A.: Editorial del Instituto Di Tella, 1966) see especially chapters V and VI, pp. 143 - 185. For the concept of class fractions, see Poulantzas, Clases sociales y poder político, pp. 88 - 100.

the financial system in the development of export agriculture, a phenomenon that fits in perfectly with the sort of theoretical issues that interest us [16].

The dramatic economic expansion on the Argentine pampa was financed by two parallel credit systems. One was loans direct from the nation's principal banks to a small group of landowners and entrepreneurs together with direct investments by foreign corporations. The second was based on a vast network of local lenders - middlemen - who were distributing the capital of a relatively small number of major corporations that used the services of the Banco de la Nación Argentina to move their own money to the branches of the bank throughout the country. On the pampa, the overwhelming portion of the capital was controlled by transnational cereal brokers and consignment agents who provided the liquidity for more than 90 percent of all agricultural producers, and at rates around 24 percent interest per year, four times greater than the rates usually charged for bank loans to landowners or other privileged borrowers. Because of the high rates of interest charged by the consignment houses and because of their domination of the financial system, we will use the flow of this expensive credit as a measure or indicator of economic and financial dependence, dependence that will vary inversely with the independence that the rural producer enjoys in the marketplace. We will assume that the flow of this credit marks areas and groups of producers who, for whatever reason, did not have access to cheaper credit offered by the nation's banks [17].

The financial system that was based on the movement of sight drafts (giros) to the branches of the Banco de la Nación was an integral part of the international capitalist system in which Argentina was inserted in the second half of the nineteenth century. Thus, in order to understand the function of the giros in the Argentine economy, we must link them to the evolution of the various productive structures in the country. This imposes upon us the requirement of characterizing the mode or modes of production and forms of production that coexisted or developed in Argentina during this period of rapid economic expansion, as well as exploring the relations of domination that were established within each [18].

16) See Joseph S. Tulchin, "Agricultural Credit in Argentina, 1920 - 1926," Institute of Latin American Studies, UNC, Occasional Papers Series, (1983).

17) The description that Szymansky offers of monopoly capital in Europe applies perfectly to the Argentine case, see The Logic of Imperialism, p. 103.

18) Actualmente hay un debate historiográfico bastante importante sobre la persistencia de "modos de producción" o "formas de producción" precapitalistas en la region, que aparecen subordinadas al modo de producción capitalista dominante. Una buena sintesis de la polemica se encuentra en Richard Harris, "Marxism and the Agrarian Question in Latin America," Latin American Perspectives, vol. V, 5 (Fall, 1978); Barry Hindess and Paul Q. Hirst, Pre-capitalist Modes of Production (London: Routledge and Kegan Paul, 1975). Ver tambien Poulantzas, Clases sociales y poder politico, pp. 78 - 83.

Our study focuses on a period in which capitalism had been established as the dominant mode of production, even when it had developed under various forms and conditions. The expansion of agricultural activity on the pampa and in other regions of the country occurred in various forms, determined by geographic, ecological, and demographic conditions, as well as by the historical process of settlement in the various regions. Thus, even on the pampa, as Flichman has pointed out, tenancy took many forms - capitalist renting, campesino tenancy, and units of production organized in a capitalist fashion by the landowners themselves [19].

If we extend our purview to regions of the country beyond the pampa, we can observe that diverse agrarian systems were incorporated into the world capitalist market without causing the disappearance of older forms of production and labor recruitment, forms that imply non-economic mechanisms of coercion and even non-capitalist forms of production. Wage labor and agrarian capitalism developed at different rates in different regions, and the expansion of agricultural production was not always the result of the extension of capitalist relations of production in agriculture. The principal characteristic of this period was the tight integration among different forms of production, even while the orientation of the process was toward the expansion of capitalism in agriculture [20].

19) Sobre el concepto de "dominacion de un modo produccion", Samir Amin indica que ello implica: "1) la dominación de la ley fundamental del modo dôminante, que determina las condiciones de la reproducción del conjunto de la formación; 2) en consecuencia transferencia de una parte del excedente (surplus) generado en los modos dominados hacia el modo domiante; 3) la dominación política de la clase dominante del modo dominante; 4) la dominación ideológica del modo dominante." Samir A m i n y Costas V e r g o p o u l o s, La question paysanne et le capitalisme (Paris: Editions Anthropos-Idep, 1974) p. 11. See also Alonzo A g u i l a r, En torno al capitalismo Latino Americano (Mexico: D. F.: UNAM, 1975), p. 38; Guillermo F l i c h m a n, La renta del suelo y el desarrollo agrario argentino (Mexico: Siglo Veintiuno, 1975), p. 89; James R. S c o b i e, Argentina, a City and a Nation (New York: Oxford University Press, 1971), pp. 48 - 49; and Scalabrini O r t i z, op. cit.

20) For a characterization of the contemporary situation in Argentina en terminos que son tambien valido para el periodo estudiado, see Juan V i l l a r o e l cited by Richard L. H a r r i s, "Marxism and the Agrarian Question in Latin America," loc. cit., pp. 3 - 4. Este periodo de transicion en el cual empiezan a aparecer relaciones de producción propiamente capitalistas en el campo, que coexisten con diversas forma de producción, algunas de ellas pre-capitalistas, ha generado un debate historiográfico en torna a llamada "articulación de modos de producción," Uno de los puntos esensiales de este debate gira en torna al caracter de las economias campesinas y si debe considerarsele como un modo de producción o como una forma de producción. Para una sintesis del debate teorico asi como tambien una interpretación personal ver, Alain de J a n v r y, The Agrarian Question of Latin America, (Baltimore: The Johns Hopkins University Press, 1981), pp. 94 - 140; una discusión teórica sobre el problema de la articulación de los modos de producción en Harold W o l p e, ed., The Articulation of Modes of Production, pp. 1 - 44.

For most of the colonial period, Argentina was an economic backwater in the Spanish empire. The northwestern region, along the foothills of the Andes, served as an outlying source of supply for the valuable mining towns on the altiplano. Salta and Jujuy were transshipment points and centers for the production of mules indispensable to the mining economy. Further south, Tucuman, San Juan and Cordoba were sources of foodstuffs and labor, just as they had been during the later pre-Columbian era.

Catamarca, a mountanous region, was noted for its household production of textiles, an activity that continues to the present day. The northeastern section of the country was sparsely populated, especially away from the banks of the major river system. Asunción and the Indian reservations in its hinterland were the principal center of economic and social activity in the northeast and, because of the peculiar nature of their governance, they were effectively cut off from the other settlements in the area, serving largely as a frontier buffer between the Portuguese and the Spanish territories.

Further to the south, on the broad pampa, cattle and horses introduced by the first explorers in the 16th century virtually ran wild. Nomadic Indians controlled the vast stretches of open land and Spanish settlements were confined to the immediate environs of Buenos Aires and a narrow stretch of land along the banks of the Parana river and then west, to Cordoba, the main wagon route to the altplano. Hapsburg neglect of the region that was to become the dynamic heartland of the modern Argentine nation allowed the early evolution of a capitalist mode of production based on the surplus production of hides and wheat, most of which was exported illegally from the many small ports along the Parana, in English bottoms, for the supply of Portuguese slave plantations in Brazil or British plantations in the Caribbean. The recent studies of Jesuit haciendas throughout Latin America during the colonial era have demonstrated that these units were run for the purpose of producing a profit and that the profit was earned by the deliberate production of surplus commodities intended for specific markets. The Jesuits, if you will, were one of the first transnational corporations, adjusting the activity in any given unit with a view to the benefit of their entire international enterprise [21].

While there is no longer much question that these Jesuit haciendas and many private ones as well were run as commercial enterprises, consciously inserted into a broader commercial network and managed professionally with the objective of producing a surplus that would generate a profit for the owners, the labor systems on these estates have defied easy characterization. It is safe to say that there was very little wage labor, and less on the church-owned properties

21) See Nicholas P. Cushner, Lords of the Land: Sugar, Wine, and Jesuit Estates of Coastal Peru, 1600 - 1767 (Albany, N. Y.: State University of New York Press, 1980); and, for New Spain, Herman W. Konrad, A Jesuit Hacienda in Colonial Mexico (Stanford: Stanford University Press, 1980).

than on private lands. Most of the labor on the great estates was controlled by semi-feudal mechanisms that were common throughout the Spanish empire. The high degree of control over labor that was typical of landed estates in the interior of the River Plate area contrasted sharply with the absence of control over the semi-nomadic gauchos who provided the labor on the cattle frontier of the pampa[22].

By the middle of the 18th century, the labor system on the cattle ranches constituted a market relationship between landowners and those engaged in the marketing of hides and other products of the seemingly limitless herds of cattle and bands or gangs of gauchos available for hire. Most of the labor transactions were piecework but there were some instances of contracts covering specific periods of time or precisely defined roundups[23].

The sharp differences between the littoral and the interior in labor systems and relations of production became more pronounced as the 18th century wore on, particularly after 1776, when the creation of the Viceroyalty of the Rio de la Plata gave the city of Buenos Aires and its hinterland a legitimacy and importance within the empire that it had lacked. As the struggle for independence focused attention on the locus of political power, the tension between the littoral and the interior provinces flared repeatedly into violence during the early decades of the 19th century. In economic terms, the littoral looked outward and sought to turn the land and the cattle to profit through international trade. The interior feared and opposed international trade since neither the artisans and small producers nor the large landowners had much they could sell abroad competitively and saw the new manufactures of Europe's industrial cities as their death knell[24].

The history of the dramatic expansion of the Argentine export economy in the 19th century has been told and retold many times. In the process of reinserting Argentina into the world economy and imposing a capitalist mode of production on the nation, those most closely associated with the export of beef and cereals, known as the export oligarchy, shaped the state to their own ends and came to dominate the society and the polity. In economic terms, the domination of the pampa relegated the interior regions to a backwater--inefficient producers of goods and services for the domestic market, land tenure patterns little chang-

22) Eric Hobsbawn, Bandits (New York: Pantheon Books, 1981); Hennessy, The Frontier in Latin America; and Mario Gongora, "Vagabondage societe pastorale en Amerique Latine (specialement au Chile Central): Annales (Jan. - Feb. 1966).

23) See Jonathan D. Brown, A Socioeconomic History of Argentina, 1776 - 1860 (Cambridge: Cambridge University Press, 1975).

24) See among many others, Carlos Diaz Alejandro, Essays on the Economic History of the Argentine Republic (New Haven: Yale University Press, 1970); Scobie, Revolution on the Pampa (Austin: University of Texas Press, 1964); and Tulchin, The Structure of Power of the Argentine Pampa (forthcoming).

ed from the colonial period, and labor systems also reminiscent of earlier periods and of pre-capitalist modes of production. In political terms, the oligarchy came to terms with the local bosses and elites of the interior. The sugar interests of the northwest and the wine growers of the Andean foothills secured tariff protection from the federal government that guaranteed their economic survival. They, as well as the landlords of the northeast and the sheep ranchers of the far south enjoyed a measure of political independence on local issues so long as they didn't "cause trouble" to the national government [25].

There is ample historical evidence to reinforce the ecological and economic indications to suggest that the study of mechanisms of control and social structure in Argentina must be conducted on a regional, not a national level. The regional differences imposed different settlement patterns and these, in turn, contributed to the evolution of different social organizations, different forms of economic activity, and different patterns of political behavior in the various regions [26]. Earlier work has confirmed the expectations that the differences

25) Jorge Balan, "Urbanizacion Regional y, Produccion Agraria en Argentina: un Analisis comparativo) Estudios CEDES, vol. 2, 2 (1979): and "Regional Urbanization under Primary Sector Expansion," in A. Portes and H. Browning, eds., Current Perspectives in Latin American Urban Research (Austin: University of Texas Press, 1976).

26) We have dealt elsewhere, in great detail with the justification for the regional study of Argentine development. See Tulchin, Structure of Power in Argentina, chapter 2 (forthcoming). Here, we simply might call the reader's attention to the theory of Human Ecology which deals with the manner in which groups organize and live together, and location theory, which deals with the distribution of resources within a society. On the former, see Amos Hawley, "Human Ecology," International Encyclopedia of the Social Sciences (N. Y.: Macmillan, 1967). The basic elements of location theory are summarized most conveniently in John Friedmann and Willian Alonso, eds., Regional Development and Planning (Cambridge: M. I. T. Press, 1964), (Part II, "Location Theory"). The special case known as staple theory is discussed in several readings included in the volume edited by Friedmann and Alonso, already cited, and in Melville H. Watkins, "A Staple Approach in Australian Economic History," Business Archives and History, vol. IV, 1 (February 1964), pp. 1 - 22; and R. E. Caves, " 'Vent for Surplus' Models for Trade and Growth ," in R. E. Baldwin, et al., Trade, Growth and the Balance of Payments (Chicago: Rand McNally & Company, 1965), pp. 95 - 115. Applications of these theories to the Argentine case include Hector J. C. Grupe, et al., Relevamiento de la Estructura Regional de la Economia Argentina, 5 vols. (Buenos Aries: Consejo Federal de Inversiones and the Centro de Investigaciones Económicas, Instituto Torcuato di Tella, 1962); and Hector L. Dieguez, "Argentina y Australia: Algunos aspectos de su desarrollo económico comparado," Documento de Trabajo, No. 38 (1968), Instituto Torcuato di Tella. Modern location theory is intended to refer to phenomena on the international or intranational levels, and the concept of region may refer to sections within a single country or to countries within the international community. Originally, in the writings of nineteenth century theorists such as Von Thunen, the concepts were applied to relatively small areas. The regional basis for economic development is explored in Harvey S. Perloff, Edgar S. Dunn, Jr., Eric E. Lampard, and Richard F. Muth, Regions, Resources, and Economic Growth (Baltimore: The Johns Hopkins University Press,

among the regions of the pampa are as significant as differences between the pampa as a unit and other regions in the country. This includes differences of population density, ethnic composition, principal economic activity of the population, land tenure pattern, as well as the size and type of agricultural units. In other words, the structural conditions varied from region to region. We intend to describe the socio-economic structure of each region before exploring the possible influence of the credit system over each of them. With this objective, we have selected a set of variables, taken from the Third National Census (1914) which reflects significant features of the regional productive structures, and which enable us to compare the regions to one another [27].

Regional Characterization of Tenency Structures and Labor Systems

Region 1: Santa Fe Wheat

This region is composed of the ten counties in the center of Santa Fe province (see Map 1). It is the area which was the first to receive agricultural colonists and continued to be the most intensely colonized zone on the pampa. Before 1860, the soils were considered less attractive than the pasturelands of the northwestern section of the province of Buenos Aires, but even if later experience demonstrated that it was not ideal for cereal production, its reddish soil seemed adequately fertile and it received adequate rainfall. These factors, together with easy access to the Parana River, used to transport goods to Buenos Aires, were

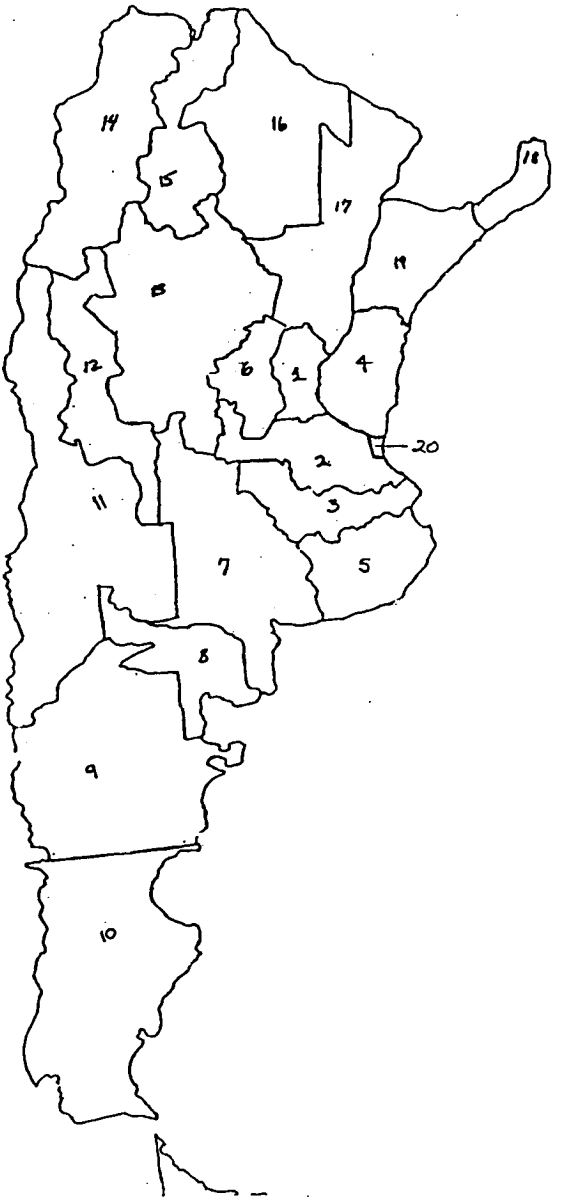
1960); and applied in considerable recent research on the economic history of the United States, for example, National Bureau of Economic Research, Conference on Research in Income and Wealth, Regional Income, Studies in Income and Wealth, and Trends in the American Economy in the Nineteenth Century, Studies in Income and Wealth, vol. 24 (Princeton: Princeton University Press, 1960).

On the growth of Buenos Aires as a commercial center, see James R. Scobie, Buenos Aires: Plaza to Suburb, 1870 - 1910 (N. Y.: Oxford University Press, 1974), and Charles S. Sargent, The Spatial Evolution of Greater Buenos Aires, Argentina, 1870 - 1930 (Tempe: Published by the Center for Latin American Studies, Arizona State University, 1974). For a more general statement on the function of commercial cities, see Adna Weber, Growth of Cities in the Nineteenth Century (New York: Cornell University Press, 1889). On the growth of commercial cities in the U. S., see Allan R. Pred, Urban Growth and the Circulation of Information: The United States System of Cities, 1790 - 1840 (Harvard Studies in Urban History) (Cambridge, Mass.: Harvard University Press, 1973).

For case studies of the impact of differential regional development on social organization and political activity, see the papers of Dogan, Linz, Allardt and Personen, Rokkan and Soares, in S. M. Lipset and S. Rokkan, eds., Party Systems and Voter Alignments: Cross National Perspectives (N. Y.: The Free Press, 1967); and G. A. Banck, R. Buve, and L. Van Vroonhoven, eds., State and Region in Latin America: A Workshop (Amsterdam: Center for Latin American Research and Documentation, 1981).

27) The empirical data for this analysis is taken from Republica Argentina, Bureau Nacional de Estadistica, Tercer Censo Nacional, 10 vols. (Buenos Aires: Talleres Graficos de L. J. Rosso y Cia, 1916 - 1917).

MAP 1
Regional Boundaries in Argentina



sufficient to stimulate cereal production for export until well into the twentieth century [28].

The family farm of 100 to 500 hectares was the predominant unit in the region (see Table 1), whether owned or rented. This activity co-existed with capital intensive ranching that was concentrated in the western portion of most of the counties, closest to the province of Cordoba.

Region 2: Northern Wheat

This region includes some of the oldest settlements in Argentina, 31 counties of the province of Buenos Aires, extending northwest from the Federal Capital, the contiguous two counties at the southwestern tip of Santa Fe and the easternmost county of Cordoba, 34 counties in all. This land had been a pasture since the 18th century and it was from here that the herds of criollo cattle were moved south onto new lands. The railroad arrived here very soon after the first tracks had been laid from Rosario in Santa Fe to the city of Cordoba. By the time of the third national census, the region was dominated by the capital intensive fattening ranches, including the famous *cabañas,* where prize animals were raised and groomed with care. These were not large units and many of them were rented, indicating the kind of leverage these entrepreneurs could get on their capital. Wheat farming was important, but much less so than in the Santa Fe wheat zone [29].

Region 3: Southern Wheat

This region is the band of counties south of the Saladillo River, stretching from the Bay of Samborombon on the east to the frontier with Cordoba and La Pampa territory on the west, a total of 20 counties. The geographic conditions here are essentially the same as in Region 2, except for the easternmost counties that are low lying and wet, but the region lay beyond the ring of forts that protected early settlements in region 2 from marauding Indians, so that effective settlement had to await the railroad, which arrived in the 1880s. The ranching here is far more extensive than in either of the other zones (see Table 1), as demonstrated by the significance of large units and the high capitalization per unit. Salaried laborers on these units are a more significant portion of the agricultural labor force than in either of the other zones previously mentioned.

Region 4: Southern Littoral

This is a region composed of the fourteen counties of Entre Rios province and three Buenos Aires counties in the River Plate Delta. While the latter have

28) For detailed studies of this region, see the work of Ezequiel G a l l o, for example, Agricultural Colonizacion and Society in Argentina. The Province of Santa Fe, 1870 - 1895 (D. Phil. Thesis, Oxford University, 1970).

29) Tulio Halperin D o n g h i es quien ha estudiado con gran detalle el desarrollo socio económico de esta region. Puede consultarse un resumen de sus investigaciones en el capitaulo "La expansión de la frontera de Buenos Aires (1810 - 1852)," en Alvaro J a r a y otros, op. cit..

the same ecological characteristics as the southern counties of Entre Rios, these are grouped with the northern counties of the province because the entire region is dominated by the river systems that mark the frontiers of the province. Colonization began here late in the century and gave the region a heavy concentration of small units operated by their owners. The major portion of the region's land was devoted to fairly extensive undercapitalized ranches [30].

Region 5: New South

The 22 counties of this region, stretching south and west of region 3 are characterized by hard natural grasses that require tilling and conversion to a crop such as alfalfa before the land can be used effectively to graze the blooded stock characteristic of the fattening establishments further north.

The settlement on this frontier was the result of internal migration by creole entrepreneurs rather than immigrant sharecroppers and the transformation of the land took place slowly over a long period of time, mainly through labor inputs rather than through significant infusions of capital. The indices we have followed reflect this historical experience.

Extensive grazing was the dominant form of production. Another significant feature of the form of production in this zone was the employment of salaried labor, 38 % of all farm employees, one of the highest levels in the nation. This suggests that the transition to a capitalist mode of production was uneven. While capital investment was not intense and ownership retained elements of a traditional, pre-capitalist system of production, the formation of a rural proletariat had evolved as nearly as far as any region in the country.

The ranchers in the zone, certainly not poor, exhibited several characteristics that distinquished them from colleagues further to the north (Zones 3 and 2) and emphasized the differentiation in market access between fatteners and breeders. The breeders of region 5 were busy converting their estates to more valuable mixed farming units through the use of salaried labor and tenants, which is reflected in the high incidence of tenancy (see Table 1).

Region 6: Western Wheat

This region consists of the six counties on the eastern slope of the Cordoba hills. Here, the rainfall is slightly less abundant than in Santa Fe, immediately to the east, and the soil is greyish and fertile. The first trunk line of the railroad crossed this region in 1870, but there was no further construction until well into the 1890s. There were settlements dating from the colonial period but they were sparse until a wave of immigration into the area at the end of the 19th century. Curiously, the immigration into Cordoba received none of the organi-

30) Los estudios sobre asentamientos en Entre Rios incluyen el de Richard W. W i l k i e: "Environmental Perception and Migration Behavior: A Case Study of Rural Argentina," LASA 6th National Meeting (1976); y "Rural Depopulation: A Case Study of an Argentine Village," Everett L e e , ed., Proceedings of the IBP V Assembly (London: Oxford University Press, 1976).

Table 1

Region	Variable % Small Units	% Surface	% 100-500	% Surface	%GT 1000 Hect.	% Surface	GINI	% Owners	% Tenant	% Salaried Workers	% Wheat	Dollar K/Hect.	Dollar K/Pop.	Dollar Cow/ Hect.
1	61	20	40	53	00	20	.50	32	60	17	21.0	390,284	84,236	10,282
2	62	29	32	37	02	36	.60	29	56	21	7.41	503,168	157,973	10,751
3	52	06	36	23	05	59	.72	37	52	31	4.87	574,190	337,155	9,179
4	61	08	30	22	04	57	.72	53	37	24	4.18	344,583	166,076	5,123
5	39	02	34	15	13	13	.71	31	60	38	3.63	601,092	554,354	7,773
6	31	04	60	47	03	35	.52	38	50	22	22.3	256,702	NA	6,958
7	25	01	52	16	12	70	.63	30	60	34	11.6	223,250	459,987	3,454
8	56	01	11	01	28	91	.80	34	55	NA	NA	NA	NA	343
9	22	00	08	01	54	94	.62	07	89	NA	NA	NA	NA	382
10	03	00	03	00	80	99	.19	06	91	NA	NA	NA	NA	339
11	64	01	13	04	20	93	.62	62	22	47	0.05	42,502	130,191	308
12	87	02	06	03	04	75	.94	77	13	36	0.06	28,920	29,277	417
13	63	05	24	15	07	68	.77	73	12	26	0.99	79,551	79,465	1,290
14	66	03	18	07	14	85	.84	45	47	30	0.02	16,228	35,906	192
15	78	04	13	09	07	75	.84	66	25	49	0.01	82,709	40,332	801
16	12	00	20	02	52	87	NA	60	26	56	0.00	46,943	143,694	449
17	48	01	33	07	14	85	.80	50	36	37	0.64	156,386	272,362	1,686
18	97	28	03	06	01	62	.55	70	10	NA	0.01	38,986	NA	1,667
19	72	03	15	09	08	78	.83	63	27	28	0.00	312,255	210,616	3,662
20	85	34	13	40	00	17	.55	51	38	37	0.06	983,141	151,818	19,766

zational supports that it did in Santa Fe and would, later, in Entre Rios. The result was a pattern of small and intermediate holdings that is unique on the humid pampa. The dominant activity was wheat farming on moderately sized units, generally cultivated by families. Levels of capitalization were extremely low.

Region 7: Frontier Wheat

Included here are twenty-eight counties, the westernmost tier of Buenos Aires province and the contiguous tier of counties in what was then the National Territory of La Pampa, as well as the southern tip of San Luis province. This is the semi-arid pampa, with the least fertile soils of the entire pampean area. Effective settlement came only with the railroad after the campaigns against the Indians who had controlled the land for centuries. The federal government distributed parcels to veterans of the Indian campaigns as a means of settling the area, but the land quickly was accumulated into huge tracts by porteño landowners. Some of these, in turn, were sold to colonization companies, who organized communities in coordination with the railroads [31].

The government's land policy is reflected in the land tenure pattern, with a significant incidence of latifundia, widespread dedication to wheat farming, and high incidence of tenancy. The statistical evidence suggests that this is a zone undergoing rapid expansion though already fully integrated into the international market.

We can divide the rest of the regions into four macroregions, Patagonia, Cuyo, the Northeast, and the Northwest. Patagonia, regions 8, 9, and 10, includes the modern provinces of Rio Negro, Chubut, Santa Cruz, and Tierra del Fuego. It was the sheep raising area, characterized by vast expanses of unfenced land over which grazed forty percent of the nation's sheep. Farming was restricted to the river valleys, the most important of which was the Rio Negro. A generation later, the fruit farms of the Rio Negro would supply the entire country and play a prominant role in the region. At the time of the 1914 census, they were not yet statistically significant. It is useful to point to the absence of family farms in the region. This, together with the landholding pattern, the high incidence of wage labor, especially at sheering time, on large units often administered as commercial enterprises on behalf of absentee owners, many of whom were foreign nationals whose enterprises would today be considered transnational companies, created the conditions for abusive exploitation of labor, which precipitated violent class conflicts in the 1920s [32].

31) Para el asentamiento en el territorio de La Pampa vease Romain G a i g n a r d: "Origenes y evolución de la pequena propiedad campesina en la pampa seca Argentina (El caso de la provincia de La Pampa)," Desarrollo Económico, vol. 6, 21 (1969). El estudio de este problema desde otra perspectiva puede consultarse en Joseph L. L o v e, "An Approach to Regionalism," en Richard G r a h a n y Peter H. S m i t h, eds., New Approaches to Latin American History (Austin: University of Texas Press, 1974).

The Cuyo region, encompassing the provinces of Neuquen and Mendoza, was the center of wine making, as it is today. Here the land tenure pattern is one of large units covering most of the territory cheek by jowl with massive numbers of tiny units, generally owned by their operators. The symbiotic relationship between these units reflects the nature of the principal economic activity. The small producers were entirely dependent upon the larger ones for storage facilities, for sale of their wine grapes and, for credit. It was not unusual for large landowners to hire workers by contract to work portions of their lands, and to pay the workers with wages, a small house, and the tools of his labor. In sum, a region that exhibits all the characteristics of traditional agriculture [33].

A similar pattern is found in the Northwest, regions 14 and 15, the provinces of Tucuman, Salta and Jujuy, only the crop is sugar, not wine grapes. Again, the dependency of the small producer on the *central* is reflected in the land tenure pattern and in the very low levels of capitalization per hectare and per person in agriculture (see Table 1). The major differences between the sugar and wine districts are that the former was an area of much older settlement, lying athwart the old wagon trail from Buenos Aires and Cordoba to the mines of upper Peru, and that the population was more densely settled, a response to the higher demand for seasonal labor in the sugar *centrales* than in the wine *bodegas*.

The sugar oligarchy maintained its regional interests within the framework of national politics without integrating itself into the international market. On the contrary, the production of sugar was so inefficient in international terms that the national industry preserved its economic viability only behind a high tariff wall erected by the national government. The sugar companies, like the wineries and the sheep ranch companies used the giros to provide liquidity to pay their workers during the harvest and to provide credit to the small producers at usorious rates [34].

The Northeast, regions 16, 17, 18, and 19, the provinces of Santiago del Estero, Corrientes and Misiones, and the national territories of Formosa and El Chaco, is characterized by a combination of large units and many small peasant holdings. Levels of capitalization are extremely low. It is a region in which there

32) For details on the land and labor situation in Patagonia, see Jose Maria B o r r e r o, La patagonia trágica (Buenos Aires: Editorial Americana, 1967); on the evolution of the fruit farms in the Rio Negro valley, see Cesar V a p n a r s k y, Pueblos del Norte de la Patagonia, 1779 - 1957 (Fuerte General Roca: Editorial La Patagonia, 1983), on the bloody labor uprising in Santa Cruz, see Oswaldo B a y e r, La patagonia trágica, 3 vols. (Buenos Aires: Editorial Galerna, 1972 - 73).

33) F l i c h m a n, La renta del suelo, pp. 122 - 28. The following descriptions owe much to this fascinating study. See, also, B a l a n, loc. cit.

34) Donna G u y, Argentine Sugar Politics; and B a l a n, loc. cit., on the regional oligarchy.

is a great deal of wealth but most of it is tied to the land and tied up in the land. The large estancias represent social status, economic security and political power to their owners, but they do not produce significant suplus to allow capital accumulation. For the most part herds and lands had not been modernized by the time of the 1914 census and the economy of the region was not integrated into the international economy [35].

This brief characterization of diverse regions in Argentina has permitted us to establish some important elements of interregional differentiation associated with land tenure, labor systems and forms of production. On the basis of these differences we will suggest that the characteristics of dominant and subordinate groups also will vary from region to region. However, this must not cause us to forget that the landowning class constituted the hegemonic group in rural society. Looking beyond the diversity of regional socio-economic structures and the dynamic peculiar to each of them, there were mechanisms that articulated these structures, that linked different forms of production and diverse regions.

Thus, even if it is true that the regions differed markedly from one to another, we must not forget that they were bound together within an international capitalist system. Nowhere was the domination of the export oligarchy more obvious, nowhere was the pattern of distortion in the economic growth of the nation more apparent to contempraries as well as to later students of the process than in the organization of the banking industry and in the severe limitations on the access to capital. Here, as in no other form of economic activity, the linkages between Argentine production and transnational capital were powerful and exclusive. The flow of giros around the country, because it was so closely associated with export crops and because it was such expensive credit, reflects the penetration of international finance capital in the Argentine economy and the direct manipulation of the economy by foreign interests through this pervasive mechanism of control,

In the following sections we will describe the distribution of giros across space and over time. Then, we will transform the giros into our dependent variable and correlate it with the socio-economic indicators we used in the earlier sections in which we characterized the various regions. According to our working hypothesis, we should expect to find wide regional variations in the socio-economic characteristics that correlate best with the flow of giros. The objective of our statistical exercise is to identify those dependent groups or elements within the productive structure of each region that are the consumers of the expensive credit distributed through the giros system, as well as the forms of production most closely associated with the giros.

The Banco de la Nación dominated Argentine finance. In 1910, it handled roughly one-third of all banking business directly and, through its control over

35) Flichman, op. cit., pp. 129 - 35.

foreign exchange, treasury deposits, and links with the Caja de Conversion, had indirect control over a least another third, perhaps another half, of the business. Even strong private banks had to resort to the Banco de la Nación for short-term loans or credits to keep them going [36]. Thanks, in part, to its strength and to the bad harvests of 1910 and 1911, the Banco de la Nación slowly increased its share of the business until, with further stimulus from the war in Europe, it reached a high point of direct control over nearly 60 percent. Most of the increase was at the expense of other Argentine banks.

The Banco de la Nación operated on a strictly commercial basis. Loans were granted only to individuals and firms with the finest credit ratings or with impeccable guarantees. This, alone, would have been sufficient to exclude all but the largest and most liquid ranchers and corporations from access to bank credit. There was one additional factor that closed the door tight on the vast majority of farmers and ranchers. The Banco de la Nación was restricted by its charter to granting loans of 90, 180, or, in special cases, 270 days. Under such conditions loans to the agricultural sector could not be used to expand production, they could have only commercial functions to tide a basically solvent rancher over a temporary liquidity difficulty or to extend the leverage of his capital [37].

The bank's loans to the agricultural sector were rarely transactions between the bank and a producer. There were usually from one to three middlemen between the bank and the producer who needed the money. Fully two-thirds

36) Universidad Nacional de Buenos Aires Facultad de Economia, Instituto de Economia Bancaria, Estadística Bancaria (1936). For a more general view of the credit system, see Laura R a n d a l l, An Economic History of Argentina in the Twentieth Century (NY: Columbia University Press, 1978), Chapter 4.

37) The archival records of the Banco de la Nacion indicate that large loans were made at or close to the prime rate of 5 or 6 percent to prominent landowners with one or more guarantor (cosignatarios) and were renewed over and over again. While the data are not available to demonstrate precisely what proportion of such loans were rolled over and how long such a process might be continued, it is clear that the bank's best customers were assured of what amounted to a line of credit that provided them with the liquidity they needed to maintain their productive activity. The device of rolling over loans at periodic intervals was common to commerical banks in other countries. For a detailed account of commercial banking practices in the USA at this time, see John A. J a m e s, The Evolution of National Money Market, 1898 - 1911 (Princeton: Princeton University Press, 1977), chapter II. James estimates that 65 percent of agricultural loans by rural banks in the USA were renewed at least once and that at least 20 percent of non-collateral loans were used for financing fixed capital (pp. 84 - 94). It should be perfectly clear that ours is a partial view of the Argentine credit system. The Banco de la Provincia de Buenos Aires played an important role in Buenos Aires agriculture, but there is no data available comparable to that for the Banco de la Nación. This, together with the Banco de la Nación's strategic position within the national banking network, has convinced us to accept the latter as representative of the entire system.

of the farms in the pampa region (including the provinces of Buenos Aires, Santa Fe, Cordoba, Entre Rios, and the Territory of La Pampa) were run by people who did not own the land. These tenants, or employees, might get the financing they needed from the landowner, who might get it directly from the banks. More often, the tenant got the money he needed to buy seed, hire labor to harvest his crop, or buy machinery to work his land from the local supplier, or *almacenero*. The almacenero was a local monopolist of credit who sold money at 20 to 25 percent interest. He got his money from consignment houses in Buenos Aires or from their agents in his district at about 12 percent interest. The dealers in commercial paper were the wholesalers of the rural credit business, and they got their money from the banks, at about 6 percent interest, or from their European partners.

The Banco de la Nación provided the cereal export houses with the means to move the capital – sight drafts *(giros)* on the bank's branches in the countryside. The cereal houses could thus move the money to buy the grain they needed to fill their export commitments. The individual farmer was defenseless when agents for the big cereal houses came around to buy at the peak of the harvest. He needed the money. He was in debt to the almacenero, the consignment agent, and to the landowner who held the rental contract on the farm. To hold his crop off the market until prices firmed, the farmer would need direct access to credit and a place to store the grain. However, banks would not lend to him; his only source of credit was the almacenero or some other agent of the export houses. Even had the farmer been able to renew his loans, there were no storage facilities available to him. By law, the railroad companies were supposed to build grain deposit facilities at every railhead in the cereal zone, but in 1914 the existing facilities were adequate for only thirty percent of the nation's cereal exports. By some remarkable coincidence, nearly all of the available storage along the railroad lines was leased to one firm, the Cereal Deposit Company, which during the harvest, subleased the space to the highest bidder, so that the individual farmer could not compete with the cash-rich cereal houses [38].

Both the banking system and the informal credit machinery focused financial power on the Banco de la Nación and favored those directly connected with the export of cereals and meat, and, to a lesser extent, large corporations producing sugar or wine. Any effort to alter the credit system would threaten the economic groups which benefitted from it and prompt them to sally forth to defend their interests. Economic advantage had as much or more to do with privileged access to cheap credit as with hard work or efficiency. It could mean

38) For a description of how the credit system operated in the rural sector, see B e j a r a n o, op. cit.; R. P. E m i l i a n i, Reorganizacion Económica, Política y Social (BsAs: Privately Printed, 1920); and S c o b i e, Revolution on the Pampas. For the Chilean case, see B a u e r, Chilean Rural Society from the Spanish Conquest to 1930 (Cambridge: Cambridge University Press, 1975), pp. 105 et seq.

as much as 18 percent, the difference between a handsome profit and capital accumulation on the one hand and insolvency and perpetual debt on the other.

Rather than bringing in new capital to increase the liquidity of the Argentine economy, to the extent that the transnational merchants secured their working capital from Argentine banks, they actually drained capital from the economy by taking it out of the hands of the producers through the usorious interest rates they charged. Thus, not only did the cereal houses make money on the export transaction, they also captured the portion of profit that might have gone to the individual producer were it not for the insidiously illiquid credit system which they dominated.

GIROS: An Indirect Measure of Credit and Control in the Countryside

We are fortunate in having available the data necessary to study one facet of this informal credit system. The archives of the Banco de la Nación include records of all the giros sent through its facilities to branches throughout the country. While these giros do not represent all of the capital available to agriculturalists from private sources, they do represent a significant portion and there are enough of them over the years to warrant careful analysis. For each entry in the bank's *Libros de Actas* there is the date of the transaction, the name of the firm moving the money, the branch of the bank to which it moved, the amount of the transaction, the agent of the company taking receipt of the draft, and the conditions under which the funds are moved. During the twenty years from 1910 to 1929, there were nearly ten thousand giros recorded in the Libros de Actas. In the aggregate, they represent the movement of over 800 million pesos by nearly five hundred different firms to over two hundred branches of the National Bank spread all around the country. At first glance, given the overwhelming importance of agricultural activity on the pampa, it might appear that this is not an imposing number of transactions. What is important, however, is the amount of money moved by the cereal houses and consignment agents. In several of the years studied, giros moved by known consignment agents and grain exporters through the bank to its branches on the pampa amounted to 80 percent of the value of the nation's grain exports. That such considerable amounts of capital could be moved around the country by a few firms in a small number of transactions is an indication of their economic power and the smooth efficiency of the informal credit system that operated in their interest.

While it is true that the giros were not restricted to the cereal companies - they were used by the sugar companies in the Northwest, the wineries in Cuyo, the sheep ranchers in Patagonia, and the quebracho firms in the Northeast, as well as those engaged in other forms of economic activity - there is no doubt that the cereal exporting houses constituted the largest single category of users of this service offered by the National Bank and that they moved the largest block of

funds. Of the 48 most active users of the giros service, 33 were cereal brokers and exporters and another 5 were banks whose activity was concentrated in the cereal zone and were undoubtedly acting on behalf of consignment agents and others concerned with the marketing and export of agricultural commodities. These thirty-eight companies were responsible for moving over 80 percent of all giros recorded in that twenty year span.

The structure of this informal credit system was oligopolistic. Two firms moved twenty-eight percent of the money, and ten moved nearly sixty percent. For the most part, the major exporting firms maintained their market share throughout the period under study. The only significnt shift was that by the end of the period, a number of international banks had come to play important roles in the marketing of the harvest, whereas not one was among the most active firms in the years prior to World War I. This probably indicates a gradual institutionalization of the middleman, taking more of the business out of the hands of Argentine firms and placing it directly under the control of foreign or transnational companies [39]. Even before the changes resulting from the war, it is evident that international firms dominated the credit markets and the export trade. As many as sixteen of the twenty most active firms in 1910 were foreign owned or controlled, or at best precursors of the present day transnational corporations. In 1925, if we exclude four sugar companies, foreign controlled firms accounted for 15 or the 18 most active users of the giros service.

The most obvious feature of the giros flow is the dramatic increase over time. This indicates a rapid expansion of agricultural production and progressively tighter integration of that activity into the international market. The distribution of the giros throughout the country is summarized in Table 3, and underscores the prominance of the pampa in the agricultural activity of the nation.

At this point, it is necessary to reiterate that the giros, as high cost credit, were used by producers only when other forms of credit were not available. Consequently, because of its cost, it indicates a relationship of dominance and subordination between the distributors of the credit, those who owned the capital, and those who borrowed the money. The same relationship is implied in the cases in which a cereal house, winery, sugar mill or sheep rancher would move the money in order to buy from a small producer the fruits of his labors. Such producers could afford to continue their productive activities under the burden of such financial conditions only if the return on their own investment was sufficiently great to overcome the enormous difference between the cost of official bank credit and the cost of the unofficial credit distributed by the

39) For a study of the international grain trade in the twentieth century, see Dan Morgan, Merchants of Grain (NY: Viking Press, 1978).

Table 2
National Total of Giros, 1910 - 1930, in paper pesos

1910	12,196,188	1923	29,101,087
1911	12,332,818	1924	45,029,851
1912	9,359,523	1925	69,379,442
1913	24,048,530	1926	77,802,358
1914	22,415,171	1927	63,363,502
1915	30,258,259	1928	83,310,487
1916	26,888,281	1929	72,676,400
*		1930	57,278,977

* Data for the year 1917 - 1923 are not available.
Source: Archives of the Banco de la Nación Argentina, *Libros de Actas.*

Table 3
Distribution of giros by macro-regions, by year, as a percentage of the national total.

Year/Macroregion	Pampa	BsAs	Cuyo	NW	NE	Patagonia
1910	80.73	1.82	3.61	4.76	6.54	2.54
1911	72.96	3.46	1.87	10.12	4.69	6.90
1912	73.85	2.62	3.00	10.00	4.22	6.30
1913	68.48	6.48	1.12	10.46	3.74	9.73
1914	71.73	0.59	1.10	13.21	4.49	8.88
1915	73.17	1.26	0.76	15.19	2.71	6.91
1916	71.25	0.67	0.83	13.84	4.15	9.26
*						
1923	65.38	0.36	2.92	12.35	8.16	10.32
1924	64.65	0.26	2.47	12.57	7.67	12.38
1925	62.41	0.18	3.38	12.45	8.62	12.96
1926	64.68	1.35	3.46	12.43	8.32	9.71
1927	65.72	0.02	3.54	14.31	9.13	7.27
1928	62.71	0.17	4.10	12.89	10.12	10.10
1929	62.43	0.01	3.49	14.20	9.53	10.34
1930	52.83	0.12	3.62	17.81	13.16	12.46

*Data for 1917 - 1922 not available

giros system; that is, when they enjoyed a comparative advantage either in the national or the international market. The pertinant question that is posed next is what kind of regional productive structures demanded and permited such a peculiar credit system.

In order to answer this question in a useful manner, it is necessary to go back and disaggregate the Pampa into its regional components. As we indicated earlier, the pampa was not a homogenous area and the diversity of its productive structures is reflected in the wide regional variation in giros flows over time (Table 4).

Table 4
Distribution of Giros on the Pampa, as a Percentage of the National Total, for Various Years.

Region	Year						
	1910	1912	1914	1916	1924	1926	1928
1	18.20	26.66	15.91	17.11	16.21	16.85	18.42
2	17.09	13.14	14.39	7.61	7.97	8.02	9.27
3	8.42	4.22	8.04	4.71	5.48	5.24	3.76
4	7.46	6.99	8.62	9.05	9.81	8.74	8.76
5	8.60	5.88	5.16	8.52	6.13	6.03	4.43
6	1.31	2.03	1.65	1.16	2.43	1.69	3.61
7	19.62	13.92	16.93	25.75	29.11	17.92	14.41

The intraregional variation of giros activity over time reflects the evolution of systems of production, as well as the mere increase in export agricultural activity. Doubling the number of hectares planted in wheat would not necessarily lead to a doubling in the quantity of giros flowing into the region. If the increase in production represented an accumulation of capital or a shift from tenant farming to cultivation of the land by the owner and a hired labor force, it is conceivable that some portion of the increased acreage was financed directly by the banks or under more favorable conditions than the giros. That we cannot determine from these data. However, we can explore the relations between the flow of giros and regional variations in productive systems, to test our original hypothesis that these giros can be used to identify patterns of dependent agriculture in Argentina and that the perpetuation of that dependence was a function of the inequities in the credit system.

On the surface, changes in the distribution of giros across the pampa appear to reflect two significant shifts in productive activity. The sharp shifts in regions 3 and 5, the central portion of the province of Buenos Aires, indicate the transition to mixed agriculture that had begun at the end of the 19th century. Swi-

tching the use of land, from grazing to the cultivation of cereals in response to anticipated swings in market demand for beef and wheat, created large changes from year to year in the producers' need for liquidity. The steady decline in region 2 marks the deepening commitment of producers there to fattening, as well as the geographic concentration of politically and socially prominant figures whose names appear on the rolls of the Banco de la Nación as those receiving direct loans at the normal market rate of six or seven percent [40]. The rising trend for region 7 represents the expansion of export agriculture on the southwestern frontier. Colonization was used here, as it had been in region 1 (Santa Fe) thirty years earlier, and as it was being used in region 4 (Entre Rios) to bring land under cultivation. Such grazing as was done was extensive and almost entirely oriented toward the domestic market. Mixed farming, so prevalent in regions 3 and 5, was virtually non existent.

The flow of credit to the northeast remained fairly steady through 1916, between three and four percent of the national total. In the next decade, however, it rose to a high of 13 percent in 1930 (see Table 3). This indicates a growing demand for credit for the expansion of the regional economy. Given the fact that the region's economy was scarcely integrated into the world market until the first world war, this increased flow of giros marks the dramatic growth in the extraction of quebracho and other plantation crops, almost entirely by transnational corporations. These changes would, over time, precipitate significant changes in the productive structures of the region, but for the moment the same pattern of dependent development that we have seen on the pampa was being reproduced. As on the pampa, the expensive credit made available through to the giros system to the producer undoubtedly crimped severely the process of capital accumulation.

Outside of the pampa, the northwest received the most giros of any macroregion. The flow to this region was fairly stable, indicating a consolidated productive structure with a considerable economically active sector that depended on the giros for its effective functioning. Given the fact that sugar cultivation was the overwhelmingly preponderant activity, it is clear that the relations of production in the region were stable and had been organized over a long period of time. Furthermore, the fact that the sugar industry was insulated from the international market and that the region's production was headed for the national market also contributed to the stability of the productive structure and the flow of giros, arguing that the political influence of the sugar oligarchy remained effective throughout the period.

The flow of giros to Cuyo fluctuated widely during the period under study, even declining in the 1920s. Since the area was dominated by grape growing

40) Data from the Archives of the Banco de la Nación Argentina, Libros de Actas: Prestamos, 1910 - 1917.

and wine making, we must assume that the fluctuations had something to do with the changing fate of that industry. As with sugar, the wine produced in the zone was intended for the national market and so there was little price competition and little opportunity for exploring whatever comparative advantage the region might have had on the international market.

The semi-circle of counties around the metropoitan area of Buenos Aires experienced a dramatic expansion and then a severe contraction of the giros flow. This region undoubtedly was experiencing major transformations as a result of the growth of the city of Buenos Aires. The land in the region was dedicated at the beginning of the period to truck farming and fattening of cattle on the prestigious cabañas. By 1930, many of these had given way to suburban subdivisions in which immigrants or their children invested the capital they had accumulated after long years of hard work in the city. None of these groups would have been clients for the giros credit system.

In Patagonia, after a rapid growth between 1910 and 1916, the flow of giros stabilized at just over 10 percent of the national total. Although sheepherding was the dominant activity in the macroregion, at the end of the period, it is likely that the expanding fruit farms around the Rio Negro became important consumers of the credit that the giros represented. The transnational companies that dominated the sheep raising used the system to move their capital around the country, pay their laborers and buy the wool clip from smaller producers. The production of wool remained fairly stable throughout the period.

The flow of giros around the country across time indicates significant increase in economic activity and expansion of the geographic base of the nation's export oriented activities. Before the war, almost all of the giros went into the pampa and the regions where plantation crops were cultivated, Cuyo and the Northwest. By the 1920s, this situation had begun to change, as the amounts flowing to the interior and to Patagonia mounted. By 1924, the pampa received 64 percent of the national total of giros, down from a high of nearly 81 percent, and by the end of the decade it had fallen below 53 percent. By contrast, in the same year, Patagonia received 12 percent, the northwest 17.8 percent, the northeast 13 percent, and Cuyo 3.6 percent. This redistribution reflects an expansion of the productive activities in these zones and their tighter integration into the national and the international market system. This suggests that there had occured in the interior regions the reproduction of the same pattern of dependent development that characterized the pampa as a result of its rapid expansion before the war. Following the same reasoning, we can interpret the decline in the share of the giros going to the pampa as an indication that the dependent sector was reduced. It is also possible, however, that a certain equilibrium had been achieved among the number of producers, the amount of land available and the demand for credit, so that as the demand and the availability of these factors of production increased in other regions, the proportional share of the

Table 5
Simple Correlations Between Agrarian Credit and Selected Socio-Economic Indicators
By Macrozone and By Region, By Year

The Pampa

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	–	–	–	–	–	–	–	.25	.20	.20	.20	–	–	–
Farm Owners	–	–	.21	–	–	–	–	–	–	–	.22	–	.25	.26
Ranch Owners	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small Holders	–	.39	.61	.54	.49	.50	.42	.62	.57	.61	.55	.55	.55	.56
Tenants	.30	.31	.44	.45	.43	.44	.38	.52	.54	.53	.55	.55	.47	.48
Salaried Employees	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Value of Livestock/Hectare	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Capital Invested/Hectare	–	–	–	–	–	–	–	–	–	–	–	–	–	–
% Land Planted in Wheat and Linseed	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Region 1

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	.81	.87	.73	.75	.77	.71	.71	.62	.59	.61	.63	.58	.69	.73
Farm Owners	–	–	–	–	–	–	–	-.42	-.36	-.24	-.52	-.31	–	–
Ranch Owners	–	–	-.20	–	-.22	–	-.20	-.55	-.56	-.56	-.87	-.55	–	–
Small Holders	.94	.79	.97	.97	.97	.97	.97	.98	.98	.98	.98	.97	.94	.95
Tenants	.46	.23	.55	.52	.54	. 56	.57	.98	.95	.80	.95	.90	.47	.48
Salaried Employees	-.21	-.32	–	–	–	–	–	–	–	-.25	-.38	-.22	-.24	-.25
Value of Livestock/Hectare	-.27	–	-.32	-.30	-.33	-.31	-.36	-.89	-.70	-.69	-.97	-.67	-.25	-.25
Total Capital Invested/Hectare	-.29	-.20	-.32	-.30	-.34	-.31	-.32	-.87	-.67	-.67	-.94	-.65	–	–
% Land Planted in Wheat and Linseed	-.40	-.42	-.36	-.36	-.41	-.34	-.36	-.60	-.53	-.43	-.61	-.50	-.29	-.32

Region 2

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	–	–	–	–	–	–	–	–	–	.32	.27	–	–	–
Farm Owners	–	–	–	–	–	–	–	–	–	.26	.27	–	–	–
Ranch Owners	-.30	–	–	–	–	.25	.25	.27	.25	.41	.41	–	.29	.32
Small Holders	–	–	–	-.21	–	–	–	–	–	–	–	–	–	–
Tenants	–	–	–	.23	.34	.38	.39	.26	.55	.57	.50	.42	.42	.59
Salaried Employees	.37	.30	.37	.22	.44	.46	.44	.46	.25	.49	.46	.43	.29	.42
Value of Livestock/Hectare	–	–	–	–	.24	.50	.51	.33	.58	.53	.55	.45	.53	.58
Total Capital Invested/Hectare	–	–	–	–	.26	.51	.51	.35	.58	.56	.57	.46	.53	.60
% Land Planted in Wheat and Linseed	–	–	–	–	.21	.42	.42	.39	.49	.57	.39	.33	.39	.62

Region 3

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	-.31	–	.22	–	–	–	–	.24	-.39	–	–	—	–	–
Farm Owners	.23	.27	.31	.34	.39	.45	.60	–	–	.29	.21	–	–	.34
Ranch Owners	.23	–	–	.26	–	.30	.46	–	–	–	.21	.23	.22	.30
Small Holders	.21	–	–	–	–	–	.25	–	-.21	–	–	–	–	–
Tenants	.43	.34	.37	.43	.42	.40	.46	.41	.41	.54	.40	.41	.53	.63
Salaried Employees	.24	.26	.34	.40	.36	.42	.54	.38	.43	.52	.38	.42	.44	.53
Value of Livestock/Hectare	–	.21	.30	.39	.32	.43	.56	.31	.27	.37	.34	.40	.38	.45
Total Capital Invested/Hectare	–	.21	.30	.38	.32	.43	.56	.32	.27	.38	.35	.39	.39	.45
% Land Planted in Wheat and Linseed	.37	.49	.41	.42	.57	.71	.93	.24	.48	.34	.29	.26	.37	.49

Region 4

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	-.27	–	–	–	-.20	–	–	.41	–	–	–	-.21	–	–
Farm Owners	.55	.58	.66	.46	.40	.44	.37	–	.37	.59	.43	.28	.35	.30
Ranch Owners	-.34	-.37	-.22	–	–	–	.22	.29	–	–	–	–	–	.22
Small Holders	.38	.41	.44	.30	.27	.37	.25	–	–	.23	–	–	–	–
Tenants	.51	.50	.60	.41	.69	.70	.57	–	.69	.77	.67	.66	.62	.70
Salaried Employees	.43	.39	.45	.45	.66	.66	.74	.25	.72	.59	.53	.53	.53	.65
Value of Livestock/Hectare	–	–	–	–	–	–	.42	.32	.53	.39	.44	.28	.31	.50
Total Capital Invested/Hectare	–	–	–	–	.23	.21	.43	.30	.55	.43	.48	.32	.34	.53
% Land Planted in Wheat and Linseed	.46	.51	.60	.34	.55	.54	.40	–	.47	.78	.75	.69	.62	.67

Region 5

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	-.43	-.51	-.48	-.62	-.54	-.44	-.40	-.40	-.43	-.34	-.33	-.29	-.28	–
Farm Owners	.23	.21	–	–	.21	–	–	.59	.67	–	–	.51	.45	–
Ranch Owners	-.21	-.22	-.22	–	–	-.27	-.28	-.33	-.20	-.38	-.36	–	-.22	-.37
Small Holders	-.20	-.23	-.25	-.30	-.28	-.23	-.25	–	–	-.23	-.27	–	–	-.30
Tenants	.32	.35	.37	.29	.41	.33	.36	.32	.38	.28	.27	.49	.46	.53
Salaried Employees	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Value of Livestock/Hectare	-.23	-.26	-.24	-.23	–	-.28	-.26	-.46	-.31	-.41	-.38	-.21	-.22	–
Total Capital Invested/Hectare	-.23	-.26	-.24	-.25	-.22	-.28	-.26	-.48	-.37	-.41	-.40	-.26	-.28	–
% Land Planted in Wheat and Linseed	.31	.34	.38	.23	.39	.36	.42	.30	.30	.39	.38	.46	.44	.69

Region 6

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	-.83	-.84	-.83	-.82	-.82	-.86	-.84	-.90	-.97	-.89	-.99	-.98	-.92	-.92
Farm Owners	.91	.89	.91	.91	.91	.81	.85	.85	.79	.76	.94	.96	.90	.87
Ranch Owners	.54	.49	.54	.54	.54	.40	.44	.83	.76	.31	.93	.95	.50	.43
Small Holders	–	-.20	–	–	–	-.30	-.27	.54	-.23	-.44	-.42	-.37	-.22	-.26
Tenants	.67	.64	.67	.67	.67	.56	.61	.77	.70	.73	.96	.97	.64	.61
Salaried Employees	–	–	–	–	–	–	–	–	–	–	.83	.86	.37	.32
Value of Livestock/Hectare	-.24	-.26	-.24	-.24	-.23	-.28	-.25	-.56	-.43	-.26	.99	.99	-.24	-.25
Total Capital Invested/Hectare	–	–	–	–	–	-.23	–	-.50	-.40	-.22	.96	.97	–	–
% Land Planted in Wheat and Linseed	.82	.82	.83	.83	.83	.77	.81	.79	.72	.77	.98	.99	.88	.87

Region 7

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	.23	–	–	–	–	.28	.28	.31	.26	.30	.34	.33	.32	.30
Farm Owners	.48	.40	.25	.44	.38	.46	.48	.52	.57	.56	.56	.51	.57	.50
Ranch Owners	.30	.37	.43	.34	.37	–	–	–	–	–	–	–	–	–
Small Holders	.54	.56	.39	.56	.56	.53	.52	.58	.54	.59	.54	.49	.50	.47
Tenants	.51	.48	.34	.50	.45	.46	.48	.48	.51	.48	.47	.47	.49	.43
Salaried Employees	.22	–	–	–	–	.23	.23	.23	–	.22	.25	.26	.26	.23
Value of Livestock/Hectare	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Capital Invested/Hectare	.28	.28	–	.28	.24	.20	.21	–	–	–	–	–	–	–
% Land Planted in Wheat and Linseed	.49	.50	.46	.52	.50	.42	.45	.44	.49	.42	.40	.39	.41	.37

Cuyo (Macrozone)

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	.46	.47	.53	.43	.40	.40	.40	–	-.30	.80	.76	.55	.48	.53
Farm Owners	.95	.98	.94	.95	.85	.82	.87	–	-.46	.87	.87	.84	.62	.66
Ranch Owners	–	–	–	.26	–	–	–	.64	-.86	.98	.99	.95	.94	.95
Small Holders	–	.89	.88	.86	.60	.56	.63	.72	-.91	.99	.99	.93	.97	.98
Tenants	–	.91	.90	.97	.84	.82	.88	–	-.32	.83	.82	.77	.49	.54
Salaried Employees	–	.87	.88	.85	.56	.52	.59	.81	-.96	.99	.99	.93	.99	.99
Value of Livestock/Hectare	–	–	–	–	–	–	–	.61	-.30	.67	.62	.38	–	–
Total Capital Invested/Hectare	–	.25	.32	.44	–	–	.20	.92	-.99	.95	.92	.77	.99	.98
% Land Planted in Wheat and Linseed	–	.23	.24	.34	.51	.52	.52	.79	.54	.31	.27	–	-.37	-.32

Northeast (Macrozone)

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	–	–	–	–	–	–	–	-.39	-.28	-.34	–	–	–	–
Farm Owners	.40	.30	.35	.31	.42	.41	.29	-.41	-.32	–	–	–	–	–
Ranch Owners	–	–	–	.43	.41	–	.36	–	–	.31	.23	.21	.30	.32
Small Holders	–	.37	.41	.34	.49	.51	.39	-.29	-.30	–	–	–	–	–
Tenants	–	.30	.41	.44	.49	.39	.40	-.31	–	–	–	–	–	–
Salaried Employees	–	–	–	–	–	–	–	-.23	.20	–	–	.23	–	–
Value of Livestock/Hectare	–	–	–	–	–	–	.28	-.82	–	–	–	–	–	–
Total Capital Invested/Hectare	–	–	–	–	–	–	–	-.81	–	–	–	–	–	–
% Land Planted in Wheat and Linseed	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Northwest (Macrozone)

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	–	.24	.24	.22	.24	.24	.25	.37	.37	.39	.49	.41	.37	.36
Farm Owners	.51	.52	.52	.48	.48	.51	.43	.84	.80	.69	.80	.81	.81	.42
Ranch Owners	–	–	–	–	–	–	–	.24	–	–	–	–	–	–
Small Holders	–	.42	.42	.41	.43	.46	.43	.66	.61	.55	.55	.56	.57	.35
Tenants	–	–	–	.22	.24	.25	.28	–	–	–	–	–	–	.25
Salaried Employees	–	.77	.77	.83	.86	.83	.88	.92	.71	.81	.72	.74	.74	.59
Value of Livestock/Hectare	–	–	–	–	–	–	–	–	–	–	–	.21	–	–
Total Capital Invested/Hectare	–	–	–	–	–	–	–	–	–	–	–	.21	–	–
% Land Planted in Wheat and Linseed	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Patagonia (Macrozone)

Indicator/Year	1910	1911	1912	1913	1914	1915	1916	1923	1924	1925	1926	1927	1928	1929
GINI INDEX	–	–	–	–	–	–	.22	.40	–	–	.39	.53	.31	.33
Farm Owners	–	.33	.32	–	.21	.24	.34	.59	–	.30	.79	.82	.61	.48
Ranch Owners	–	–	–	–	–	–	–	–	–	-.26	–	–	–	–
Small Holders	–	.21	–	–	–	–	–	.51	–	–	.70	.74	.51	.37
Tenants	–	–	–	–	–	–	–	–	-.43	-.26	.21	.28	–	–
Salaried Employees	–	–	–	–	–	–	.22	.47	–	.21	.61	.68	.49	.38
Value of Livestock/Hectare	–	.29	.23	.34	.20	.31	.25	–	.38	–	–	-.26	–	–
Total Capital Invested/Hectare	–	.32	.26	.36	.22	.36	.39	–	-.43	-.26	.21	.28	–	–
% Land Planted in Wheat and Linseed	–	.33	.30	–	–	.20	.31	.50	–	–	.60	.64	.40	.25

pampa declined. Of course, it is important to remember that 53 percent of the national total in 1930 was thirty million peses, whereas 80 percent of the total in 1910 was only a little under 10 million, indicating a strong increase in the export agricultural activity on the pampa tied to the usorious credit represented by the giros.

The following section will test the central hypothesis of the paper in exploring the linkages between these giros flows and the regional productive structures defined through the census data. The distinctive characteristics of each macro-region have been standardized in a series of indicators which we will correlate with the giros, which thereby become our dependent variable. The indicators are those variables used in the earlier section in which we described the various regions [41].

If we take the macrozone of the Pampa and correlate the flow of giros with the selected socio-economic indicators with which we have been working, we find a clear association with tenants. Thus, in 1910, the simple Pearson correlation (r) is 0.30, rising to .42 in 1914, and reaching its strongest in 1926, at .55 (see Table 5). There is also a strong positive correlation between the flow of giros and smallholding, although the strength of the association varies from one year to the next. With the data available to us, we can't offer a satisfactory explanation for these fluctuations, since there are innumerable factors–economic, international, even climatic–that might affect these results. The correlations with the other variables are weak. The fact that there is no clear correlation between the flow of giros and export cereal cultivation appears to run counter to our central hypothesis. But we must remember that the general view of the pampa masks important interregional differences. differences which were the result of different historical experiences, different settlement patterns and different combinations of the factors of production. As with the discription of the social structures themselves, we must disaggregate the data into the several pampean regions, to see which of the indicators are associated most closely with the flow of the giros.

41) The linkage between the two data sets is effected through the creation of a geographical-financial unit called a Bounty, which assigns bank branches to the counties in which they are located. These units are based upon the unprovable assumption that each branch of the National Bank monopolized giros activity in its zone. There is no way to demonstrate that Firm X did not use the money sent to Branch 1 to do business with a farmer whose land was closer to Branch 2. We simply assume that propinquity creates zones of influence. There are no Bounties smaller than one county. Where more than one branch was in a county, the business of those branches was aggregated into a single Bounty whose geographical limits were that county. Where there were no branches in a county, that county was assigned to the nearest branch and the corresponding bounty included as many counties surrounding that branch as might be considered within its sphere of influence. Then, the data for counties was aggregated to Bounties, so that both giros activity and census characteristics could be analyzed with the same unit of analysis.

In the wheat zone of Santa Fe (Zone 1), the giros correlate positively with the index of land concentration, the GINI, and most powerfully of all with smallholders. In addition, there is a positive correlation throughout the period with tenants. The pattern of relationships suggests that the private credit was concentrated in areas in which the greatest amount of land was held by the fewest producers, areas characterized both by few large units and many very small units, most of which probably were rented rather than owned by the people who lived on the land and worked it.

The only apparent surprise in this regional matrix is the clear negative correlation between the flow of giros and the production of wheat and linseed, which we know was considerable. The explanation for this lies in the settlement pattern in this region–that the bulk of the wheat was produced on cooperatives and on family run farms which had access to credit on slightly better terms than the numerous individual producers on the smallest units of production, most of whom had arrived late in the alluvial process of international migration. The members of cooperatives were less vulnerable to pressure by the large cereal houses and had a better chance of accumulating capital than counterparts in other regions who pitted their fortunes against both nature and the oligopolistic market.

There is a negative correlation also between giros flow and the index of capitalization in livestock, a reflection of the pattern in which the heaviest investment in ranching represented the most modern segment of the cattle industry and tended to be associated with smaller units. In other words, it appears that the giros are associated with the most traditional segment of the Santa Fe agricultural region, the large ranches cheek by jowl with many very small units, many of them rented. These were the producers most dependent upon the cereal houses for the maintenance of their productive activities.

In the old ranching zone of Buenos Aires, just south of Santa Fe (Zone 2), the pattern of relationships is ambiguous at the outset of the period but becomes somewhat clearer in the 1920s, when the giros come to have fairly strong positive associations with wheat and linseed production, with the various indexes of capitalization, and with tenants. The picture that emerges suggests a process of slow penetration of agricultural activity by the usorious middlemen as well as in ranching. The size of the productive unit does not seem to have played a role in the distribution of the giros, except that the smallholder variable has a negative relationship with giros throughout the period.

Further south, in zone 3, the pattern of correlations is too imprecise to characterize. But this imprecision is consistent with our description of this zone as one in transition between extensive, more traditional forms of production and more intensive forms of production. We can assume that the flow of giros fluctuated too much over time and across space to establish a pattern at the aggregate, county level with which we are dealing.

In the province of Entre Rios, zone 4, there are positive correlations between giros flow and tenancy and cereal production, correlations which tend to become stronger over time, suggesting a growing rigidity in the dependent sector of the region. Of interest, also, is the marked difference in the relationship between giros and farmers on the one hand and ranchers on the other. The marked difference begins to erode in the 1920s, as the negative correlation between ranchers and giros deteriorates and then becomes positive, although never very strong. These changes reflect the dramatic transformation created by the significant numbers of immigrant farmers, most of them poor tenants, who pushed the ranchers further and further north, as they took over land they could get their hands on in their drive to make it in the new world. These immigrants came much later than their counterparts across the Parana River in Santa Fe and never succeeded in organizing themselves as effectively to protect themselves from the vicissitudes of the marketplace.

Out on the southern frontier of Buenos Aires province, zone 5, the giros flows correlated negatively with the GINI index and with ranchers, and positively with farmers, although none of the associations is very strong. The most interesting relationships are those between giros and tenancy and wheat cultivation both of which become quite strong during the 1920s. Here, in marked contrast to the experience in the colonization zones (1 and 4), farming was a vulnerable activity. The wheat farmers were the dependent group.

The pattern of associations in region 6, along the Cordoba foothills, is almost too clear, undoubtedly a function of the small number of county units included in the matrix. The giros vary positiverly with the number of farmers, wheat production, tenancy, and negatively with the GINI index. On the basis of this matrix of associations, as well as the other evidence available to us, there appears to have been a stable demand for giros in this region among tenants, most of whom probably were farmers, and among farmers cultivating their own land, farmers who were neither the holders of the smallest nor the largest units. While the amount of money sent into the zone in the 1910s was not great, it increased rapidly in the 1920s, indicating an accelerating expansion of production and of demand for expensive credit in the years before the collapse of the international economy.

In the semi arid zone 7, in the national territory of La Pampa, the positive associations are with cereal cultivation, tenancy and farmers. Cereal producing farmers are the ones forcing the change from extensive grazing to more market oriented cereal production, but they did so at the cost of their dependence upon the consignment houses for their capital. Here, again, the ecological transition is reflected in the evolution of the statistical associations over time. The correlation with ranching–extensive, under-capitalized units for the most part, moderately strong in the 1910s, breaks down completely after 1920, while the association with wage laborers grows stronger during the decade of the 1920s,

a further indication of the expansion of commercial, dependent agriculture.

In the macrozone of Cuyo, the wine district, the flow of giros was fairly constant in the years before the war, fluctuating in a narrow range between 300,000 and 400,00 pesos, only to increase more than ten times in the 1920s. Despite this dramatic increase, which suggests an expansion in the dependent sector of the economy over time, the pattern of correlations remains fundamentally the same. There are strong positive correlations between the flow of giros and tenancy, the production of grapes, salaried workers and smallholders, with the third tending to weaken in the 1920s. As if to replace it, the correlation with ranchers becomes strong in the 1920s, suggesting the incorporation of new groups into the dependent sector as the economy expanded. Given that the cultivation of grapes and the production of wine constituted the principal economic activity of this zone, we can imagine that the consumers of the giros were found for the most part among tenants and smallholders working closely with the large producers and wineries who bought up the production of the zone. In a fashion analagous to the relationship between cereal consignment houses and farmers on the pampa, the large wineries and a few large vineyards used the giros credit system to maintain their control over the vast majority of grape producers. In this case, the use of correlational analysis provides powerful confirmation of the hypothesis concerning social structure and credit.

Almost the same structure can be discerned in the sugar zone of the Northwest, encompassing the provinces of Tucuman, Salta, and Jujuy. The amount of giros sent into the zone increased virtually every year, while the correlations remained positive with the production of sugarcane, smallholders, and salaried workers. The large *centrales* or sugar refineries sent the giros to their agents in the zone and used the money to buy the cuttings of smallholders. These numerous minifundistas, together with the large number of day laborers employed during the harvest or *zafra* were the dependent sector, tied to the large centrales in a stable structure of dependence through the mechanism of the informal credit system.

The other two macrozones, the Northeast and Patagonia do not follow this pattern, although for very different reasons. The complex regional production structure of the Northeast, one of the oldest in the country, displays no clear correlations between giros flow and social structure. Without more detailed information about the region, it would be impossible to know why this is so, although the fact that the economy of the region was linked so tenuously to the international market probably lies at the heart of any explanation. In Patagonia, which was dominated economically by the grazing of sheep, the correlations with grazing and with ranching are negative, which suggests that the sheepherders had access to other sources of credit, just as did the major ranchers and cattlemen on the pampa. On the other hand, the correlations between giros and farmers are positive and get stronger as the amount of giros increases in the 1920s.

Conclusion

In this study we have described and analyzed the characteristics, functioning and consequences of a credit system which imposed onerous burdens on the agricultural producers of Argentina but which they could not do without. The effects of this credit system were not limited to the economic sphere, but extended to the structure of society contributing to the definition of hierarchical positions of domination and subordination and to the distinction of fractions within the dominant class.

We began this study with a brief examination of the theoretical debate over modes of production and social structures in Latin America and we attempted to establish its utility as an instrument of analysis of the historical development of the region. We proposed that the best way to contribute to the discussion was through empirical historical research that would allow us to test the effectiveness of this concept as a tool for the study of the past. By way of summarizing our findings, it would be helpful to evaluate how some of the concepts taken from historical materialism contributed to our effort to distinguish among the various forms in which the production process was organized in a specific historical context. We consider the idea of articulation of modes and the form of production to enhance the flexibility of dealing with the theoretical problems that arise when dealing with a specific social formation.

Different forms of production correspond to diverse types of social relations. Both of these change over time and across space, affected by historical and ecological factors, by which we mean characteristics having to do with human and natural resources. The conclusion that we drew from this observation was that it was necessary to study forms of production at the regional level as a preliminary step to identifying the dominant groups in the export economy. The concept of dominance is central to our study. We have used it to describe capitalism as the dominant mode of production in relation to other modes of production and we emphasized the role of dominance played by specific classes within this mode. Building on the premise that there were various modes in the social formation of Argentina during the period under study, we distinguished among fractions within the dominant class, suggesting that the most significant characteristic in social differentiation was access to finance capital and the international market. The preferential access of one or another group was a reasonably precise reflection of the relative positions of power within the landed oligarchy as well as reflecting similar hierarchical positions among the fractions of the subordinated classes.

Once we have accepted the suggestion of fractions of a class playing different roles in the socio-political evolution of a nation, we can move a step further in our theoretical formulation to suggest that the same class fraction can assume distinct roles in different regions, and that these variations will be predicated

upon the diverse forms of social organization and upon differential access to the market. In the case of the Argentine agricultural export economy during the first quarter of the twentieth century, the dominant groups were those who controlled the export sector, at the head of which were the pampean landowning oligarchy. Landownership undoubtedly was a critical feature in the distinction between dominance and subordination in the society, but as we have seen, some of the most powerful and richest of the agrarian entrepreneurs, the fatteners, were not owners of large tracts of land, they were tenants. At the same time, some owners of huge tracts of land were in a vulnerable position in the market and suffered from the same restricted access to credit as tenants and sharecroppers of vastly more modest means. While it is certainly true that the landowning class was the dominant class, it is necessary to go beyond this generalization to study the specific characteristics of the dominant groups in each region and to try to clarify the sources of their domination. The mechanisms of domination varied from region to region, but in most cases, they were defined by control over labor, access to the market and to credit, access to control over land, and participation in the key function or principal economic activity in the region.

Given the fact that the pampa constituted the most dynamic nucleus of the Argentine economy in this period, and bearing in mind that settlement and exploitation of that territory was a phenomenon of the last half of the nineteenth century, our study coincides with one of the most interesting phenomena of modern Latin American history, that of the expansion of frontier lands and the consolidation of the national territory. From this perspective, the interregional contrasts emerge with particular force: the interior, a zone of old colonization with traditional social structures, and the pampa and the littoral, an area of more recent settlement and from its inception tightly integrated into the international market. The settlement of the pampa was closely linked to the growing external demand for agricultural products and the consolidation of the export economy. The combination of an enormous external market and favorable natural conditions stimulated the mobilization of capital and labor from Europe to Argentina to the fertile virgin lands. With them came the railroad and modern means of communication. The transfer of these factors of production, which had not been available in Argentina, created powerful new social and economic forces in Argentina. Even the interior of the country was not impervious to these new forces. The expansion of the railroad and communications networks facilitated the consolidation of a national market, making possible the tight integration of the interior regions even without destroying the fundamental elements of their traditional productive structures.

The entire period of economic expansion in Argentina was characterized by a lack of liquidity, which complicated access to the marketplace. Under these

conditions, access to bank credit constituted one of the most decisive elements of leverage in determining the relative positions of power in different social sectors or fragments of classes. In addition, the study of the credit system has enabled us to understand better one of the mechanisms through which the central countries, especially Great Britain, used the control which they enjoyed over the international commercial and financial system to extract large profits from the periphery while incurring very little risk. In this sense, our study tends to confirm the hypothesis dealing with the process of transfer of surplus from the periphery to the center as the result of the consolidation of the export economies in Latin America. It is important to underline that the use of this form of expensive credit was not restricted to the pampa, the zone most dedicated to exports, but also extended to the interior and the south, serving as a mechanism to integrate these regional economies into a credit system controlled and manipulated from overseas. Under these conditions, finance capital articulated diverse regional economies and forms of production that cannot be classified as capitalist, in a structure whose various elements had in cammon the characteristic of dependence upon the dominant group.

It is obvious that use of the credit funnelled through the giros network placed the producer in a position of dependence. Through correlation analysis, we have been able to demonstrate that dependent groups varied from one zone to another. On the pampa, the dependent group varied from one region to another. For example, in region 1, there is a strong correlation between smallholders and the flow of giros. The negative correlations between giros and wheat and linseed are an indication that holders of medium sized units in this region, most of them colonists, had by the time of the 1914 census managed to organize cooperatives or other means through which they were able to obtain cheaper credit through banking institutions. In region 2, the correlations between giros and the set of census variables were not very strong, but they demonstrated a rising tendency over time in the case of tenants and wheat and linseed. There were also rising trends in the correlations between giros and the variables associated with ranching. From this, we concluded that there appeared to be a slow penetration of the giros network into the agricultural activity of this region, which argued for a deterioration of the market position for the majority of producers in the region. The picture is less clear in regions 3, 4, and 5 for the entire period under study. In the fringe of counties around the Federal Capital, there is a strong correlation between giros flow and tenants, smallholders, wheat, and wage labor which suggests not only that smallholders were especially vulnerbale there but also that there was a group of ranchers that could not gain access to more institutionalized sources of credit and were forced to recur to the middlemen and lenders who controlled the capital moved by giros.

In Cuyo, the correlations indicate that tenants, more often than not small cultivators of grape vines, were the ultimate consumers of the major portion

of the giros, making them the group dependent upon the wine makers or bodegueros. In the Northeast, the simple correlations are an inadequate instrument for capturing the complexity of the distribution of credit to various producing groups. By contrast, in the Northwest, the picture that emerges from the correlations is sharply etched, indicating a vast group of cane producers, probably smallholders or fixed laborers on plantations working as sharecroppers, who are the ultimate consumers of the capital represented by the giros. Finally, in Patagonia the simple correlations do not isolate a single group as the users of the giros. They point to two quite different groups. The first were farmers, concentrated along the banks of the major rivers in the region, who used the capital, through intermediaries, much as on the pampa, to finance their production cycle. The second group, which accounted for the larger portion of the giros, was the sheepranchers, demonstrating how the giros facilitated the financial domination of the transnational corporations.

In this study, we have attempted to describe empirically the characteristics and the socio-economic impact of an agrarian credit system that served the interests of international capital during the period of the export economic boom in Argentina in the first quarter of the twentieth century. Throughout this study we have emphasized the critical importance of penetrating beyond national level analyses to focus on the specific peculiarities of the historical development of each ecological region in order to understand fully the nature of the mechanisms of domination and of dependence in the Third World. This research has attempted to identify the dependent groups and class fragments in different social structures, from region to region; specifically those groups that produced for the market and found themselves caught up in a credit system controlled by international cereal brokers who extracted usorious interest rates from their clients. This study has demonstrated also how the credit system controlled various groups, groups whose only common characteristic was their dependence upon those who controlled the source of their liquidity. In this sense, finance capital articulated diverse forms of production with different levels of development of the productive forces and extracted surpluses from them without necessarily having to transform them. On the pampa the credit system inhibited the process of capital accumulation among tenants, which taken together with the serious obstacles to landownership imposed by the landed oligarchy, led to a result in which the rapid economic expansion of this period did not produce a middle rank or class of agricultural producers. The steady increase in the flow of giros suggests that the dramatic expansion of economic activity did not bring in its wake any redistribution of wealth, but a steady growth in the dependent sector.

This can be seen in the gradual spread of the giros to finance more and more forms of economic activity, even to include portions of the landowning oligarchy itself, as cattle breeders found themselves losing access to the internatio-

nal market in the years prior to the Great Depression. It can be seen, also, in the extension of the giros network to the interior and the adaptation of the credit system to the forms of production peculiar to those macrozones. The giros serve as an index of financial control over the producers of the agricultural products that were so crucial to Argentina's well being. By carefully tracing the flow of capital through the branches of the National Bank, we can measure the rhythm of export agriculture expansion. Perhaps even more significant, because of the usorious informal credit system that used the bank to send giros, we can define with precision the forms of production in each region or macrozone that were relatively dependent. These findings have dual theoretical significance. They confirm the expectations that different historical experiences and factor endowments would lead to different forms of social organization from one region to another. Further, they indicate that within the capitalist mode of production there might be various forms of production with concomitant variations in relations of production. In other words, similar forms of production had markedly different degrees of success across regions. Put in another way, the characteristics of dependent social organization varied from region to region.

It is impossible in this paper to explain the regional pattern of socio-economic dependence. That must await further studies. On the basis of our research, we believe future work should be comparative and should focus on levels of analysis more specific than the nation-state. Only through such studies will we achieve a better understanding of dependency and the evolution of export economies.