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B. Wachstum und Konjunktur in der Gesamtwirtschaft

Frank B. Tipton, Jr.

National Growth Cycles and Regional Economic Structures in Nineteenth Century Germany

I.

Analysis of the relationship between regional development and national growth cycles poses a number of complex problems. The definition of the very units of analysis suggests some of these difficulties at the outset. There are several competing definitions of regions, and a definition appropriate for one form of analysis may be highly inappropriate for another. At the national level, several types of business cycles have been identified, discussed, and debated, and occasionally the entire notion of cyclical analysis has been questioned[1]. Beyond definition of the terms of the analysis lie further difficulties, for economic growth and development is also the subject of competing definitions and theories. One can choose among several well-articulated theories of regional development, and in the case of Germany it has been argued that any of the commonly accepted theories of national economic development can be made to fit the observed data[2].

Nevertheless, regional development constitutes a crucial aspect of national growth. Both regions and cycles exist, in the sense of being identifiable, delimited entities sharing general features. Moreover, each exists in relation to a larger whole, the national economy in the case of regions, and the process of economic development in the case of cycles. These considerations are perhaps especially prominent in the case of Germany, where many of the regions finally unified in Bismarck's Reich possessed long traditions of independence, and where the process of economic development in general and cyclical instability in particular was subjected to especially searching analysis and criticism from both left and right. In what follows I suggest a framework for analysis of the relation between regional and national economic development, centered on the history of major development cycles. The elements of such a framework are a working definition of the kind of region to be studied, and an identification of the kind of cycle most relevent to the analysis. The outline of the history of regional development parallels that of national development; in fact, each of the

1 J.H. McCulloch, *The Monte Carlo Cycle in Business Activity*, in: Economic Inquiry 13 (1975), pp. 303–321.
2 B. Gahlen, *Die Überprüfung produktionstheoretischer Hypothesen für Deutschland (1850–1913)*, Tübingen 1968.

major growth cycles in the German economy was accompanied by the emergence of new regions into the process of modern economic growth. Conversely, lasting depressions were accompanied by the stagnation and decline of those regions left behind. The emergence of the national economy appears from this perspective as a process of regional growth leading to national cycles, which in turn react on regional development.

II.

Patterns of regional development cannot be explained in purely economic terms, and this fact precludes a purely economic definition of regions. Economic definitions typically emphasize nodal hierarchies of urban centers or flows of goods, or homogeneity of resource base leading to specialization around a particular function[3]. Such definitions highlight important aspects of the location of economic activity, but they remain essentially static and descriptive[4]. They offer no explanation of the patterns of development in different regions, of why opportunities could be seized in one region or at one time, and not in another region or at another time. Such explanation can only arise out of an historical and cultural analysis, and therefore most be rooted in historically and culturally defined regions. Regions in this sense must be large enough to possess a distinct "essence"[5] capable of explaining differences in culture, social structure, and economic development. Regions must certainly be "functional" in the sense of possessing a unified economic structure, for shared productive employment constitutes the ultimate ground for the consciousness of belonging to a single cultural entity. Most regions will possess nodal hierarchies as well, based on complementarity and division of labor within the regional economy. Finally, regions should be large and cohesive enough for their distinctiveness to have political impact in the larger entity of which they are a part, a consideration which gains additional force when that larger entity is itself in the process of emergence and definition.

The technological and institutional developments of the nineteenth century – and their attendant social problems – each had a regional focus. The steady shift from agriculture to industry and from country to city benefited industrial regions. At the same time the emergence of mining and metals as the most important leading sector within industry, and the relative decline of textiles, entailed a fundamental shift in the regional focus of industrial development. The increasing importance of factory production within the expanding and changing industrial sector injured some handicrafts, provided new opportunities for others, and transformed them all[6]. However, the crisis of the handicraft sector also varied regionally. In some regions where export industries had remained undeveloped, residentiary han-

3 John R. Meyer, *Regional Economics: A Survey*, in: American Economic Review 53 (1963).

4 For instance Milton E. Harvey, *The Identification of Development Regions in Developing Countries*, in: Economic Geography 48 (1972), pp. 229–243.

5 Walter Isard, *Regional Science, the Concept of Region, and Regional Structure*, in: Papers and Proceedings of the Regional Science Association 2 (1956).

6 See the data in Otto Thissen, *Beiträge zur Geschichte des Handwerks in Preussen*, Tübingen 1901. See also Wolfram Fischer, *Das deutsche Handwerk in den Frühphasen der Industrialisierung*, in: idem., *Wirtschaft und Gesellschaft im Zeitalter der Industrialisierung*, Göttingen 1972; Shulamit Volkov, *The Rise of Popular Antimodernism in Germany: The Urban Master Artisans 1873–1896*, Princeton, N.J. 1978, pp. 1–93.

dicrafts were subjected to new competition from distant producers. Among "proto-industrial" regions where agricultural families engaged in part-time handicraft production for export, some regions proved unable to accumulate the skills or capital required to compete effectively in the new situation. Other regions responded to the challenge and moved successfully into the industrial age, though often by very different paths. Consider, for example, the wide variation among the histories of industrial development in the Rhenish Eifel, the district surrounding Bielefeld, the Saxon Vogtland, and Upper Silesia[7].

The regions of Germany differed widely in their responses to the challenges confronting them. Previous economic development had resulted in widely divergent social structures and value systems, "complex preconditions" which conditioned regional patterns of adjustment to the new situation. At the same time the necessity for rapid response and adjustment increased, as transportation improvements gradually opened inland markets to the most efficient producers, and political decision making bodies above the regional level gradually became more responsive to the interests of the most effectively organized groups of producers. The Zollverein and the railway eventually revolutionized the framework within which economic decisions were made. However, the location of the new railways and the policies of the new customs union were primarily political decisions, and therefore regional economic responses to the new situation also resulted in large part from political and cultural forces within each region[8].

The ability of regions to compete in the changing situation with which they were confronted depended largely on their internal social structure. The social and political transformations of the eighteenth and nineteenth centuries took a number of forms, and could result in an elite that was flexible and outward-looking in approach, willing and able to seize opportunities, or rigid and inward-looking, unable and unwilling to adapt to new situations. The relations of regional elites to the emerging national political structure varied over time and could affect the possibilities for regional economic development in important aspects. Eventually, the balance of these forces determined whether a given region would emerge as a deversified center of manufacturing production with high income and relative immunity from the business cycle, or become a specialized producer of raw materials with relatively low income and a high degree of vulnerability to cyclical fluctuations[9].

From this perspective, political definitions of regions are to be preferred over narrowly economic definitions, since these are the units within and among which the relevent battles were fought. Political units were the obvious focus of cultural identity. In addition they provided the forum for internal political organization, as well as for external pressure on national institutions. As such they became an important part of the economic policy mak-

7 For a general introduction, see Peter Kriedte, Hans Medick and Jürgen Schlumbohm, *Industrialisierung vor der Industrialisierung: Gewerbliche Warenproduktion auf dem Land in der Formationsperiode des Kapitalismus*, Göttingen 1977.

8 See Wolfram Fischer, *‚Stadien und Typen' der Industrialisierung in Deutschland. Zum Problem ihrer regionalen Differenzierung*, in: idem., *Wirtschaft*, pp. 62–63. On the role of local culture in economic development, see Charles R. Nixon, *The Adaptation of Cultural Ties to Economic Development*, in: American Behavioral Scientist 18 (1974), pp. 36–58; on problems of regional integration, see L. N. Lindberg and S. A. Scheingold, *Regional Integration: Theory and Research*, Cambridge, Mass. 1971. See also the remarks of Wolfgang Köllmann, *Zur Bedeutung der Regionalgeschichte*, in: Archiv für Sozialgeschichte 15 (1975), pp. 43–50.

9 See also Wolfgang Zorn, *Sozialer Wandel in Mitteleuropa 1780–1840: Eine vergleichende landesgeschichtliche Untersuchung*, in: Kölner Zeitschrift für Soziologie und Sozialpsychologie 16 (1972): Sonderheft, pp. 343–356.

ing process, and contributed to the institutional framework within which economic activity could take place. Finally, regional political boundaries played an important part in determining the location of economic activity. In addition to the well-documented competition among political units for transportation facilities and industrial establishments, occasionally the mere existence of a political border can be seen to have affected the specific location of industrial plants significantly[10].

III.

It is a statistical truism that national cycles are the weighted average of regional cycles. In addition, regional susceptibility to cyclical fluctuation appears to be normally distributed around the national central tendency over the complete cycle, an upward skew during the national upswing being balanced by a downward skew during the national downswing[11]. However, statistical analysis cannot establish the direction of causation. National cycles do not "cause" regional cycles, nor are variations in regional responses merely randomly distributed error terms. Certainly there are examples of regional economies being positively or negatively affected by fluctuations beginning outside their borders which might be identified as "national" cycles. However, the national economy is not ontologically prior to its regional components, for all "national" fluctuations must begin somewhere. All cycles are regional cycles in their origins, though clearly the more highly integrated the national economy, the more rapidly and completely cyclical impulses will be transmitted from one region to another. The links among the input-output structures of regions within the national economy thus form an important focus of analysis. For any given cycle identification of the region of origin – which obviously might be the foreign trade sector – emerges as the logical point to begin, followed by a tracing of the impact of the cycle on other regions. Locational requirements of rapidly growing industries will interact with the regional heritage of previous social and economic development to produce the patterns actually observed.

Not all cyclical movements in the economy are of equal interest and significance. Cycles in agricultural production or in inventory investment, for instance, may be caused by over- or under-shooting of optimal quantities relative to effective demand. Such cycles reflect, and may help to identify, important structural parameters in an existing system, but they remain recurrent phenomena with little or no impact on the system itself. Of far greater importance for the study of economic development over long periods of time are those cycles connected with structural transformations of the system, which may be conceptualized as permanent shifts in the parameters which determine the timing and amplitude of the various types of recurrent cycles within the system. Throughout the nineteenth century, structural change occurred during spurts of growth connected with major economic cycles, of the type which have become associated with the names of Kondratieff,

10 Hermann Overbeck, *Standortsfragen in der Industriegeographie am Beispiel der Warndtgrenze erläutert*, in: idem., *Kulturlandschaftsforschung und Landeskunde*, Heidelberg 1965, pp. 229–239.

11 Rutledge Vining, *Regional Variation in Cyclical Fluctuation Viewed as a Frequency Distribution*, in: Econometrica 13 (1945), pp. 182–213; idem., *A Description of Certain Spatial Aspects of an Economic System*, in: Economic Development and Cultural Change 3 (1955).

Schumpeter, and Kuznets. The cumulative impact of these cycles make up the substance of modern economic growth, and it is therefore within this framework that the link between national and regional economic development is most likely to be found.

In Kondratieff's original grand conception, long cycles were related to a prevalence of depressed years, agricultural depressions, clusters of technological inventions, changes in gold production and hence money supply, and outbreaks of war, though he refused to identify any of these as causes of the cycles[12]. Schumpeter emphasized the link between major technological innovations and economic development, insisting on the need to distinguish between primary cycles caused by entrepreneurial innovation, and secondary cycles induced by the primary cycles. For Schumpeter the crucial facts were psychological, the drive of the pioneering entrepreneur contrasting with the conservative mass psychology of the majority of businessmen[13]. Kuznets in turn has pointed to the link between the growth of productive capacity and the growth in demand, finding the connection and the source of long cycles in the behavior of labor force and population variables. Rates of resource utilization, especially unemployment, are related to migration, marriage, birth, and labor force participation rates, and these in turn affect capital formation, especially transportation and residential construction[14].

Theories of long cycles have been subjected to repeated criticism. Kondratieff's ideas were universally rejected by his Soviet contemporaries, partly because of their supposed political implications, but also on serious empirical and theoretical grounds. None of the production series used by Kondratieff provides unqualified support for the existence of long cycles or for his dating of those cycles. Kondratieff attempted to link clusters of major technological inventions to the upward movement of long cycles, but the timing of the inventions he listed does not correspond especially closely to his dating of the cycles. He himself argued that technological change was not exogenous, since new technologies required favorable conditions before they could be employed, but he failed to specify how such favorable conditions came about, and therefore failed to provide a theory which would link one cycle to another[15]. Schumpeter's answer to the question left open by Kondratieff was that technologies would lie fallow until an innovative entrepreneur saw their possibilities and was able to secure the credit necessary to realize his plans. Schumpeter's empirical evidence has also been criticized, however, as has his failure to provide a theory of the emergence of entrepreneurial talent in cyclical waves, or to elucidate the specific

12 Nikolai D. Kondratieff, *The Long Waves in Economic Life*, in: Gottfried Haberler (ed.), *Readings in Business Cycle Theory*, Philadelphia 1951, pp. 20–42.

13 Joseph A. Schumpeter, *The Analysis of Economic Change*, in: Haberler, *Readings*, pp. 1–19; idem., *Business Cycles*, 2 vols., New York 1939.

14 Simon S. Kuznets, *Long Swings in Population Growth and Related Economic Variables*, in: idem., *Economic Growth and Structure*, New York 1965, pp. 328–378; Moses Abramovitz, *The Nature and Significance of Kuznets Cycles*, in: Robert A. Gordon and Lawrence R. Klein (eds.), *Readings in Business Cycles*, Homewood, Ill. 1965, pp. 519–545.

15 George Garvy, *Kondratieff's Theory of Long Cycles*, in: Review of Economics and Statistics 25 (1943), pp. 203–220. Kondratieff's ideas are arousing more interest lately. See Walt W. Rostow, *Kondratieff, Schumpeter and Kuznets: Trend Periods Revisited*, in: Journal of Economic History 35 (1975), pp. 719–753; J. W. Forrester, *Growth Cycles*, in: De Economist 125 (1977), pp. 525–543; J. J. van Duijn, *The Long Wave in Economic Life*, in: ibid., pp. 544–576; L. H. Dupriez, *1974, A Downturn of the Long Wave?*, in: Banca Nazionale del Lavoro – Quarterly Review 126 (September 1978), pp. 199–210.

relationships among different kinds of cycles[16]. Kuznets' cycles appear to rest on firmer empirical ground, yet even his work has been attacked for creating long cycles in the data as a result of the specific techniques used to smooth short term fluctuations[17]. In addition the link between population variables and economic growth breaks down outside the categories of investment most closely related to population size. Those kinds of investment which Schumpeter would have identified as major innovations are not correlated with the Kuznets cycles, though a cyclical theory of development would seem to require such a correlation[18].

Nevertheless, if the purpose of historical analysis and contemporary theory is the explanation of the long-term upward trend and structural transformations associated with modern economic growth, they will be forced to employ some form of cyclical analysis, though the approach will be eclectic since the system to be analyzed is itself changing. Economic growth has proceded in spurts, usually associated with the upswing of a major cycle. In the case of nineteenth century Germany there is a well established consensus on the dating of cyclical up- and downswings[19]. Disagreement centers on the identification of "major" cycles and the mechanism by which cycles are generated. A relatively simple model combining an innovation-based theory of growth with a set of demand equations will yield cycles around an upward trend, each cycle beginning at a higher level than its predecessor. As growth from the preceding major cycle slows, declining rates of profit may force entrepreneurial innovation. The application and development of previously unexploited technical inventions results in a rise in investment in strategic industries. The new cycle builds on capital accumulated in the previous cycle, but also on the increase in real income resulting from the previous cycle. The upward trend may be explained with reference to a multi-sector analysis in which growth procedes from one leading sector to another as "luxuries" are transformed into "necessities" at higher levels of income[20]. The strength and duration of the new boom thus depends in part on the structure of demand, which depends in turn on population variables. In short, Schumpeter's primary cycles in innovative investment may interact with Kuznets cycles in population and population-sensitive investment to produce something like "Kondratieff cycles" – the empirically observed long waves in economic development.

Identification of major cycles must depend in part on measures of their amplitude and duration, since a major cycle should dominate other oscillations within the system.

16 Simon S. Kuznets, *Schumpeter's Business Cycles*, in: American Economic Review 30 (1940), pp. 257–271.

17 Irma Adelman, *Long Cycles – Fact or Artifact?* in: American Economic Review 55 (1965); see G. Canarella and D. Snyder, *The Long Swing: A Spectral and Cross-Spectral Comparison of Nineteenth and Twentieth Century United States Experience*, in: Nebraska Journal of Economics and Business 16 (1977), pp. 11–25.

18 Kuznets, *Long Swings*, pp. 346–347. Kuznets avoids the implications of a cyclical theory by concentrating on the interrelations of fluctuations. See also the critical remarks in Reinhard Spree, *Die Wachstumszyklen der deutschen Wirtschaft von 1840 bis 1880*, Berlin 1977, pp. 29–32.

19 Spree, *Wachstumszyklen;* idem., *Wachstumstrends und Konjunkturzyklen in der deutschen Wirtschaft von 1820 bis 1913*, Göttingen 1978; Arthur Spiethoff, *Die wirtschaftlichen Wechsellagen*, 2 vols., Tübingen 1955; Jürgen Kuczynski, *Geschichte der Lage der Arbeiter unter dem Kapitalismus*, vols. 11–12, Berlin 1961; Knut Borchardt, *Wirtschaftliches Wachstum und Wechsellagen 1800–1914*, in: Wolfgang Zorn (ed.), *Handbuch der deutschen Wirtschafts- und Sozialgeschichte*, vol. 2, Stuttgart 1976; Jürgen von Kruedener, *Die Jahresberichte der Preußischen Bank (1847–75) als Quelle zur Konjunkturgeschichte*, in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 62 (1975), pp. 465–499.

20 R. M. Gordon, *A Model of Cyclical Growth*, in: Gordon and Klein, *Readings*, pp. 6–22; John Cornwall, *Growth and Stability in a Mature Economy*, New York 1972, pp. 54–75.

However, recognition of the logic of change of the system itself takes precedence over such empirical tests. Recurrent phenomena or random shocks may cause large fluctuations without affecting the structure of the system. Only truly "basic" innovations, by creating new leading sectors and opening a wide range of new opportunities, can transform the system's operational parameters. Changes in relations among various cyclical indicators reveal the impact of basic innovations, but these effects appear only gradually and may escape empirical verification in their early stages. In addition, an adequate theory must include a spatial dimension. Growth procedes not only from one leading sector to another, but also from one region to another. On the supply side each sector will possess unique locational and raw material requirements. On the demand side, the opening of new markets through transportation development or lowered prices will affect the pace of development, as will fluctuations in population, both those independent of the innovative cycle and those encouraged by it as individuals respond to the opportunities presented to them.

Such an approach can provide an avenue of integration of regional and national analysis, and yet avoid the danger of *ad hoc* explanations relying exclusively on the uniqueness of regional structures or the specific historical factors underlying each cycle. Each cycle will be connected with a specific set of technological innovations, and hence will be unique; in turn each region does constitute a unique entity and will be uniquely affected by each cycle. However, succeeding cycles will be connected. Each will have a sectoral and regional dimension and impact resulting from previous cycles and conditioning the structure of succeeding cycles.

IV.

In the case of nineteenth century Germany, major national cycles in economic development were closely linked to regional structural transformations. Growth proceded in a series of waves connected with major technological innovations, and the direction and amplitude of the waves varied according to the regional possibilities for exploiting new innovations and the impact of innovation in one region upon other regions. The progressive integration of the national economy was accompanied by a steady specialization of productive activity at the regional level[21]. The concentration of regional economies in particular sectors and branches increased the regional impact of shifts among leading sectors. As in the United States and in nations constituting the periphery of the European economy, those regions in Germany which concentrated in primary production for export tended to be especially vulnerable to cyclical fluctuations, while those regions with higher income, a greater variety of export industries, and a higher proportion of residentiary industry tended to be less vulnerable[22]. As development proceded, new regions were brought into the

21 Frank B. Tipton, Jr., *Regional Variations in the Economic Development of Germany During the Nineteenth Century*, Middletown, Conn. 1976.

22 Rutledge Vining, *Location of Industry and Regional Patterns of Business Cycle Behavior*, in: Econometrica 14 (1946), pp. 37–68; idem., *The Region as a Concept in Business Cycle Analysis*, in: Econometrica 14 (1946), pp. 201–218; P. J. O'Leary and W. Arthur Lewis, *Secular Swings in Production and Trade 1870–1913*, in: Gordon and Klein, *Readings*, pp. 546–572.

process, and therefore each of the major waves of development was connected with the emergence of new specialized regions. Within regions, exploitation of the opportunities offered by development required difficult social transformations, whose timing affected the regional response to development and therefore the rate of national development as well.

The first major cycle in the modern economic growth of Germany appears to have begun in the last third of the eighteenth century. At the level of national aggregates, exports of agricultural products and of textiles led the way[23]. From a regional perspective, however, the upward movement of the cycle was connected with the emergence of two major exporting regions, the agricultural eastern provinces of Prussia and the industrial Kingdom of Saxony. In the eastern provinces landlords began to squeeze the peasants off the land, expanding their personal holdings and exporting their increased harvests, especially to the rapidly growing English market. Large peasants also participated in the entrepreneurial response to the new conditions, shifting along with the landlords from field to crop rotation systems and introducing related techniques of planting, drainage, and animal husbandry[24]. Industrial growth in the Kingdom of Saxony accelerated in the late eighteenth century. The reorganization of the central government following the Seven Years' War strengthened tendencies favoring industrial growth. A highly skilled and mobile labor force, entrepreneurial response to opportunity led by local communities, and favorable government policies stimulated development. Foreign entrepreneurs found homes in urban communities, bringing with them new techniques of textile production aimed at new, broader markets in eastern Europe, elsewhere in Germany, and overseas[25].

The early specialization of Saxony and the east remained the most notable feature of regional structure in Germany until the middle of the nineteenth century. The remaining German states and provinces of Prussia remained very close to the average in the distribution of employment, indicating that production of agricultural and industrial exports remained relatively small and that no specialized districts within these regions had yet grown large enough to affect their structure significantly. The most important exception was the Rhineland, most significant of the "unspecialized" regions both in terms of contemporary importance and with regard to future potential. Even here, however, industrial production remained relatively widely dispersed in small centers intimately connected with their immediately surrounding hinterlands. The distinctiveness of the Rhineland arose from

23 Eckart Schremmer, *Standortausweitung und Warenproduktion im langfristigen Wirtschaftswachstum: Zur Stadt-Land-Arbeitsteilung im Gewerbe des 18. Jahrhunderts,* in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 59 (1972); Wilhelm Abel, *Geschichte der deutschen Landwirtschaft vom frühen Mittelalter bis zum 19. Jahrhundert,* Stuttgart 1962, pp. 252–253; Wolfgang Zorn, *Schwerpunkte der deutschen Ausfuhrindustrie im 18. Jahrhundert,* in: Jahrbücher für Nationalökonomie und Statistik 173 (1961).

24 Friedrich Lütge, *Geschichte der deutschen Agrarverfassung vom frühen Mittelalter bis zum 19. Jahrhundert,* Stuttgart 1963, p. 191; Otto Büsch, *Militärsystem und Sozialleben im alten Preußen, 1713–1807,* Berlin 1962; Hans-Heinrich Müller, *Die Entwicklung der Anbauverhältnisse in der märkischen Landwirtschaft vor den Agrarreformen von 1807,* in: Jahrbuch für Wirtschaftsgeschichte (1964, part 1), pp. 213–244; idem., *Die Bodennutzungssysteme und die Separation in Brandenburg vor den Argrarreformen von 1807,* in: ibid. (1965, part 3), pp. 82–126; idem., *Domänen und Domänenpächter in Brandenburg-Preußen im 18. Jahrhundert,* in: ibid. (1965, part 4), pp. 152ff; idem., *Bauern, Pächter und Adel im alten Preußen,* in: ibid. (1966, part 1), pp. 259–277.

25 Rudolf Forberger, *Die Manufaktur in Sachsen vom Ende des 16. bis zum Anfang des 19. Jahrhunderts,* Berlin 1958; Louis Bein, *Die Industrie des sächsischen Voigtlandes,* 2 vols., Leipzig 1884; Karlheinz Blaschke, *Bevölkerungsgeschichte von Sachsen bis zur industriellen Revolution,* Weimar 1967.

the connections of these centers with each other by exceptionally favorable river transportation. This combination of localism and regionalism produced an economic and cultural dynamic involving the entire province. Development in the west must therefore be examined at the level of provincial aggregates as well as in its local manifestations[26].

From the standpoints of both national and regional development, the period of the Napoleonic wars provided only ambivalent stimuli. Eastern Prussia's English market was closed, and the region was subjected to military occupations which injured its economic potential. Saxon industry developed rapidly behind the protective walls of the Continental System, but failed to adopt the new technologies which were revolutionizing English industry. In the west, the Kingdom of Westphalia was systematically exploited for the benefit of French industry, though the liberal social institutions introduced by the French would have an important impact on future development. Though Kondratieff argued that wartime dislocations were the consequence of competition among states as the long cycle reached its apex, the Napoleonic wars appear to have interfered with the cycle, slowing the social transformations of the east, Saxony, and the west, yet at the same time prolonging the boom by inflating demand[27].

The period from 1815 to 1848 is difficult to organize around the concept of major cycles, and in fact provided Kondratieff's critics with some of their most effective arguments against the entire concept of long cycles. Though the 1840s can be interpeted as a long depression[28], there is no preceding secular boom to lend credence to the hypothesis of major cycles connected with significant technological innovations. Saxony and the east continued the transformations begun in the eighteenth century. Those landlords and large peasants who survived the crisis of adjustment in the 1820s profited from rising English grain prices beginning in the 1830s. Their workers, deprived of their traditional rights to the land, turned to garden plots and to linen weaving to supplement their wages. Part-time linen looms increased from 159,000 in 1822 (in the provinces of Prussia, Posen, Pomerania, and Brandenburg) to 222,000 in 1846[29]. In Saxony, hostile administrative actions undermined local guilds and monopolies, increasing occupational mobility, and rapid peasant eman-

26 Peter Schöller, *Die Wirtschaftsräume Westfalens vor Beginn des Industriezeitalters*, in: Westfälische Forschungen 16 (1963); Wolfgang Zorn, *Die Wirtschaftliche Struktur der Rheinprovinz um 1820*, in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 54 (1967); idem. and Wilfried Krings, *Nachtrag zur historischen Wirtschaftskarte um 1820: Die Güterbewegung in der Rheinprovinz*, in: Rheinische Vierteljahresblätter 35 (1971), pp. 274–287; Helmuth Toepfer, *Die Jahrmärkte in der preußischen Rheinprovinz in 1848*, in: ibid. 35 (1971).

27 Bruno Schumacher, *Geschichte Ost- und Westpreußens*, 4th ed., Würzburg 1959; Bein, *Industrie*, vol. 2, pp. 159–160; A. König, *Die sächsische Baumwollindustrie am Ende des vorigen Jahrhunderts und während der Kontinentalsperre*, Leipzig 1899; Helmut Berding, *Napoleonische Herrschafts- und Gesellschaftspolitik im Königreich Westfalen 1807–1813*, Göttingen 1973; Herbert Kisch, *The Impact of the French Revolution on the Lower Rhine Textile Districts: Some Comments on Economic Development and Social Change*, in: Economic History Review 15 (1962); Louis Bergeron, *Remarques sur les conditions du développement industriel en Europe occidentale à l'époque napoléonienne*, in: Francia 1 (1973), pp. 537–556.

28 See the data in Karl Obermann, *Zur Klassenstruktur und zur sozialen Lage der Bevölkerung in Preußen 1846 bis 1849*, in: Jahrbuch für Wirtschaftsgeschichte (1973, part 2), pp. 79–120; (1973, part 3), pp. 143–174.

29 Mitteilungen des statistischen Bureaus in Berlin 1 (1848), pp. 149 ff., 213 ff.; ibid. 2 (1849), pp. 1 ff.; C. W. Ferber, *Neue Beiträge zur Kenntnis des gewerblichen und commerciellen Zustandes der preußischen Monarchie*, Berlin 1832, p. 160; Preußische Statistik 5 (1864); Hartmut Harnisch, *Statistische Untersuchungen zum Verlauf der kapitalistischen Agrarreformen in den preußischen Ostprovinzen 1811–1865*, in: Jahrbuch für Wirtschaftsgeschichte (1974, part 4), pp. 149–182.

cipation provided Saxony with a responsive system of family farms, well suited to the country's mountainous terrain and dense population[30]. At the national level, the continued distinctiveness of the east and Saxony was reflected in the continuing importance of grains and textile products in German exports. No other major region had as yet entered the stream of modern economic growth. As late as 1861 the industrial sector of the Prussian province of Saxony still showed proportions of "factory-wholesale" employment and of employment in establishments with fifty or more workers nearly identical to those of the Rhineland and Westphalia, showing that the truly substantial growth of the latter was still in its early stages at mid-century[31].

Nationally, had a major upward cycle begun in the 1830s or 1840s, it would have been associated with the establishment of the Zollverein and the introduction of the railway. The upward movement which did occur in fact emanated from the industrial and commercial area of the Zollverein, but remained limited because of the "narrow basis" of investment. At the national level this appears to be the result of both demand and supply factors. A tendency for agricultural prices to rise during upswings limited disposable income, thereby restricting domestic demand, and for a considerable time the railway appeared too advanced technically for German industry[32]. Germany's population seemed to be out of balance with her economy, growing too rapidly to be absorbed into the new but still undeveloped industrial sector[33].

This national picture can be supplemented, and its explanatory power increased, through an examination of regional economic and political relations. The Zollverein provided a forum for a new intermingling of economic and political competition among regions. More purely economic competion generally benefited those regions with the most extensive previous development. In addition, political decisions tended to reflect and reinforce this economic preponderence. Germany's most productive regions depended on exports to foreign markets, and for them the Zollverein market gained importance only gradually as the railway system expanded. Zollverein tariff policy excited their lively interest, however, and the policies adopted generally reflected that interest. Predictably, the east remained uninterested in agricultural tariffs and opposed tariffs on industrial imports, with the exception of linens, a policy stance made especially effective by the close connec-

30 *Zur Statistik der Handwerke in Sachsen*, in: Zeitschrift des königlichen sächsischen statistischen Bureaus 6 (1860), pp. 101–124; R. Gross, *Die bürgerliche Agrarreform in Sachsen in der ersten Hälfte des 19. Jahrhunderts*, Weimar 1968.

31 In addition to the sources in note 29, see Preußische Statistik, 40 (1878), p. 92; Zeitschrift des königlichen sächsischen statistischen Bureaus 25 (1879); Beiträge zur Statistik des Königreichs Bayern 10 (1862); Rudolf Dietz, *Die Gewerbe im Großherzogtum Baden*, Karlsruhe 1863; Württembergische Jahrbücher Jg. 1862 (1863), Heft 2; the position of the Kingdom of Saxony is graphically demonstrated in *Statistische Übersicht der Bevölkerungs- und gewerblichen Verhältnisse des Königreichs Sachsen am Ende des Jahres 1846 und Vergleichung derselben mit denen in der benachbarten preußischen Provinz Sachsen*, in: Mitteilungen des statistischen Bureaus in Berlin 2 (1849), p. 235 ff.

32 Spree, *Wachstumszyklen*, pp. 320–329; Reinhard Spree and Jürgen Bergmann, *Die konjunkturelle Entwicklung der deutschen Wirtschaft 1840 bis 1864*, in: Hans-Ulrich Wehler (ed.), *Sozialgeschichte Heute. Festschrift für Hans Rosenberg zum 70. Geburtstag*, Göttingen 1974, pp. 289–325.

33 Werner Conze, *Das Spannungsfeld von Staat und Gesellschaft im Vormärz*, in: idem. (ed.), *Staat und Gesellschaft im deutschen Vormärz 1815–1848*, Stuttgart 1962, pp. 207–269; Wolfgang Köllmann, *Population and Labor Force Potential 1815–1865*, in: P. Deprez (ed.), *Population and Economics*, Winnepeg 1970; Gerd Hohorst, *Wirtschaftswachstum und Bevölkerungsentwicklung in Preußen 1816 bis 1914*, New York 1977.

tions between the regional elite and the Prussian central government[34]. Saxony and the Rhineland continued to export their finished textile products outside the Zollverein[35]. They opposed pressure by the southern states for high tariffs on cotton yarn, however, preferring low cost imports of this intermediate raw material. The compromise reached in 1846 after twelve years of conflict largely reflected the interests of the more advanced regions, with high tariffs on finished textiles, moderate rates on yarn and free import of raw cotton[36]. In the long run, the southern states may have benefited from the free flow of capital within the Zollverein[37]. In the short run, aggregate benefits seem to have been small[38]. After 1834 Saxony and the Rhineland could ship free to areas within the Zollverein, and after 1846 their Zollverein market was secured against foreign competitors as well. Their competition injured previously protected centers of production, especially in the south. Total Bavarian textile employment declined from 91,000 in 1847 to 68,000 in 1861[39]. Southern centers became more dependent on large scale spinning plants, a specialization in the nature of a defensive reaction, coming at the expense of the total size and diversity of southern manufacturing[40].

Because of the locational requirements of the iron and steel industries, a major upward cycle dominated by the railway would have to be centered in the coalfields of the Rhineland and Westphalia. Relatively good water transportation added to their excellent coal resources gave them a great locational advantage[41]. The legacy of local industrial tradition, especially where it took the form of skilled labor, was another important locational factor in the west's favor[42]. A strong entrepreneurial class consisted primarily of local notables, their families securely embedded in the local communities, who preferred to send their sons to England for training rather than rely on foreign technicians. The extensive system of private banking houses was closely connected with commercial and industrial operations,

34 Nancy M. Gordon, *Britain and the Zollverein Iron Duties 1842–45*, in: Economic History Review 22 (1969); Wolfgang Zorn, *Wirtschafts- und sozialgeschichtliche Zusammenhänge der deutschen Reichsgründungszeit*, in: Hans-Ulrich Wehler (ed.), *Moderne deutsche Sozialgeschichte*, Köln 1966.

35 Pierre Benaerts, *Les origines de la grande industrie allemande ... 1834–1866*, Paris 1933, pp. 69–70; Bein, *Industrie;* Wolfgang Köllmann, *Sozialgeschichte der Stadt Barmen im 19. Jahrhundert*, Tübingen 1960; Gerhard Bondi, *Deutschlands Außenhandel 1815–1870*, Berlin 1958, pp. 133–134.

36 Wolfram Fischer, *Der Staat und die Anfänge der Industrialisierung in Baden 1800–1850*, Berlin 1962, p. 136; Bodo von Borries, *Deutschlands Außenhandel 1836 bis 1856*, Stuttgart 1970, p. 18.

37 Wolfgang Zorn, *Zwischenstaatliche wirtschaftliche Integration im deutschen Zollverein 1867–1870*, in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 65 (1978), pp. 38–76.

38 Rolf H. Dumke, *Intra-German Trade in 1837 and Regional Economic Development*, in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 64 (1977), pp. 468–496.

39 Beiträge zur Statistik des Königreichs Bayern 10 (1862). Some overcounting in the earlier census may overstate the decline.

40 Horst Blumberg, *Die deutsche Textilindustrie in der industriellen Revolution*, Berlin 1965, pp. 58–60; Hans Rothschild, *Die süddeutsche Baumwollindustrie*, Diss. Berlin 1922; J. Griesmaier, *Die Entwicklung der Wirtschaft und der Bevölkerung von Baden und Württemberg im 19. und 20. Jahrhundert*, in: Jahrbücher für Statistik und Landeskunde Baden/Württembergs 1 (1954–55); Wolfgang Zorn, *Die wirtschaftliche Struktur Altbayerns im Vormärz (1815–1848)*, in: Oberbayerisches Archiv 93 (1971).

41 Otto Quelle, *Industriegeographie der Rheinlande*, Bonn 1926, pp. 59–61; Franz Petri, *Das Siegerland*, Münster 1955.

42 Quelle, *Industriegeographie;* Kurt Wiedenfeld, *Ein Jahrhundert rheinischer Montanindustrie*, Bonn 1916; Köllmann, *Barmen;* O. Schwarz, *Die Betriebsformen der modernen Großindustrie*, in: Zeitschrift für die gesamte Staatswissenschaft 25 (1869), pp. 590–591.

many bankers having begun as wholesale merchants[43]. Early growth had depended on exports of luxury and semi-luxury goods, especially textiles, but as exports had expanded their composition had shifted in favor of items with a broader market[44]. Foreign trade, by swelling the class of prosperous artisans and merchants, expanded the local market as well.

Ultimately the Ruhr became the largest industrial center in Germany, an important competitor with Saxony for industrial markets and the destination of many emigrants from the east. Before mid-century, however, western growth was hampered by conflicts between the representatives of local communities and the central government, and by the need to develop and finance new technologies in mining and metals. Conditions shifted through the 1850s and left the Ruhr poised on the verge of unprecedented growth.

Rhenish particularism developed between 1815 and 1840 in part as a reaction to the Prussian government's policies favoring agriculture over industry and commerce[45]. The government attempted to control all aspects of the economy and society, with little consideration of the effects of regulation on growth. In the 1820s the government refused Friedrich Harkort's request to be permitted to smelt iron from the Kohleneisenstein of the Rhineland on the grounds that it was "coal" and therefore could only be worked by officially licensed coal miners, who at the time were discarding it since it did not burn properly. In the late 1840s a government official on a trip to Scotland noticed the smelting of iron from blackband ore, and the government began to encourage its exploitation, twenty years after Harkort's discovery. Reform of the archaic mining laws was rejected by local representatives of the central government until 1851 because the miners were "not able" to manage their own affairs. Franz Haniel's deep shaft was delayed for a decade by bureaucratic opposition[46]. Elements within the government delayed initial approval of railway lines because of the competition they threatened for government turnpikes. The law passed in 1838 gave local bureaucrats power to interfere with the rates charged by private railways, which they used as justification for doing "everything in their power to limit their in-

43 Ludwig Beutin, *Die märkische Unternehmer in der frühindustriellen Zeit*, in: Westfälische Forschungen 10 (1957); Wolfgang Zorn, *Die Struktur der rheinischen Wirtschaft in der Neuzeit*, in: Rheinische Vierteljahresblätter 28 (1963); Alfred Krüger, *Das Kölner Bankiergewerbe vom Ende des 18. Jahrhunderts bis 1875*, Essen 1925; Herbert Milz, *Das Kölner Großgewerbe von 1750 bis 1835, Köln 1962.*

44 Bruno Kuske, *Wirtschaftsgeschichte Westfalens in Leistung und Verflechtung mit den Nachbarländern bis zum 18. Jahrhundert*, 2nd ed., Münster 1949; Fritz Schulte, *Die Entwicklung der gewerblichen Wirtschaft in Rheinland-Westfalen im 18. Jahrhundert*, Köln 1959; Ewald Glässer, *Die Kulturlandschaftsentwicklung des westlichen Ruhrgebiets vor Beginn der hochindustriellen Periode*, in: Berichte zur deutschen Landeskunde 40 (1968); Martin Schumacher, *Wirtschafts- und Sozialverhältnisse der rheinischen Textilindustrie im frühen 19. Jahrhundert*, in: Rheinische Vierteljahresblätter 35 (1971).

45 Karl-Georg Faber, *Die Rheinlande zwischen Restauration und Revolution*, Wiesbaden 1966, pp. 110ff.

46 Albert K. Hömberg, *Wirtschaftsgeschichte Westfalens*, Münster 1968, p. 146; Wolfram Fischer, *Die Stellung der preußischen Bergrechtsreform von 1851–1865 in der Wirtschafts- und Sozialverfassung des 19. Jahrhunderts*, in: idem., *Wirtschaft*, pp. 151–152; Hans Spethmann, *Franz Haniel*, Duisburg 1956, pp. 159ff.; Friedrich Zunkel, *Die Rolle der Bergbaubürokratie beim industriellen Ausbau des Ruhrgebiets 1815–1848*, in: Wehler, *Sozialgeschichte Heute*, pp. 130–147; Gerhard Kratzsch, *Friedrich Harkort, ein märkischer Liberaler: Bemerkungen zur regionalen Bedingtheit und sozialen Funktion seiner politisch-sozialen Gedankenwelt*, in: Westfälische Forschungen 22 (1969–70); Manfred D. Jankowski, *Law, Economic Policy, and Private Enterprise: The Case of the Early Ruhr Mining Region 1766–1865*, in: Journal of European Economic History 2 (1973), pp. 688–727.

itiative". The government at first opposed the introduction of the telegraph by railway firms, out of fear of unauthorized messages which might be sent over the wires[47].

The commercial and financial policies of the Prussian government did little to help development in the west. The relatively large amounts of credit required by railway and mining firms could only be supplied by state corporations financed by bond issues or private firms with limited liability. David Hansemann insisted that the state construct railways, or at least support private construction so as "to satisfy the stockholders but still protect and advance the most essential interests of the nation", but the government rejected his views because the loans raised by a public corporation would require the approval of a legislature[48]. Although the monetary situation in the Rhineland may not have been as chaotic as has been claimed, government actions affecting private bond issues, private banks with limited liability, and central bank policy all were intended to restrict the credit available for industrial development[49].

The major cycle associated with the railway and centered in the emerging Ruhr industrial region, delayed by unfavorable demographic fluctuations, poor harvests, and government policy, finally began in the 1850s and continued in a series of upward waves until 1873[50]. The direct impact of railways on industrial production is relatively easily followed. Initially the railway simply overwhelmed existing capacity. Construction of the line from Leipzig to Dresden, for instance, called for 113,000 hundredweights of rails, nearly four times the entire Saxon output of wrought iron in 1837. Railways absorbed 30 to 40 per cent of all iron consumed in the Zollverein between 1845 and 1863; as total consumption more than trebled, they had been responsible for most of the increase. Their impact on production of iron forms is clearly seen after 1840, and satisfaction of railway demand provided an important motive for the construction of new coke-fired blast furnaces. Firms producing iron castings primarily for railways accounted for perhaps a quarter of Prussian production during the 1850s, and more diversified firms in the machinery industry profited as well. The major construction cycle of the 1850s completed the outlines of the German network, and the new industry had begun to export rails and rolling stock by 1860. As in the case of the Zollverein, however, the picture of the railway's aggregate impact must be supplemented by consideration of its differential regional effects. Expansion of capacity induced by the railway shifted the regional focus of industrial development; in 1837 all of

47 Jacques Droz, *Le libéralisme rhénan 1815–1848*, Paris 1940, pp. 229–233; G. Fleck, *Studien zur Geschichte des preußischen Eisenbahnwesens*, in: Archiv für Eisenbahnwesen 19 (1896), pp. 27 ff.; Wolfgang Löser, *Die Rolle des preußischen Staates bei der Ausrüstung der Eisenbahnen mit elektrischen Telegraphen in der Mitte des 19. Jahrhunderts*, in: Jahrbuch für Wirtschaftsgeschichte (1963, part 4); H. Paul, *Die preußische Eisenbahnpolitik von 1835–1838*, Diss. Rostock 1938.

48 Droz, *Libéralisme*, pp. 176–177; David Hansemann, *Die Eisenbahnen und deren Aktionäre in ihrem Verhältnis zum Staat*, Leipzig 1837.

49 Richard H. Tilly, *Financial Institutions and Industrialization in the Rhineland 1815–1870*, Madison 1966; Paul C. Martin, *Monetäre Probleme der Frühindustrialisierung am Beispiel der Rheinprovinz 1816–1848*, in: Jahrbücher für Nationalökonomie und Statistik 179 (1967); H. Leiskow, *Spekulation und öffentliche Meinung in der ersten Hälfte des 19. Jahrhunderts*, Jena 1930, p. 7; Knut Borchardt, *Zur Frage des Kapitalmangels in der ersten Hälfte des 19. Jahrhunderts in Deutschland*, in: Jahrbücher für Nationalökonomie und Statistik 173 (1961).

50 Spree, *Wachstumszyklen*, pp. 331–352.

Prussia's eight coke-fired blast furnaces were located in Silesia, but more than half of the ninety-two furnaces in operation by 1860 were located in the Rhineland[51].

The upward cycle was in part based on a new cooperation between the Rhenish elite and the Prussian central government. Whatever their disappointment at the outcome of the 1848 revolutions, the Rhenish liberals enjoyed substantial benefits under the new system. Acceptance of the new written constitution was consistent with the royalism which had been a traditional element in Rhenish liberalism. The constitution in addition maintained the social and political leadership of the largely Protestant entrepreneurial elite by means of the three-class voting system, an important consideration in a region where 80 per cent of the emerging industrial labor force was Catholic[52]. The liberals also received direct representation in the government and a progressive lessening of bureaucratic restrictions on proposed industrial undertakings. August von der Heydt, Prussian Minister of Trade for nearly two decades after 1848, consistently represented liberal interests. Von der Heydt had led the liberals in the United Landtag of 1847 in urging the rejection of a loan for the Eastern Railway because of the precedent which would be set if the King were not also willing to grant the assembly the right of regular approval of the state budget, a right granted in the constitution of 1850[53]. Of particular importance to the Rhineland and Westphalia was Von der Heydt's liberalization of the laws regulating the mining industry. His reforms gradually lessened the power of government officials over investment decisions, making mining a much more attractive investment opportunity. French and British capital flowed into the western provinces in increasing amounts in the 1850s, and especially into the mines of the Ruhr. Mining and railway construction raised the demand for machinery beyond the limits of the textile industry, providing new opportunities both for local firms as in Barmen and for Belgian entrepreneurs using English technologies as in Düsseldorf and elsewhere[54]. Expansion was eased by Von der Heydt's willingness to grant charters of incorporation to limited liability industrial firms, a dramatic change from the period before 1850[55].

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51 Horst Wagenblass, *Der Eisenbahnbau und das Wachstum der deutschen Eisen- und Maschinenindustrie 1835 bis 1860,* Stuttgart 1973; Rainer Fremdling, *Eisenbahnen und deutsches Wirtschaftswachstum 1840–1879,* Dortmund 1975; Doris André, *Indikatoren des technischen Fortschritts. Eine Analyse des Wirtschaftswachstums in Deutschland von 1850 bis 1913,* Göttingen 1971, p. 78.

52 Zorn, *Zusammenhänge,* p. 260; Helmuth Croon, *Die Einwirkung der Industrialisierung auf die gesellschaftliche Schichtung der Bevölkerung im rheinisch-westfälischen Industriegebiet,* in: Rheinische Vierteljahresblätter 20 (1955).

53 Alexander Bergengrün, *Staatsminister August Freiherr von der Heydt,* Leipzig 1908, pp. 87, 142–144; Dietrich Eichholtz, *Junker und Bourgeoisie vor 1848 in der preußischen Eisenbahngeschichte,* Berlin 1962, pp. 119–124.

54 Gerhard Adelman, *Die soziale Betriebsverfassung des Ruhrbergbaus vom Anfang des 19. Jahrhunderts bis zum Ersten Weltkrieg,* Bonn 1962, pp. 26 ff.; Rondo E. Cameron, *France and the Economic Development of Europe 1800–1914,* Princeton 1961, pp. 369–403; Köllmann, *Barmen,* p. 27; Wagenblass, *Eisenbahnbau,* pp, 117 ff.; Hans Seeling, *Die belgischen Anfänge der Eisen- und Stahlindustrie in Düsseldorf zwischen 1850 und 1860,* in: Düsseldorfer Jahrbuch 49 (1959); idem., *Belgische Ziegel-Wallonen und Feldbrandziegelei am Niederrhein,* in: ibid. 54 (1972), pp. 115–129; Ulrich Troitzsch, *Belgien als Vermittler technischer Neuerungen beim Aufbau der eisenschaffenden Industrie im Ruhrgebiet um 1850,* in:; Technikgeschichte 39 (1972), pp. 142–158.

55 Horst Thieme, *Statistische Materialien zur Konzessionierung von Aktiengesellschaften in Preußen bis 1867,* in: Jahrbuch für Wirtschaftsgeschichte (1960, part 2); Horst Blumberg, *Die Finanzierung der Neugründungen und Erweiterungen von Industriebetrieben in Form der Aktiengesellschaften während der fünziger Jahre ...,* in: Hans Mottek (ed.), *Studien zur Geschichte der industriellen Revolution in Deutschland,* Berlin 1960.

The upswing of the 1850s and 1860s ended with a series of wars, and from 1873 until the mid-1890s Germany suffered through a major cyclical downturn. The collapse of investment in heavy industry was crucial because it removed the primary base for the previous expansion[56]. A hypothesis derived from a theory of major cycles would suggest that with the completion of the major railway connections, the railway lost its ability to stimulate the entire economy as in the preceding two decades. In addition, the upswing had been supported by rising agricultural prices and continued success in foreign grain markets. In the 1870s the opening of new centers of production undermined the international position of German agriculture, a blow from which it did not recover until the mid-twentieth century[57]. However, at the national level, the "Great Depression" poses some serious problems of interpretation. Some branches of industry began to recover in the 1880s, and national income measured in constant prices resumed its secular rise beginning in the late 1870s[58].

A regional perspective can help clarify the ambiguous nature of the Great Depression. The agricultural depression possessed a clear regional focus, affecting primarily the grain-exporting eastern provinces of Prussia. The landowning elite proved unable to adapt to the new economic situation. The east failed to make the transition to more intensive forms of agriculture dictated by the loss of markets for grains. The part-time linen looms which had been so prominent a feature of the industrial sector in the east disappeared[59]. However, they were not replaced by other forms of industrial employment. The abundant labor of the east was not employed in more advanced forms of textile production or other light industry, much of which has tended historically to settle in labor surplus areas. In the 1890s an attempt by the provincial president of West Prussia, Gustav von Gossler, to sponsor heavy industrial development in Danzig was bitterly opposed by representatives of the grain producing landlords and was largely abandoned after his death[60].

Within the industrial sector, textiles suffered relative to metals, a factor which slowed growth in the Kingdom of Saxony after the mid-1870s[61]. The Ruhr profited from the increasing relative importance of metals, and from the recovery of heavy industry in the 1880s[62]. However, though the increased weight of heavy industry after the 1870s is demonstrated by the inability of the agricultural sector by itself to determine the timing of the business cycle, the heavy industry of the Ruhr was not large enough by itself to stimulate the entire economy. For most regions of Germany, the Great Depression appears to have been a reality, upswings being hesitant and short-lived and downswings severe and prolonged[63].

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56 Spree, *Wachstumszyklen*, p. 363.

57 Walther G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin 1965, pp. 533–534.

58 Ibid., pp. 165–170, 353, 390–391.

59 Borries, *Außenhandel*, p. 18 and Bondi, *Außenhandel*, p. 146 show the decline in linen exports. Employment figures from K. F. W. Dieterici, *Statistische Übersicht der wichtigsten Gegenstände des Verkehrs und Verbrauchs im Preußischen Staate und im deutschen Zollverbande ... 1831 bis 1853. Als Fortsetzung der Ferberschen Beiträge*, 6 vols., Berlin 1838–57.

60 Friedrich Richter, *Preußische Wirtschaftspolitik in den Ostprovinzen*, Königsberg 1938.

61 Philipp Weigel, *Das sächsische Siberien*, Diss. Leipzig 1907.

62 Wilhelm Brepohl, *Industrievolk im Wandel von der agraren zur industriellen Daseinsform dargestellt am Ruhrgebiet*, Tübingen 1957.

63 See for example Volker Hentschel, *Prosperität und Krise in der württembergischen Wirtschaft 1871 bis 1879*, in: Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte 63 (1976), pp. 339–389; Konrad

In the mid-1890s Germany entered into another major upswing, lasting until the First World War. Again, the thrust seems to have been provided in part by new technological innovations, though changes in the structure of domestic demand played a more important role than in previous upward cycles. Metals and machinery overtook textiles to become the largest branch of manufacturing. Chemicals and electricity provided the most dramatic technical breakthroughs, but increasing urbanization and rising real income may have contributed more by raising the demand for housing and consumers' durables[64].

Regionally, the major urban centers emerged as an important focus of development. Berlin was typical in addition to being of primary importance because of its relation to the east. Long distance railway connections expanded the area from which Berlin could draw raw materials and to which industrial products could be shipped. As a direct purchaser the railway had contributed crucially to the establishment of the heavy machinery and electrical industries in Berlin in the 1850s and their continued growth in later periods[65]. The generally rapid development of manufacturing in Berlin was based on a high degree of specialization made possible by the wide extent of the markets opened by railway construction[66]. Following the Great Depression the railway and the growth of Berlin increasingly dominated the development of the eastern provinces. The radial network of railways centered on the city drained population out of the east into Berlin, creating a large local market in which economies of scale could be realized, which in turn helped to make Berlin's industrial products competitive with local industry in the eastern provinces. The lack of either local or export markets for industrial products hindered the growth of manufacturing in the east, and the resulting lack of local opportunity encouraged migration, further reducing the potential market and labor force[67].

The Ruhr remained the most important industrial region in the new upswing, and in fact grew more rapidly than before[68]. However, in contrast to the preceding downward cycle, the Ruhr was no longer alone. Saxon industry recovered a portion of its former expansiveness. Saxon textiles shifted from simple goods aimed at mass markets towards high quality speciality goods aimed at the tastes of the sophisticated urban consumer. The Saxon machinery industry, building on its experience with a wide range of manufacturing

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Fuchs, *Wirtschaftliche Führungskräfte in Schlesien 1850–1914*, in: Zeitschrift für Ostforschung (June 1972); Dan P. Silverman, *The Economic Consequences of Annexation: Alsace-Lorraine and Imperial Germany 1871–1918*, in: Central European History 4 (1971), pp. 34–53.

64 Hoffmann, *Wachstum*, pp. 698–699; Thomas J. Orsagh, *Löhne in Deutschland 1871–1913*, in: Zeitschrift für die gesamte Staatswissenschaft 127 (1971).

65 Wagenblass, *Eisenbahnbau*, pp. 194 ff.; Lothar Baar, *Die Berliner Industrie in der industriellen Revolution*, Berlin 1966, pp. 29, 130; A. Zimm, *Die Entwicklung des Industriestandortes Berlin*, Berlin 1959, pp. 30, 41–42; Richard Dietrich, *Von der Residenzstadt zur Weltstadt*, in: Jahrbuch für die Geschichte Mittel- und Ostdeutschlands 1 (1952).

66 Baar, *Berliner Industrie*, pp. 136–138; Otto Wiedfeldt, *Statistische Studien zur Entwicklung der Berliner Industrie von 1720 bis 1890*, Leipzig 1898.

67 Tipton, *Regional Variations*, pp. 102–11; Michael Erbe, *Probleme der Berliner Verkehrsplanung und Verkehrsentwicklung seit 1871*, in: Veröffentlichungen der Historischen Kommission zu Berlin 37 (1972), pp. 209–235.

68 Helmuth Croon and Kurt Utermann, *Zeche und Gemeinde*, Tübingen 1958; Gerhard Adelman, *Die soziale Betriebsverfassung des Ruhrbergbaus vom Anfang des 19. Jahrhunderts bis zum Ersten Weltkrieg*, Bonn 1962; Konrad Fuchs, *Die wirtschaftliche Strukturwandlungen im Lahn-, Dill-, und Sieg-Revier seit dem ausgehenden 19. Jahrhundert*, in: Nassauische Annalen 81 (1970).

branches, entered the world market as a supplier of highly specialized producers' goods for light industry[69]. In addition, several new industrial centers rose to prominence. Silesia, central Germany, and Lorraine profited from the demand for mineral raw materials and heavy industrial products, and industry in those regions expanded more rapidly than ever before[70]. This wide regional sharing of industrial advance was perhaps the most important feature of the cycle, for it lessened the aggregate impact of the continued agricultural depression and lack of industrial development in the east by providing opportunities for laborers whom the east could no longer employ.

V.

In retrospect, the story of the nineteenth century German economy can be seen as the outcome of two sets of interacting forces, economic and historical. The framework suggested here attempts to avoid the determinism arising from overly exclusive emphasis on either purely economic or purely historical forces. To emphasize economic factors leaves individuals and regions helpless in the face of the dictates of the market and the imperatives of geography. To emphasize history makes economic development dependent on an act of will and raises the uniqueness of individuals and regions to an absolute, precluding the use of general theoretical concepts for comparison and analysis. Men make economic history, but not just as they please. The course of economic development arises out of the interaction of individuals embedded in specific, historically determined cultures with a continually changing economic environment. That interaction places conditions and limits on the response to opportunity. Research needs to be directed not only towards the quality of the opportunities – particularly the empirical identification of significant innovations and the major cycles associated with them – but also towards the quality of the response. A regional perspective can illuminate such questions in an especially useful manner, suggesting explanations for past patterns of development the suggesting models for contemporary analysis as well.

Zusammenfassung: Nationale Wachstumszyklen und regionale Wirtschaftsstrukturen in Deutschland im 19. Jahrhundert

Aus rein theoretischen Gründen kann man behaupten, daß eine vollständige Erklärung der wirtschaftlichen Wechsellagen nur mit Hilfe regionaler Untersuchungen zustande kommen kann. Eine solche Erklärung setzt brauchbare Definitionen von wirtschaftlich sinnvollen Regionen sowie Wirtschaftszyklen voraus. Theorien von regionaler Wirtschaftsentwick-

69 Erich Benndorf, *Weltwirtschaftliche Beziehungen der sächsischen Industrie*, Jena 1917; Georg Wächter, *Die Textilindustrie*, in: Zeitschrift des königlichen sächsischen statistischen Bureaus 44 (1898).
70 Tipton, *Regional Variations*, pp. 132–138.

lung und von Gesamtwirtschaftszyklen sind in der Literatur höchst umstritten, aber empirische Untersuchungen können zu einer Klärung der strittigen Punkte beitragen. Von diesem Standpunkt aus ist die deutsche Entwicklung besonders interessant.

Im Falle der deutschen Wirtschaft während des 19. Jahrhunderts scheint der fruchtbarste Ansatz bei einer weitgehend politischen Definition von Regionen und bei einem Konzept von langen Wellen der wirtschaftlichen Entwicklung zu liegen. In Anlehnung an die Theorien von Kondratieff, Schumpeter und Kuznets kann behauptet werden, daß die deutsche Nationalwirtschaft sich in mehreren langen Wellen („major cycles") entwickelt hat. Bei jedem Aufschwung sind neue Regionen in den Prozeß moderner wirtschaftlicher Entwicklung eingetreten: Das Königreich Sachsen und die preußischen Ostprovinzen im späten 18. Jahrhundert, Rheinland-Westfalen nach 1850 und Lothringen, Schlesien und mehrere Gebiete in Mitteldeutschland nach 1895. In jeder Region scheint die Möglichkeit wirtschaftlicher Entwicklung weitgehend von sozialen und politischen Verhältnissen bestimmt zu werden, besonders während des Niedergangs einer langen Welle, zum Beispiel Rheinland-Westfalen vor 1850 und die preußischen Ostprovinzen nach 1873.

Regionalgeschichte erscheint daher als möglicher Schnittpunkt für die Wirtschaftsgeschichte und die Sozialgeschichte. Sie bietet eine Position an, von der man auf eine besonders verheißungsvolle Weise den Gang der gesamtwirtschaftlichen Entwicklung beobachten kann.