Long-term trends in income and wealth inequality in the Netherlands: 1808-1940

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LONG-TERM TRENDS IN INCOME AND WEALTH INEQUALITY IN THE NETHERLANDS 1808 - 1940

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Abstract: Although the economic development of the Netherlands took a different path from that of the countries investigated by Kuznets in his study of long-run income distribution patterns, the Netherlands shared in the inverse-U pattern of inequality established by him. From the mid-nineteenth century until about 1880 levels of inequality increased, declining gradually thereafter. During WWI there was a dramatic widening of income differentials, which were subsequently more than reversed. The immediate pre- and post-WWI pattern of wealth distribution was similar. While cyclical developments characterized the distribution history of the inter-war years, for the period as a whole the trend of both income and wealth inequality was firmly downwards.

To date very little research has been undertaken into the problem of income and wealth distribution in the Netherlands in the nineteenth century. The reason for this noticeable lacuna in Dutch historiography is not hard to find - it was only in 1893 that a national wealth tax was introduced and it was not until 1915 that income tax was added to the government's fiscal arsenal. Whilst some, highly dubious, national income estimates do exist for the nineteenth century(1) virtually nothing is known about the distribution of that income. However, although ideal data is not available until relatively late in the day, various other national direct and indirect taxes do serve to provide a more or less accurate picture of inequalities in the distribution of prosperity over a longer timespan.(2) Before turning to an analysis of this data, it is necessary to sketch the economic backdrop to the developments to be discussed.

The picture of economic development that can be drawn from the sectoral statistics so far available is of a remarkably balanced growth from about 1830 onwards. Unlike the situation in England or Belgium, for example, industry did not play the role of the motor of economic development in the transformation of the Dutch economy. The primary, tertiary and secondary sectors all contributed in their own way in producing a gradual and dispersed pattern of growth. Although prior to 1850, industry had not undergone a thorough-going technological transformation, nevertheless the most important sectors had experienced a considerable expansion of production over the

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previous twenty years which had created the foundations for the growth of investment that took place on an ever increasing scale thereafter. Moreover, infrastructural improvements after 1830 (though more particularly in the canal boom of the 1850's and the railway boom of the 1860's(3)) had improved access to the inland provinces. This not only lowered the price of essential raw materials but also ensured that industrial and agricultural surpluses could be more easily placed on national and international markets. Trade and other services benefitted from the increase in activity in neighbouring industrial countries, especially shipping activity on the Rhine, as well as from a more intensive exploitation of the Dutch East Indies. Agriculture, too, experienced impressive periods of growth in the 1830's and again after 1850, this was only curtailed with the fall in agrarian prices in the 1870's. This agrarian expansion was founded both on an expansion of land cultivation, as a result of impoldering and land clearance, and on a more intensive pattern of cultivation leading to increased yields. The expansion of industry was also checked in the 1880's. But by then it had already experienced some thirty years of increasing growth, without however undergoing the degree of technological modernization usually associated with an 'industrial revolution'. Nonetheless even within small-scale businesses, which dominated the industrial structure, mechanization and the introduction of steam-power had served to raise levels of productivity. By about 1895 the depression had passed and under the influence of the upward cyclical swing in the international economy, economic growth in the Netherlands accelerated. The heritage of the modernization of the previous sixty years or so, coupled with continued infrastructural improvement, allowed the Netherlands to profit to the full from this change in environment. Within industry this development was characterized by an increase in scale, by a dramatic growth in limited companies and by an increasing importance of capital-goods industries. But agriculture and the service industries also displayed evidence of renewed vitality and growth.

These developments brought with them a noticeable shift in the distribution of the labour force. In 1850 around half of the labour force was directly or indirectly associated with agriculture; fifty years later this share had fallen to 30.8 per cent. Industry, by contrast, had increased its share from 23.9 per cent to 31.1 per cent in the same period. In terms of absolute numbers employment in all sectors had increased. At the end of the nineteenth century the 600,000 employed in industry was virtually double the 1850 figure whilst in agriculture total employment had risen by only 40,000. The growth in the tertiary sector was of the same order of magnitude as industry; nearly 400,000 in 1849 rising to 730,000 in 1899.(4) After 1895 the fastest growth was among administrative and supervisory personnel who found increasing employment not only in the tertiary sector but in industry as well.

The relative lag in the development of agriculture is also reflected in its contribution to national income. This declined from about 25 per cent in 1860 to 15.3 per cent in 1910(5), a decline in importance which exceeds its decline in the share of the labour force. The accelerated growth of the secondary and tertiary sectors after 1890 was largely responsible for this reduction. Data for the value-added per worker show a similar pattern. If the value-added per unit of labour in the agrarian sector is 100 in both 1860 and 1900, the figures for the other sectors of the economy are 178 and

239 respectively.(6) Between 1900 and 1910 there was a sudden increase in levels of agricultural productivity which brought the figure back to 220 by 1910. In other words, a shift in the distribution of the labour force from agrarian to non-agrarian sectors by itself contributed to raising the level of productivity in the economy as a whole.

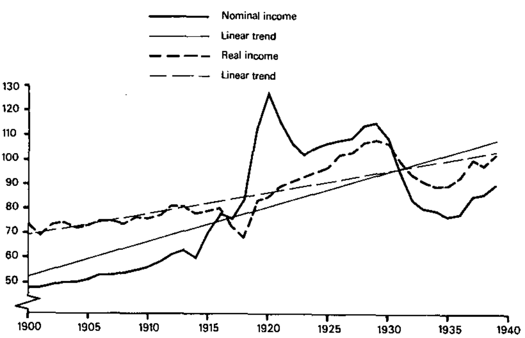
Between 1900 and 1940 the relative share of agriculture in the labour force declined even further so that on the eve of World War II it accounted for only 20 per cent, though in absolute terms there was a small increase in numbers. Again, in absolute terms there was a not inconsiderable growth in output. But this was surpassed by developments in industry and the service sector so that its relative contribution declined even further to 10.5 per cent in 1940. The share of the labour force in industry increased to 35 per cent whilst the tertiary sector (including government) made up most of the remaining 45 per cent.

From a predominantly agrarian/commercial country in the middle of the nineteenth century, the Netherlands had gradually developed into a predominantly industrial/commercial nation at the end of the century. This characteristic was to become even more pronounced in the course of the 20th century. Although the Netherlands joined the ranks of Europe's industrial nations relatively late in the day, this does not mean that it had not experienced a measure of economic growth from as early as the 1830's. With some justification Griffiths has described this as 'a sort of sneaky growth.' Dutch economic historians had been so blinded by the question of late industrialization that they overlooked the noticeably balanced expansion which had been taking place long before then. As far as the periodisation and tempo of that growth in the nineteenth century is concerned, Griffiths' sectoral analysis would suggest an accelerating expansion of per capita national income from 1830 to about 1870, a markedly lower growth rate in the 1870's and 80's and a renewed acceleration after 1890.(7) Whilst the contentious nature of existing national income estimates suggest a degree of caution in attaching exact numbers to this pattern, they do at least isolate the 1860's and the 1900's as decades of relatively high growth rates.(8) For

Graph I

Indices per Capita of Nominal and Real National Income 1900 – 1939

(at market value; 1925/34 = 100)



the period after 1900, national income estimates are somewhat more trustworthy and Graph I gives a picture of the development of per capita national income up to 1939.(9)

Over the period 1900 to 1939 as a whole the annual average rate of growth of nominal incomes was 1.86 per cent and that for real income 1.03 per cent. In real terms, there was an acceleration in per capita growth in the 1920's a reduction to a nadir in 1935 followed by a partial and incomplete recovery to World War II.

Having completed this introductory survey of Dutch economic development between 1830 and 1940, the following paragraphs will analyse the pattern of income and wealth distribution in the Netherlands in the course of the 19th and early 20th centuries. As a guideline for analysis of the heterogeneous source material we have chosen Kuznets' classic hypothesis(10) which had been tested for England by Williamson(11) and for the United States by Williamson and Lindert(12) on the basis of wage and salary data without serious damage. On the basis of scanty data for some West European countries and the USA Kuznets suggested that the early phases of their industrialization/modernization process would be characterized by an increase in income inequalities. However, once the stage of modern, balanced growth had been reached (characterized among other things by the increasing importance of the secondary and tertiary sectors), a gradual reduction in income and prosperity inequalities would set in. Kuznets based his hypothesis on the following assumptions or conditions for the Western pattern of income inequality:

- per capita income is lower in the agricultural than in the non- agricultural sector
- incomes inequality is lower in the agricultural sector than in the non-agricultural sector
- economic growth in the course of the 19th century took on a more industrial/urban character.

On the basis of these factors and a simple numerical example Kuznets demonstrated that the falling share of the agricultural sector would result, in the first instance, in an increase in income inequality at a national level. The size and duration of this increase depend on the relative importance of the agrarian and non-agrarian sectors as well as on the tempo of the relative decline of the agricultural sector as a source of employment and as a component of national income. In the early phase of industrialization, characterized by increased inequality, the shift from agriculture to other sectors could have a disrupting effect on the economic position of the lower income groups. The rapid population growth (another characteristic of the modernization process) led to a more than proportional increase in the supply of workers for the lowest paid functions which served to postpone an upward pressure on wages. Along with this development the rise of new sectors of industry implied large profits and income improvement for the higher income groups involved in this activity. Once industrialization took hold, such sudden and dramatic income increases for the higher income groups became less common. Thus, on balance, in the early phases, income inequalities would be expected to increase.

The population growth, the establishment of new industries and the increasing opportunities for social mobility gradually led to a situation in the towns that the position of the lower income groups improved relatively more quickly than that of the higher income groups. Consequently, at the national level the original increase in inequalities becomes reversed. 'One might thus assume a long swing in the inequality characterizing the secular income structure: widening in the early phases of economic growth when the transition from the preindustrial civilization was most rapid; becoming stabilized for a while; and then narrowing in the later phases.'(13) For England, Kuznets estimates that the phase of increasing inequality lay between 1780 and 1850; for Germany and the USA between 1840 and 1890. The beginning of the process of incomes levelling, he suggests, began in England after 1875 and in Germany and the USA shortly after the First World War.

INCOME INEQUALITY IN AMSTERDAM

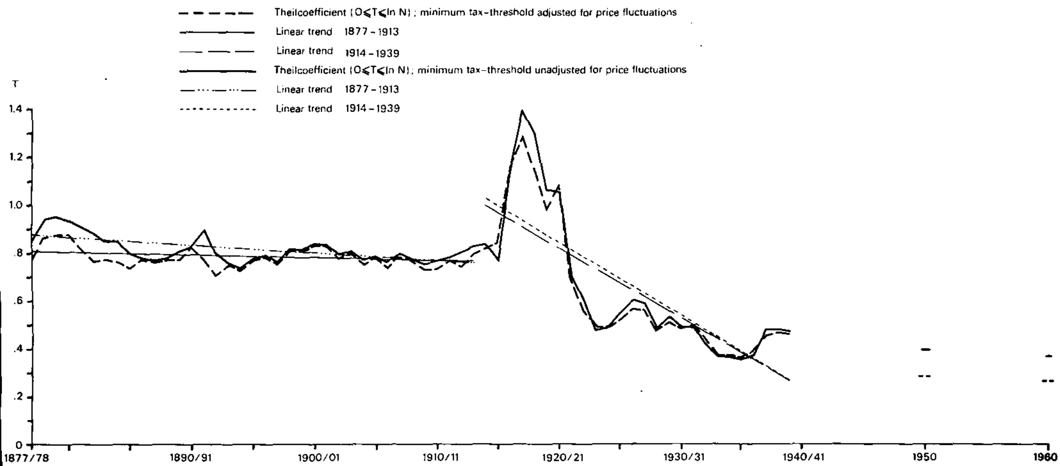
Since 1877 Amsterdam has had a local income tax.(14) Liable for the tax were those with an income of fl. 600 per year or more. The term 'income' was understood to include earnings from fixed or liquid capital (buildings etc. on the one hand; stocks, shares and bonds on the other) in the year preceeding the tax-year. Moreover wages, salaries, bonuses and fees from any occupation or business were assessed over the previous year whilst profits were assessed on the average of the three previous years (after 1916 profits were assessed in the same way as other incomes). Capital gains not made in the course of business fell outside the income classification. Moreover there were rules for exemptions (e.g. for incomes up to about fl. 2,000 there was a progressive scale of child allowances) which were regularly altered over the years. For this reason, to obtain the greatest comparability over time, the analysis of inequalities is based exclusively on incomes before allowances and exemptions. It is recognised that this neglects the levelling effects of the progressive rates of taxation, but this will be partly compensated by the delevelling effects of fraudulent declarations which must also be left to one side. Overall, the net effect of both of these aspects is probably marginal in an examination of the secular development of the distribution pattern. In 1916 the lowest tax assessable income was raised to fl. 650, and between 1919 and 1922 it was gradually raised again to fl. 800.

In the analysis of the income figures the following three procedures were used:
- Firstly, the raw tax returns data were adapted (the lowest tax threshold unadjusted for inflation).
- Secondly, the inequality is calculated on a basis of a deflated lowest tax threshold so that, statistically, the same categories of those liable for taxation can be compared.
- The third procedure concerned those with incomes which fell beneath the minimum for tax liability: on the basis of data concerning the labour force, the age distribution, the wage index, and income supplements (such as unemployment or poor relief) an estimate has been made for this income group(15) so that it is possible to make statements about the distribution pattern over the whole polulation.

To establish a measure of inequality the Theil-coefficient is used: when the value of T is nil there is maximum equality; there is maximum inequality when T reaches ln N, or (dependent on the chosen standardization) ln 10 (in the case of a division into deciles) or 1 (in the case of T / ln N).(16)

Graph II

Income Inequality in Amsterdam 1877 – 1960 (excluding the incomes below the minimum tax–threshold)



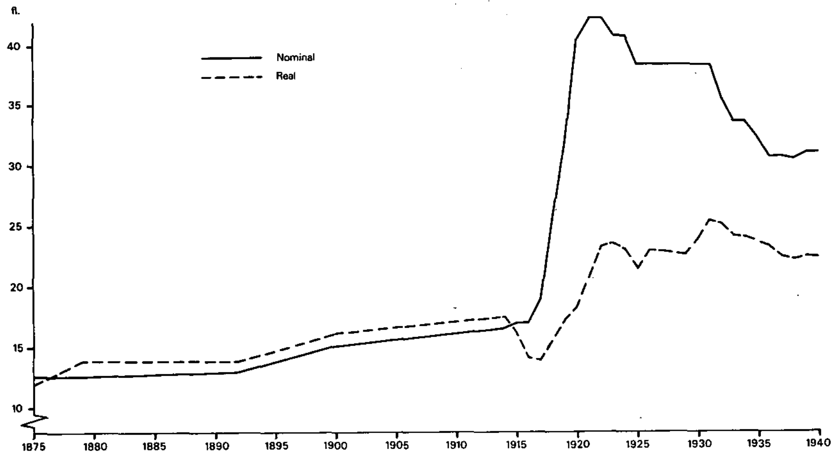
In graph II the results of income inequality are presented by using the first two procedures mentioned above.(17) It is noticeable that there is no fundamental difference between the two series. On the basis of the trends calculated there is a modest levelling of incomes between 1877 and 1913 - for the series calculated on the basis of adjusted tax thresholds the levelling percentage averages 0.16 per cent p.a., for the series on the basis of unadjusted tax thresholds the figure is 0.39 per cent p.a. Between 1914 and 1939 both series show a virtually identical pattern - the annual average levelling percentages are 5.13 and 5.26, respectively, for the two series.

In interpreting the data in Graph II account must be taken of the fact that in 1877 only 20 per cent of the working population earned incomes which made them liable for assessment, whereas by 1940 virtually 75 per cent of the labour force was liable for income tax. Even if the tax thresholds are adjusted to take account of inflation, the number liable for tax in 1940 is still nearly three times as high as in 1877, though the growth in tax payers is less spectacular.

The question thus arises whether the distribution pattern observed for those liable for tax is still applicable if the entire working population is considered. To answer this question it was necessary to construct an estimate for those with incomes below the minimum tax threshold. The procedure for this is elaborated in note 14. An essntial ingredient for the calculation was the availability of a representative index for the development of the minimum wage in the period under review. It was possible to construct such a series for the building sector and the development of these minimum wages is shown in Graph III.

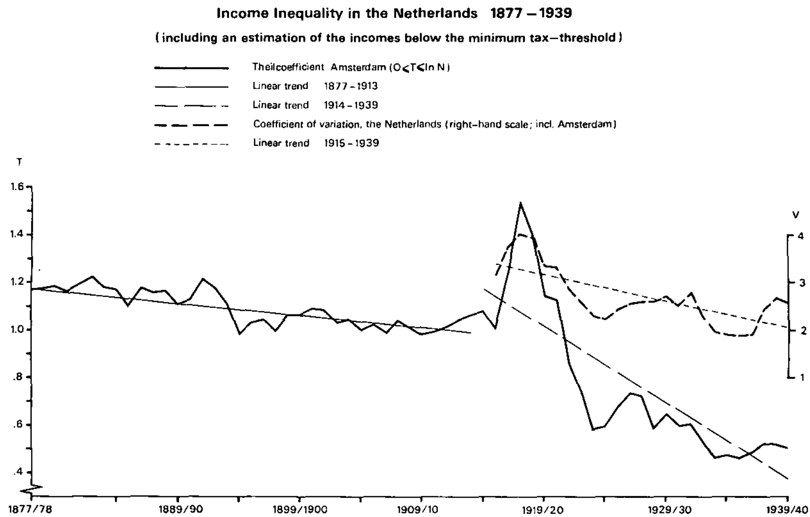
Graph III

Nominal and Real Minimum Weekly Wages of Carpenters/Bricklayers in Amsterdam 1875 – 1940
(on basis of 1913 purchasing power)



From fragmentary contemporary sources it is possible to distil the fact that towards the end of the 1860's most sectors had experienced accelerating economic growth. The strong increase in demand for labour had resulted in a gradual raising of wages; an upward trend that lasted until the mid-1870's after which the wage level stabilized. Due to the recession in the 1880's there were no further increases in wages, though a sharp fall in prices at the same time prevented a deterioration in real income. After 1890 there was a revival in activity which made it possible to pay out higher minimum wages, a development which continued, with the exception of the odd crisis year, right up to the First World War. The dramatic price rises during the war period were not compensated by rising wages in the first war years; this resulted in a sharp fall in real incomes. However the neutrality policy of the Dutch, coupled with her geographically strategic position between the combatants, soon brought a surge in demand for the services of the Dutch primary and tertiary sectors. This substantial growth made possible a sharp increase in minimum wages, so that by the end of the War their real level was approximately what they had been in 1913. In the first two post-war years this trend of wage increases continued. But as a result of the short malaise between 1920 and 1923,it proved impossible to maintain this level and in fact wages fell back slightly. Between 1924 and 1931 minimum wages remained stable. Thereafter the crisis brought with it a marked reduction in nominal wages. After 1935 there was a slight recovery. Between 1920 and 1932 the trend of real wages was upwards and, except for the unemployed, the 1930's did not bring a particularly marked fall in real incomes.

Graph IV



The development of income inequality for the whole working population can be followed in Graph IV. It is noticeable that in broad terms the pattern does not differ essentially from that traced for taxpayers alone (see Graph II). The greatest difference lies in the degree of inequality before the First World War and in the levelling percentage in that period. For the whole working population the degree of income inequality in 1877 was 38 per cent higher than for those earning incomes liable for tax. This difference is only slightly reduced by 1913. Through the impact of the war years on the high income group the difference in inequality levels between the whole population and the tax-liable was not more than about 10 per cent. Thereafter the figure varied between 20 and 30 per cent. The annual average reduction in inequality levels between 1877 and 1913 was 0.47 per cent, somewhat higher than the categories in Graph II but the pattern established there is not really affected. In the period 1914-1939 the trend reduction in inequality was 4.45 per cent per annum, somewhat less than was observed for those liable to tax.

The general picture which can be drawn from Graphs II and IV lends itself to the following interpretation. Between 1877 and the First World War there is a gentle decline in the level of income inequality. In contrast, between 1915 and 1920 there is a striking reversal in this trend. The main reason behind this development was an increasing concentration of income in the highest income groups. In 1912/13 the group with incomes above fl. 50,000 formed 0.2 per cent of those liable for tax but earned about 11 per cent of total income; the figures for 1917/18 are 0.5 about 33 per cent, respectively. The explanation for this dramatic development is most probably to be found in the large group of war-profiteers which came into existence. In the tertiary sector especially massive war profits were made, whilst, at the other extreme, many workers from the lower income groups were reduced to unemployment.

The contemporary historian H. Brugmans commented disapprovingly on this situation in the following way, 'In Amsterdam, too, nouveaux riches came as a result of the War, but also nouveaux pauvres; in Amsterdam, too, we had war-profiteers. Such a rapid and unplanned transfer in fortune is not favourable for the general morality of a people.(18) As quickly as they had appeared they disappeared again under the influence of the economic malaise between 1920 and 1923; after 1921 such an extraordinary concentration of incomes in the hands of the privileged few never reoccurred. In 1920/21 the highest income group formed about 1.7 per cent of all those liable for tax and had more than 33 per cent of total incomes at their disposal. One year later they represented only 0.7 per cent of tax payers and controlled 20 per cent of total incomes. At the other extreme, the years after 1920/21 saw a dramatic growth in the group earning fl. 1,000-2,200, the group just above the lowest taxable income group. Thus, through a rapid improvement in the position of the lower income groups, coupled with a more gradual decline in the highest groups(19), the level of income inequality declined markedly after 1921/22; indeed, it fell to levels far below those prevailing before 1914.

The main victims of the Depression after 1930, in the sense that they cost more than other groups, was again the highest income group. This is apparent from the following figures. In 1930/31 the group with incomes above fl. 50.000 comprised 0.3 per cent of taxpayers and earned 10.5 per cent of total incomes. The following year they formed 0.2 per cent of taxpayers with 7.5 per cent of incomes. So their decline continued until they reached a nadir in 1935/36 when they formed less than 0.1 per cent of those liable to tax and disposed of no more than 3.4 per cent of total incomes. On the other hand, from the data for the number liable to tax per 1,000 inhabitants and the average income per taxpayer (see Graph V), it is apparent that until 1933 at least the lower income groups managed to maintain their position, though a decline in the middle-income group undoubtedly also played a role in this. Thereafter both the numbers liable to tax and the average income per taxpayer declined, though after 1938 there was a small measure of recovery. Moreover, after 1933, we can assume that a number of the lowest income groups fell below the minimum tax threshold as a result of wage cuts, whilst these 'empty' places were taken up by those falling from higher income groups. To summarize, we can say that during the First World War the incomes accordian, as it were, was pulled out at both ends, though mostly at the upper end; in the 20's the situation was reversed. During the crisis years of the 30's the accordian was highly compressed at the upper end, whilst at the lower end it was slightly extended. Also noticeable is the more rapid recovery of the higher incomes groups in 1925/30 and again after 1937/38 than the other income categories, so that the level of inequality was greater than in the immediately preceeding years. Nonetheless, the levels of inequality found before the First World War were never to return and the trend of income levelling continued to the Second World War.

The net in- and out-migration in Amsterdam had only a marginal impact on the income distribution in the capital. Between 1877 and the turn of the century there was a scarcely visible net in-migration. This reached a peak in the

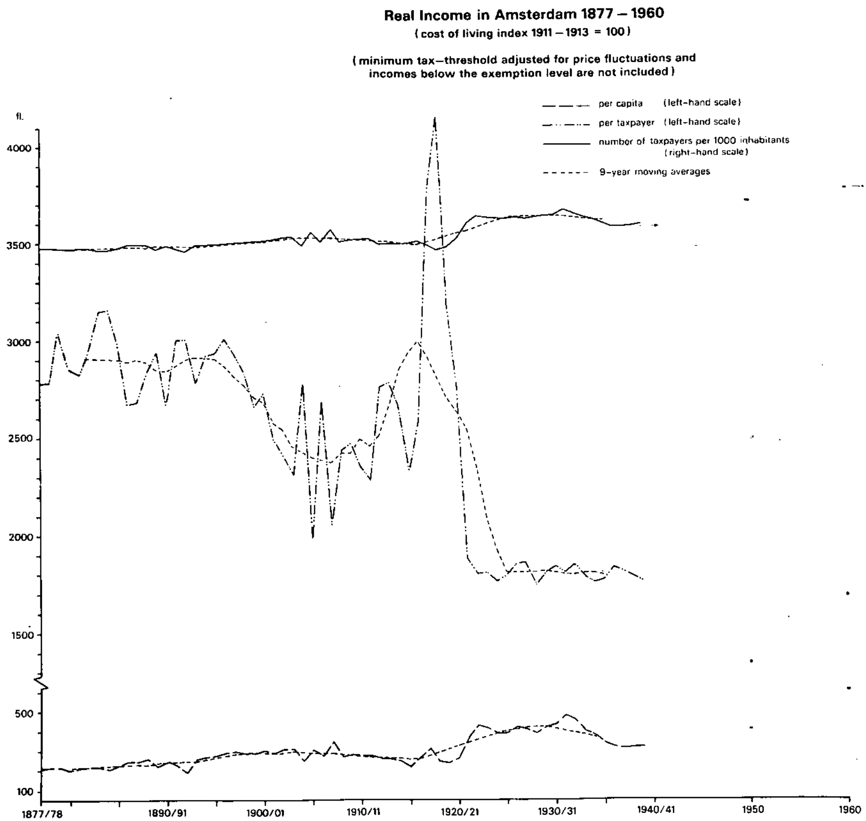
1880's when, under the influence of the agrarian depression, it averaged an annual 12 ‰ over the decade. Around 1900 in- and out-migration more or less matched each other and until 1910 there was a small net out-migration averaging 2 ‰ per annum. After 1910 there was a marginal net in-migration.(20) It is true that over the period 1877-1940 as a whole both the average incomes and the levels of inequality of those tax payers leaving the capital were slightly higher than those moving into Amsterdam. Between 1877 and 1890 only 15 per cent of the male labour force had an income above the minimum tax threshold whilst 20-24 per cent of those leaving had been liable for tax. Between 1900 and the First World War the two figures differ little; both averaging about 25 per cent. In the 1920's the situation had changed somewhat; 70 per cent of the incoming male labourers were liable to tax against 64 per cent of those who left. However, over the entire period the income figures of in- and out-migrants deviated little from those for the population as a whole. Bearing in mind the relatively small net migration figures and the small proportion (2-4 per cent) of total taxpayers which the migrants made up, it seems unlikely that migration played an important role in the Amsterdam pattern of income inequality.

In Graph V, which follows, a picture is given of the most important data concerning persons liable to taxation and the development of real per capita incomes. However, before these can be discussed it is necessary to say something about the trend of nominal incomes.

The trend of per capita nominal incomes in the years 1882-1886 shows clearly the impact of the prevailing economic malaise. After 1892 a slight measure of recovery is visible; this was not only maintained but intensified through the First World War. As a result of war profits, the level of nominal per capita incomes accelerated, especially in the last war years, so that by 1920/21 they were virtually three times higher than in the immediate pre-war years. Again, between 1931 and 1937, the evidence of the crisis is immediately obvious, although there was a modest recovery in the last years before World War II. The average nominal incomes of those liable to taxation shows a completely different picture in the period before the First World War: between 1877 and 1915 there was a gradual decline. Thereafter the pattern follows closely that of the population as a whole, although the acceleration after 1921 is somewhat less spectacular. This divergence before 1915 can be explained by the more than average increase of those in the lowest tax categories; which has the effect of depressing the average for taxpayers as a whole. This, in turn, can be attributed to the rapid population growth and the net in-migration of young workers, an effect which increased the relative weight of those at the beginnings of their careers (and earnings) in the total occupied population. This tendency was also marginally accentuated by the net out-migration of those in higher income categories.

The numbers liable to income tax per 1,000 of the population showed clear signs of growth only after 1897. The growth persisted until the First World War and reappeared at an even higher tempo after 1920. If, however, the lowest tax threshold is adjusted to take account of inflation, there is in fact a stagnation in the first two war years followed by a decline, which continued until 1919. The reason for the deviation between the two sets of results lies in the fact that the rapid increase in nominal wages in the war brought increasing numbers into tax-liable income categories. After 1930 a new decline set in and continued until 1938. A comparison with the war years

Graph V



would suggest that the class of 'nouveaux pauvres' created by unemployment during the war was of more modest proportions than the importance of their counterparts in the 1930's.

The development of real per capita incomes of the population as a whole and of those liable to taxation shows no fundamental difference from that of nominal incomes. The greatest divergencies show up in occasional depression years (e.g. 1886-1889, where prices fell faster than nominal incomes) and during the War itself (where the rise in nominal incomes was more than wiped out by inflation). After 1920 the rise in real incomes is less than would be suggested by nominal incomes alone, though unlike nominal incomes which experienced a slight reversal in the depression years 1921-1924, the increase is maintained until 1930. After 1930 both nominal and real incomes show virtually the same pattern. Leaving aside the trend and turning to the rather 'freakish' annual fluctuations, these can be explained by the relatively unsophisticated way in which inflation adjustments were made in the lowest taxation categories: whole income categories had to be removed or restored since the statistics did not allow for any differentiation to be made within each category. This explanation, however, does not apply for the war years themselves, in which, as has already been noted, the high level of inflation indeed contributed to the growing numbers of 'nouveaux pauvres'.

A breakdown of aggregate income distribution data by economic sectors is only possible for two years - 1877 and 1908 . Data for other years are not available. Unfortunately this means that it is impossible to trace, by sector, the important changes which occurred during the First World War and, again, after 1920. Before undertaking this exercise, however, it is useful to examine the changes which occurred in the pattern of labour distribution. From the growth of the Amsterdam labour force and its distribution between sectors, it is impossible to draw any firm conclusions about the characteristic pattern of income distribution advanced by Kuznets. Between 1877 and 1940 there were no major shifts in employment distribution - the share of industry fell from about 45 per cent to about 40 per cent; the share of the tertiary sector grew from about 40 to about 45 per cent (employment in the primary sector was virtually negligible).(21)

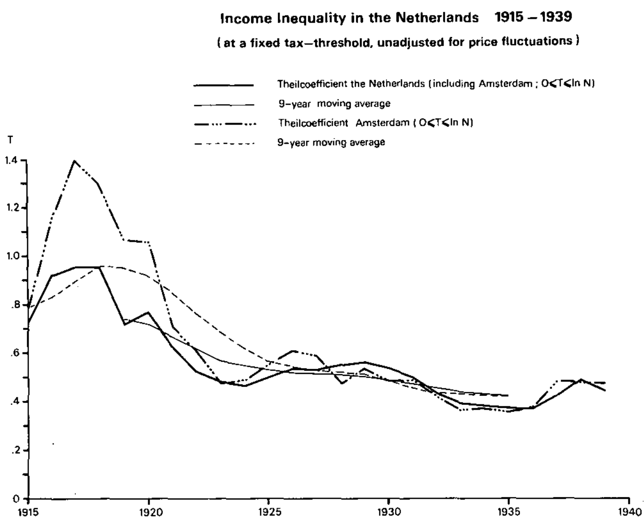
In both 1877 and 1908 the highest level of inequality occurred among those employed in the tertiary sector. In 1877 income inequality was about 50 per cent higher in the tertiary sector than in industry. In 1908, though income inequality in both sectors had been reduced, the gap between industry and the tertiary sector was even wider. Bearing in mind the difficulties in interpreting the figures, it seems likely that the total income levelling which had occurred by 1908 was largely attributable to developments within the industrial sector. The only exception to the relative evenness of industrial incomes distribution was in food and drinks sector, which accounted for about 16 per cent of industrial employment. Here the pattern of inequality was of a similar magnitude so that prevailing in the tertiary sector. Unfortunately the nature of the data makes it impossible to make a comparison with 1877. This is possible, however, for the diamond industry. In this sector the level of inequalilty increased by about 5 per cent betweeen 1877 and 1908, and the average real incomes of those liable for tax declined by 52 per cent over the same period.(22) Even so, the persons liable to taxation as a percentage of those employed in this sector was comparatively high. In 1908 74.5 per cent of diamond workers were liable to taxation compared with 43.2 per cent in building, 16.8 per cent in clothing/cleaning, 44.9 per cent in metals, 36.7 per cent in food and drink, 36.2 per cent in trade and 61.7 per cent in transport. Only those employed in local government had a higher score; virtually all had incomes in excess of the minimum taxable income.

It is only possible to speculate about developments after 1908. In view of the relatively low level of income inequality within industry before the First World War and the development of the relative shares of employment in the secondary and tertiary sectors, it seems probable that the dramatic levelling in incomes distribution after 1920 is largely attributable to developments within the tertiary sector. Exactly which specific factors were responsible must await further research (possibilities which suggest themselves are the creation of all kinds of white-collar jobs and the relatively greater promotion/income increment opportunities in the tertiary sector). For the time being, then, this explanation is advanced as only a tentative hypothesis.

INCOME DISTRIBUTION AT THE NATIONAL LEVEL

In the opening paragraph it was already noted that annual statistics of income distribution at the national level become available only after 1915. These have already been presented in Graph IV. The correspondence of the Amsterdam and the national pattern is striking: an increase in inequality until 1920, when it fell sharply, a gentle increase between 1925 and 1930 followed by a further dramatic fall, and a slight recovery in 1936, which was reversed two years later.(23) Since the definitions of what constituted 'income' differ but slightly between Amsterdam's local taxation and the national tax, there is no likelihood of distortions on this account.

Graph VI



If, for purposes of comparison, we adopt the same inequality measure, the pattern of income inequality in Amsterdam and the Netherlands as a whole is virtually identical (compare Graph VI above with Graph IV). The fact that inequality in the Netherlands reached less extreme levels than in Amsterdam during the First World War is easy to explain: particulary the tertiary sectors in the large cities were best placed to profit from the war situation. The government, too, shared not inconsiderably in this windfall: in 1916 a war profits tax was introduced on top of existing property taxes. This law levied a 'defence tax' on properties worth more than fl. 50,000, on a progressive scale from 0.2 per cent at the bottom to 3.25 per cent on properties worth more than fl. 10 million. There was a second 'defence tax' on incomes duplicating the existing income tax scales. Finally, a war-profits tax levied 8 per cent on the value of all exported goods, unless that exceeded 50 per cent of the profits. The then finance minister Treub remarked, without scruples, 'If one is going to hit war profits, then it should be hard; it is one of the costs of a war situation that a sum is collected which can be of some use'.(24) That the income distribution during the War should develop along totally different lines from the period before, was also no surprise to Treub, who commented on the situation with scarcely a hint of disapproval in the following terms, 'Not only now, but also earlier periods of major wars brought about a shake-up in fortunes. The Napoleonic times were no different from now. In such times, circumstances change so quickly that in the constantly changing conditions some come to the top whilst others are trampled under foot. That is very sad for those who lose out or perhaps fall into poverty; for the population as a whole it leads to an inevitable jealousy towards those who rise to the top ... which is neither willing nor able to distinguish between those who are blindly blessed by fortune or enrich themselves in less seemly ways and those others who receive a perhaps too large reward for the qualities of invention and daring, with which all could pluck the fruit'.(25) Well, as minister of finance, Treub knew what he was talking about when it came to picking out the plumbs.

As a result of the wage increases towards the end of the First World War and the effects of the 1920-1923 recession which disproportionately affected the higher income groups, the national figures also show a marked degree of income levelling. However, when the economy revived after 1923, allowing higher profits to be made, the level of inequality increased again, although the orders of magnitude must be considered relatively moderate compared with the prevailing pre-war situation. The following depression years reveal, again, a sharp fall in levels of income inequality, attributable largely to a deterioration in the incomes position of the wealthier classes: the chances of making profits at all in this period were minimal indeed, whereas the impact of wage cuts on labour income led to a less serious decline in other sources of incomes. The conclusion of Van Dijk that, 'The economic crisis of the 1930's apparently made not only for greater inequalities between incomes, but also for greater inequality in wealth' and, more generally, that 'economic depression and stagnation led to greater economic (and often also social) inequality'(26) is demonstrably untrue, whether referring to income- or wealth inequalities. During the interwar period the link between economic development and income inequality is exactly the reverse of that suggested by Van Dijk: recessions and crises were the occasion for considerable income levelling!

For England, Williamson has demonstrated the importance of the development of wages and salaries for the total pattern of income distribution.(27) For the Netherlands, between 1921 and 1972, Hartog and Veenbergen have found a negative correlation between the share of wages in national income and the distribution of income.(28) On the basis of the surveys we have made of the Amsterdam and national patterns, the following hypothesis suggests itself: in view of the fact that, in general, wages and salaries are more evenly distributed through the occupied population than are other sources of income, one may expect that an increase in the share of wages and salaries in national income will be matched by a reduction of income inequality.

Table 1: Share of wages and salaries in the national income 1910/1939

Year	Wages and salaries	Other	Total	a:c x 100
	x fl 1.000,-			
1910	811	1432	2243	36,2
1921	2470	3010	5480	45,1
1922	2362	2718	5080	46,5
1923	2226	2782	5008	44,4
1924	2212	3027	5239	42,2
1925	2232	3162	5394	41,4
1926	2293	3215	5508	41,6
1927	2343	3260	5603	41,8
1928	2457	3522	5979	41,1
1929	2585	3523	6108	42,3
1930	2674	3186	5860	45,6
1931	2555	2574	5129	49,8
1932	2246	2312	4558	49,3
1933	2149	2242	4391	48,9
1934	2087	2253	4340	48,1
1935	1991	2260	4251	46,8
1936	1958	2401	4359	44,9
1937	2062	2740	4802	42,9
1938	2158	2746	4904	44,0
1939	2248	2959	5207	43,2

Table 1(29) shows the development of wages and salaries as a component of national income. If we compare 1910 with the period after 1921, then the disproportionate rise in the share of wages and salaries is immediately apparent; the increase was attributable to the dramatic wage increases in the years 1917-1920. This, in turn, was only partly a reaction to the accelerated tempo of inflation, partly as a result of an increase in the labour force participation rate of the population as a whole (rising from about 74 per cent in 1909 to 79 per cent in 1920), but largely because of a real increase in the rewards for labour as a factor of production.(30) This development was not unique to the Netherlands. In both Germany and England a similar development occurred. In Germany the share of wages and salaries in national income rose from about 45 per cent in 1913 to 57 per cent in 1928; in England the conparable figures for 1911 and 1924 were 49 and 57 per cent respectively.(31) Both countries also recorded a considerable reduction in levels of income inequalities after the First World War.(32)

Unfortunately, no figures are available for the years between 1910 and 1921, but it may be assumed that war profits in the years 1914-1918 would have pushed the share of wages and salaries in those years far below the relatively low figure for 1910. The marked income levelling in the Netherlands that occurred in the years 1930-1935 and was largely the result of a disproportionate decline in the highest income groups is also reflected in the shares of the various factors of production in national income. Whilst it is true that wages and salaries declined between 1930 and 1937, highly cyclically sensitive items such as dividends, royalties, interest, company reserves, and the important item 'entrepreneurial incomes' declined at a significantly higher rate. These items also recovered earlier (1936) and faster than the share of wages and salaries. It is not surprising, therefore, that in the last years before the Second World War income inequality increased once more.(33) Thus the negative statistical relationship between income distribution and the share of wages and salaries appears to be significant in the period 1921-1939.(34)

Moreover, we can establish that the numbers liable to income tax increased by 140 per cent between 1915 and 1940. As a result of wage increases and war profits the incomes of taxpayers were indeed extremely high during the war. From 1921 onwards average incomes experienced a decline due to the disproportionate increase of the lowest income groups and the stagnation of the highest income groups - in the crisis years they decline in numbers. In 1939/1940 average incomes were 40 per cent lower than in 1920/1921. We turn, finally, to Graph VI. From the linear trends it can be adduced that the annual rate of income levelling in Amsterdam was greater than that for the country as a whole - the annual figures being 5.7 and 3.7 per cent respectively. The developments during the First World War are largely responsible for the higher Amsterdam figure. Whether the strong relationship between national and Amsterdam inequality patterns also existed prior to 1914, it is impossible to say since the relevant national data are absent. For the moment there is no reason to believe that between 1877 and 1914 the two patterns should have diverged significantly.

THE DISTRIBUTION OF WELFARE

Even before the introduction of a wealth tax in 1893, the Netherlands possessed a number of taxes whose criteria for assessment allows an impression to be formed of the level of prosperity of the population. This is particularly true of the so-called 'personele belasting' which rested upon six foundations: the rateable value of houses and dwellings, the numbers of doors and windows, the number of fireplaces, the value of furniture, the number of domestic servants and, finally, the number of horses for personal use (working horses in agriculture were exempted from taxation).(35) Attached to each of these elements was a whole list of different tariffs and exemptions. But these remained fundamentally unaltered until a major overhaul of the tax in 1896. Data after that date are, therefore, difficult to compare with earlier years. The earliest available data stem from the year 1807/1808, though only figures for rateable value, fireplaces, domestic servants and horses are employable for comparative purposes.(36)

Data for rateable value have been published for the years 1808, 1856, 1868, and 1882 and through them we can obtain some light of the plausibility of the Kuznets curve for a period preceding and concomitant with what he defines as the first phase of modern economic growth. In the case of England, Williamson had demonstrated a parallel development in the distribution pattern between the 'inhabited house duties' and wages and salaries, whilst the latter, in turn, have been shown to dominate the total pattern of income distribution.(37) Since the Dutch system of rateable values has virtually the same basis as the English data, it is not implausible to adopt them as a reflection of the pattern of income inequality in the 19th century. However, until more research into the problem has been done, this is no more than a tentative suggestion.

The rateable values for the period are based on the property registers compiled at three different points in time - the Napoleonic period, 1832 and 1876. Inhabitants were taxed on the basis of a percentage of the recorded value. Between these dates changes in rateable values were virtually exclusively a result of new building and demolition.(38) Thus the rateable values themselves show a fairly static pattern. On the other hand, changes in the numbers of those liable to tax in each category of dwelling value were faithfully recorded and on this basis it is possible to employ Theil coefficients to show the resulting inequalities.(39) The advantages of this indicator is that it is possible to make a statement about the distribution of welfare over all sections of the population. It must be recognized, however, that the danger exists that insufficient differentiation in the recorded figures may lead to possible understatement in the actual degree of welfare/incomes differences. In the highest tax classes this was especially the case. But since these represented only a small percentage of total taxpayers, their impact on the results is likely to be limited and the chances of a systematic error being made are correspondingly small (The actual inequality levels may be slightly higher than those calculated, but this is probably unimportant in respect to changes in the pattern over time). Despite the necessary caution in using these rateable value figures, their reliability as an inequality indication is confirmed from other sources.(40)

The data in Table 2 also indicate shows the levels of inequality within each of three categories in order to give an impression of the situation in different social classes (the nature of the data, from different years, made a consistent and more refined breakdown impossible). On the basis of similar statistics Van Dijk has constructed a pattern of social stratification in which class I represented the 'lower class' and an intermediate group between them and the 'middle class', class II represented the 'middle class' and class III an intermediate group between middle and upper classes as well as the 'upper class' itself.(41)

Table 2. Wealth Inequality calculated on the Basis of the Rateable Value of Dwellings (including an estimation of the Rateable Value below the Tax-Threshold)

Class	Theilcoefficient ($0 \geq T \geq \ln N$)			
	1808	1856	1868	1882
I (rateable value fl 100)	-.243	-.274	-.283	-.295
II (rateable value fl 100-500)	+.384	+.405	+.390	+.359
III (rateable value fl 500)	+.444	+.420	+.492	+.633
Total inequality	+.585	+.551	+.599	+.697
Average rateable value in guilders	50,70	56,50	58,96	70,95

The global picture presented in Table 2 shows that the level of inequality was less in 1856 than it had been in 1808. The relatively high measure of inequality in 1808 is not surprising when one takes into account the economic conditions of the time. Industry and trade, though not agriculture, were severely depressed by the war and the Continental System, which had negative repercussions for the incomes of a large part of the population. Large-scale evasion of the trading restrictions and widespread smuggling on land and by sea created, for a small group, the chances for abnormally high profits. The contrast then between rich and poor were, as Treub has already commented, greater than normal; a situation similar to that prevailing during the First World War. In the light of developments after the Napoleonic period and, especially, because of the tardy pace of economic recovery which 'normalized' the incomes of the highest classes it can be anticipated that income/welfare inequalities were reduced until about 1830. After 1830 there was a moderate degree of economic growth which allowed the lower social strata to profit from increased employment opportunities, but because of the excess labour supply this was not translated into an improvement in their incomes position. Those in classes II and III probably profited more from the improved economic situation. During the third quarter of the 19th century the tempo of economic growth accelerated. In 1856 we can see that the share of category I in the total inequality has improved relative to 1808. A closer analysis within this category suggests that this improvement was to be found not among the largest group of uneducated workers but in the intermediary group between the lower and middle class comprising craftsmen, shopkeepers etc.(42) The share of the highest category had declined by 1856. But against this can be set an increase in the second category of approximately equal magnitude. Nonetheless, it would be inaccurate to ascribe the relative improvement of the second category purely to the decline of the upper classes. The extraordinary situation in 1808 complicates any comparison between 1808 and 1856. It may safely be assumed that after 1830 the position of the highest welfare category improved. For the middle class it also seems legitimate to suppose that a gentle improvement was to be found after 1830. In 1868 the overall level of inequality was 8.7 per cent higher than in 1856; an increase that can be explained primarily by reference to the rising share of the highest welfare category. This same phenomenon also explains most of the 16.4 per cent increase in inequality between 1868 and 1882. It far exceeds in importance the marginal increase in inequality within the lowest groups and more than cancelled out the effects of inequality levelling within the middle category which had been evident since 1856 and which picked up in momentum after 1868.

When the data in Table 2 are broken down by province it reveals that prosperity inequality was highest in the Western, and most urbanished, provinces - in descending order of magnitude, North Holland, South Holland, and Utrecht. In the other provinces the level of inquality was more than 50 per cent lower.(43)
The other components of 'personele belasting' offer a somewhat less satisfactory indication of developments in welfare inequality and can be dealt with relatively quickly. Data for 'doors and windows' and 'fireplaces' present a picture basically similar to that already discussed above: a high degree of inequality in 1807, a markedly lower figure in 1846 after which inequality increased again until the end of the 1870's, and finally a reversal of the trend until the First World War.(44) Data for the distribution of ownership of 'personal' horses and for the employment of domestic servants are more divorced from economic developments than was the case for the other

components of 'personele belasting'. In the case of horse ownership the situation was complicated by the increasing competition from other means of transport, primarily the railways since the mid-19th century and the automobile round the turn of the 19th century. The slight increase in inequality in horse ownership throughout the second half of the 19th century, with a short interruption in the 1880's, is therefore not necessarily indicative of a continuous increase in welfare inequality. The employment of household personnel is also a plausible measure of prosperity but its usefulness is distorted by the expansion of alternative employment opportunities in industry after 1830 and, especially, in the other service sectors. The situation is further complicated by the fact that young domestic servants were exempted from taxation and, thus, do not appear in the statistics. It was not exactly unknown for servants to be sacked when they reached the 'tax liable' age and to be replaced by someone younger (this minimum age was 15 years until 1896, when it was raised to 18). Bearing these qualifications in mind, the extrapolated linear trend of the distribution pattern of domestic servants over all households between 1807 and 1924 (the last year in which such statistics were published) shows a slight decline in the average numer of servants per household but also an annual average rate of increase in inequality of 0.16 per cent; a figure which, given the uncertainties in the data, allows few conclusions to be drawn with respect to the distribution of prosperity.

Aside from the 'personele belasting' data, a further useful source for an analysis of welfare distribution is that of tuition fees paid for children attending primary school.(45) Van Tijn has published such data for Amsterdam for six separate years between 1857 and 1891(46) together with an analysis of social stratification based thereupon. On the basis of a linear interpolation, an annual average levelling in the distribution of 0.8 per cent as well as an increase of 1.21 per cent per annum in the number of pupils per 1,000 inhabitants can be adduced for the period as a whole. In the light of the small number of years for which information is available and from the fact that the criteria by which pupils are distributed into social classes are not uniform, it would seem advisable not to attempt to draw too many conclusions from these figures alone. For Rotterdam, by contrast, annual data are available for the years 1858-1880.(47) They show an annual average increase in inequality of 0.5 per cent between 1858 and 1873 and a following levelling of 2.4 per cent per annum between 1873 and 1880, a pattern broadly similar to that apparent from the 'rateable value' data discussed above. This reduction of inequality after 1873 was of such magnitude that it more than cancels out the increase in inequality before that date, so that the period 1858-1880 as a whole shows an annual average levelling of 0.8 per cent. It is perfectly feasible that with more data the same pattern may be discovered in Amsterdam. The number of pupils per 1,000 inhabitants in Rotterdam increased by only 0.4 per cent per annum, considerably less than in Amsterdam. After an anlysis of the distribution of pupils in different categories of tuition fees in Amsterdam Van Tijn suggests that, from the 1870's onwards, the opportunities for social mobility for the lowest social stratas increased.(48) This shift in distribution in favour of the middle and higher tuition-fee categories, of course, also points to an improvement in the income position of the lower income groups.

Before leaving this problem entirely, it is necessary to point to another plausible but unsuitable data source. Although the distribution of landed property is also an important component of the distribution of welfare, this cannot be discussed here because the annual registers for the yield of the land tax, which were regularly published after 1850, do not lend themselves to an analysis of welfare distribution. With the single exception of 1880, no distribution data, only the provincial average tax yields were published. Thus the data are unsuitable for a long-term analysis of the development of the distribution of land occupation.

THE DISTRIBUTION OF WEALTH

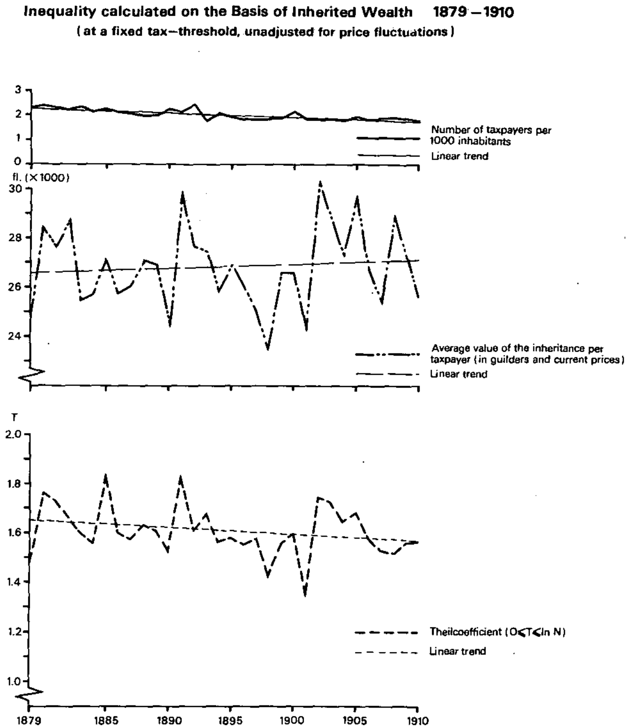
Before 1879 the inheritance tax registers are unsuitable for an analysis of the distribution of inherited wealth since inheritance by direct descendants, which constituted by far the majority of all inheritance, was exempted from taxation. Even after this problem had been overcome, the fact remains that between 1879 and 1910 uniform data is only available for inheritances worth more than fl. 300; those below this figure were exempt from taxation. After 1910, however, the taxation norms were so regularly and substantially altered as to render the comparison beyond that date virtually impossible. Moreover, it must be remembered that an inheritance tax is only levied as part of the wealth of the total population (the dead) and only at one point in their lives.

The development of the distribution pattern of inherited wealth is shown in Graph VII.(49) A comparison with the development of Amsterdam's income distribution over the same period reveals a striking similarity, although the levelling trend is more gentle in the case of inherited wealth - an annual average 0.2 per cent. The average value of inheritances increased by an average 0.1 per cent per annum. The average annual decline of 0.8 per cent per annum in the relative number of inheritances above fl. 300 is not the result of a decline within this category, but is a consequence of the more than proportional decrease in the mortality rate occasioned by the rapid population growth in the period. For the time being, this is as far as the data will allow us to go. An analysis of the original inventories of the wills themselves might allow a more detailed picture to be drawn for the composition of inherited wealth, but that falls outside the bounds of this article.

In 1893 a wealth tax was introduced in the Netherlands on the basis of which an impression can be gleaned of the distribution of wealth among a very small, privileged group. The minimum wealth liable for tax was originally fixed at fl. 13,000, a figure which was raised to fl. 16,000 in 1915.

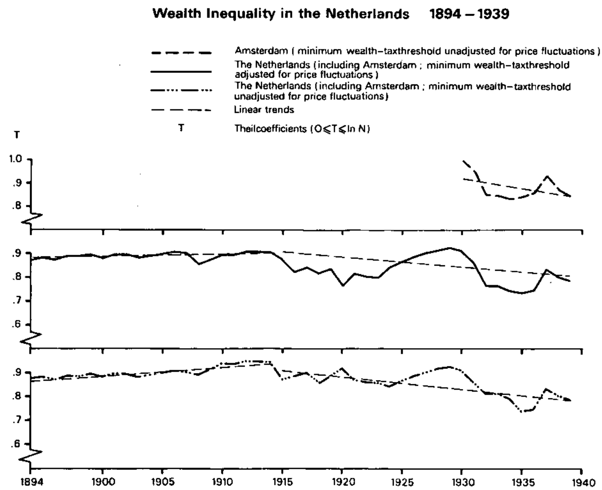
Although a wealth tax can naturally be expected to furnish more information over the development of wealth over a person's entire life than an inheritance tax which is levied but once (and that, of course, at death), its utility is diminished by the fact that certain forms of wealth are under-represented in the totals. This applies particularly to immovable property which represented 30-40 per cent of the total.(50) Before 1917 the estimated value was calculated on the basis of a fairly arbitrary basis of 'taxable yield' which understated the real value; thereafter a more realistic standard of estimated selling price was adopted.

Graph VII



Although the changes in taxation criteria since the original legislation of 1892 are of a certain consequence for estimating the value of total wealth, they are of little importance for determining the distribution of that wealth. The break in the data series occasioned by the change in 1915 in the minimum level of wealth liable to tax can be accomodated by deflating the lowest tax threshold in terms of 1894 purchasing power. The distribution pattern of the revised data, however, is only marginally different from the pattern of the uncorrected data, as can be seen in Graph VIII.(51) From 1894 to the outbreak of the First World War there was a certain increase in the level of wealth inequality. The uncorrrected figures show an annual average increase in equality of 0.3 per cent; the corrected figures an increase of only 0.11 per cent. After 1914 there was a tendency for inequality levels to decline: between 1914 and 1939 by 0.61 and 0.25 per cent per annum, respectively, for the uncorrected and corrected series.

Graph VIII



Now, it would appear at first sight, that the inequality pattern found for wealth distribution before the First World War deviates from the patterns discovered for both incomes and inherited wealth. A closer investigation of the period after 1894, however, reveals that income inequalities increased until 1910 whilst inequalities in the distribution of inherited wealth also increased until 1914 (see Graphs II, IV, VII, and VIII). Whilst it is impossible to trace the development of wealth inequality before 1894, in view of the strong relationship between income and wealth distribution throughout the period for which comparable data are available, it seems not implausible that levels of wealth inequality before 1894 were much higher than levels thereafter. This parallel between patterns of income and wealth inequalities does not, however, seem to be apparent during the war years themselves when levels of wealth inequality declined even further. The cause for this divergent development probably lies in the following direction: war profits did not flow primarily from wealth ownership and moreover, given the extraordinary circumstances of the time, such profits were not immediately converted into forms of liquid or fixed assets. To the extent that this did occur, the much higher wealth taxes levied during the War probably dampened the opportunities for rapid wealth accumulation. After the War the short slump of the early 1920's contributed to a deterioration in the position of the highest groups of wealth owners and a further levelling of inequality levels. The years 1925-1930 saw a clear recovery in the position of this topmost group and an increase in inequality in wealth distribution. But again, in the recession years 1930-1935 they constituted, in relative terms, the greatest victims. The result was a marked levelling in inequality levels, a situation which reversed once more after 1935. The Amsterdam figures for the years 1930-1939 show a development parallel to that of the national figures and this pattern was also reflected in the distribution of incomes.

Turning, finally, to other aspects of the wealth tax data, it is interesting to note that between 1894 and 1939 the average size of fortune (deflated) per taxpayer declined at an annual average rate of 1.16 per cent. This decline is attributable to the more than proportionate increase in the number of persons with wealthholdings falling just inside the tax net, which then served to depress the average. This development is reflected in the fact that the number of taxpayers relative to the total population increased by an annual 1.15 per cent. Lastly, the question must be faced, whether the distribution pattern traced in Graph VIII would have looked much different had an estimate been made for those whose wealth fell outside the scope of the tax. The answer must be negative. Wilterdink, in his study of wealth distribution made such an estimate(52) and on the basis of an analysis of total wealth distribution came to the following conclusion: 'For the earliest period, that from 1894 to 1915, we find a concentration, at least in respect of the very highest wealth relative to the less high. After 1915 a certain degree of levelling occurred. This tendency was strengthened by the depression of the 30's, in the same way as the economic recovery at the end of that decade meant a renewed revival in differences in wealth'.(53)

SUMMARY

Let us return now to the Kuznets model with which we introduced this analysis. The various figures for income and wealth inequality presented in this article all point in the direction that the same parabolic curve is applicable to the Netherlands. The recovery of the economic situation after 1830 accounted for a relative improvement in the position of the higher income groups and a gradual increase in inequality. The acceleration in economic growth after 1850 brought a measure of improvement for the lower income groups. The standard of living of this category after 1857 moved clearly in an upward direction.(54) However, the higher income/wealth groups continued to improve their position right through to the end of the 1870's, when the Great Depression brought their growth to a temporary halt. As a result, also of the rapid increase in the labour force and the wage increases which were granted after 1870(55), we find a process of incomes levelling at both ends of the income pyramid. The higher income groups again profited disproportionately from the accelerated growth which persisted, with some occasional crises, from 1895 to the outbreak of the First World War. But the increased participation ratio in employment by the lower income groups together with the increased wages they received restricted the increase in inequalities to minimal levels; indeed, on balance, between 1877 and 1914, levels of inequality in the distribution of incomes and wealth declined. The First World War itself brought with it a temporary break in the development of the distribution pattern which was especially dramatic in the case of incomes, but after the War the trend towards levelling in both incomes and wealth distribution continued to accelerate.

The question now arises whether these developments provide evidence that the two sector model developed by Kuznets is also applicable to the Netherlands. Evidence presented at the beginning of this article on the growth of the labour force, value-added by different sectors of the economy and the sectoral distribution of national income all point to a relative decline in the importance of agriculture. This shift certainly took place after 1850, a period in which, up to about 1880, we were able to locate an increase in welfare inequality over the country as a whole. Amsterdam developments, however, make clear that the factor of urbanization due to the in-migration of rural labour played no any importance role in determining the distribution pattern in the capital. In other words, the levelling process in Amsterdam, which was found after 1877, manifested itself virtually independently of developments within the agrarian sector. It is possible that Amsterdam formed something of an exception to the rule. Still, interestingly enough, the Rotterdam data for school tuition fees seem to underline the Amsterdam pattern of income distribution in the second half of the nineteenth century.

The character of economic growth in the Netherlands was different in many respects from that of surrounding countries. But this fact seemed to be of little importance for what appears to have been a common pattern of income, prosperity and wealth distribution: increased inequality to about 1880, a gradual levelling to 1914, an interruption during the war years followed, after 1920, by an acceleration in the process. With this development the Netherlands places itself alongside England, Germany, and the United States. These countries also witnessed a break in the upward momentum of the Kuznetscurve in the ninetheenth century, albeit at different points in time, and all experienced an accelaration in the downward momentum after the First World War.

FOOTNOTES

* I would like to thank Professor Richard T. Griffiths for his comments, suggestions and especially for his translation of this article.

1 National income estimates for the period 1850-1900 have been calculated by Teijl, J., Nationaal inkomen van Nederland in de periode 1850-1900, in: Economisch- en Sociaal-Historisch Jaarboek Vol. 34 (1971), p.232-262. For a criticism of these figures see Blok, L., Meere, de, J.M.M., Welstand, ongelijkheid in welstand en censuskiesrecht in Nederland omstreeks het midden van de 19de eeuw, in: Economisch- en Sociaal-Historisch Jaarboek Vol. 41 (1978), p. 290-293; Griffiths, R.T., Achterlijk, achter of anders? Aspecten van de economische ontwikkeling van Nederland in de 19de eeuw, Amsterdam 1980, p. 11-13 and Bos, R.W.J.M., Brits-Nederlandse handel en scheepvaart 1870-1914. Een Analyse van machtsafbrokkeling op een markt, Wageningen 1978, p. 58-64.

2 A short inventory of Dutch sources for a study of income and wealth distribution is to be found in Dijk, van, H., Wealth and property in the Netherlands in modern times, in: Informationbulletin nr. 8, Centrum voor Maatschappijgeschiedenis, Rotterdam 1980, p. 1-28. See also Blok, De Meere, Welstand, p. 175-293.

3 Griffiths, R.T., The Creation of a national Dutch economy 1795-1909, in: Tijdschrift voor Geschiedenis (1982) forthcoming.

4 Jonge, de, J.A., De industrialisatie in Nederland tussen 1850 en 1914, Nijmegen 1976, pp. 19, 295-297. Zeventig jaren statistiek in tijdreeksen 1899-1969, 's-Gravenhage 1970, p. 54.

5 De Jonge, Industrialisatie, p. 295.

6 Derkens, J.B.D., Het nationale inkomen naar bedrijfstakken in Nederland en enkele andere landen, in: Statistische en econometrische onderzoek ingen, 3e kwartaal 1960, Zeist 1960, p. 126.

7 Griffiths, Acherlijk, p. 10.

8 See Teijl, Nationaal inkomen, p. 262.

9 Calculated from Het nationale inkomen van Nederland 1921-1939. Nr. 7 der Monografieen van de Nederlandse conjunctuur, Utrecht 1948, p. 46-51.

10 Kuznets, S., Economic growth and income inequality, in: Economic Growth and Structure. Selected Essays, London 1965, p. 257-288.

11 Williamson, J.G., Earnings inequality in nineteenth-century Britain, in: The Journal of Economic History Vol. XL (1980) nr. 3, p. 457-475.

12 Williamson, J.G., Lindert, P.H., American inequality. A macro-economic history, New York 1980.

13 Kuznets, Economic growth, p. 276.

14 For an extended analysis of the inequality pattern in Amsterdam see, Meere, de, J.M.M., Inkomensgroei en -ongelijkheid te Amsterdam 1877-1940, in: Tijdschrift voor Sociale Geschiedenis nr. 13 (1979), p. 3-46.

15 For an estimate of the incomes of the Amsterdam working population below the minimum tax-threshold the so-called 'Bonger-method' was used. Bonger, W.A., Vermogen en inkomen in Nederland gedurende den oorlogstijd, 1913-1920. Een statistische studie, Amsterdam 1923, p. 41,42, with the difference that not one estimate was made for the entire group, but four separate estimates for each of the following age cohorts: 15-20, 20-25, 25-30 and 30-60. The distribution of the occupied population in different age groups between 1877 and 1940 is extrapolated on the basis of the 1849 and 1947 censuses. The incomes of women aged 15-65 and working outside the home (with the exception of married women, whose income is counted with that of the husband - see Bonger, Vermogen en inkomen, p. 42) is based on empirical evidence from the beginning of the period that their incomes averaged those of men aged 15-25. It has, therefore, been assumed that 3/4 of these women had incomes equivalent to men aged 15-20 and 1/4 equivalent to men aged 20-25.
For 'renteniers' and pensioners aged above 65 it has been assumed that half had an income below the minimum tax-threshold and that this income was equivalent to that of males aged 30-65 who fell below the tax-threshold.
It has further been assumed that income relativities for each group remained that prevailing in the 1870's (see het Verslag van den toestand der provincie Noordholland over het jaar 1871, gedaan aan de Provinciale Staten van dat gewest, door de Gedeputeerde Staten, in de zomervergade-

ring van het jaar 1872, Haarlem 1872, p. 448) and that 280 days were worked each year. Account has also been taken of the influence of income transfers in the form of unemployment pay and poor relief and it has been assumed that all such transfers benefitted males aged over 25 who had incomes below the minimum qualifying for taxation. The wages for the period 1877-1940 were then indexed on the basis of minimum wages paid in the Amsterdam building industry. These formed the only available wage series covering the entire period, but it may be safely assumed that the minimum wage in other sectors followed the same trend (see Wal, van der, J.J., De economische ontwikkeling van het bouwbedrijf in Nederland, Delft 1943, p. 112,116 en de Jaarcijfers voor Nederland 1881-1940, published by the Vereeniging voor de Statistiek in Nederland (till 1898) and continued by the Centraal Bureau voor de Statistiek, passim).
Control calculations for the incomes of working women suggested that the 75:25 distribution between the 15-20 and 20-25 male age cohorts needed to be altered in 1909 to a 50:50 relationship.
For national figures (that also relate to incomes below the minimum tax-threshold) use was made of Hartog, J., Veenbergen, J.G., Dutch treat, long-run changes in personal income distribution, in: De Economist nr. 126 (1978), p. 530, 545.

16 Meere, de, J.M.M., Economische ontwikkeling en levensstandaard in Nederland gedurende de eerste helft van de negentiende eeuw. Cahiers Sociale Geschiedenis Nr. I, 's-Gravenhage 1982, footnote 86.

$$T = \sum_{j=1}^{J} Y_j \ln \frac{Y_j}{N_j} + \sum_{j=1}^{J} Y_j T_j$$, whereby Y_j, N_j represent the share of the j-th group per income category and the numbers of people respectively.
Tj is the Theilcoefficient within the j-th group. The first term relates to inequality between the different categories; the second to the weighted inequality within each category. For standardization in deciles the following formula was employed:

$$T_d = \sum_{j=1}^{10} Y_j \ln Y_j + \ln 10.$$

17 For the year 1880/81 see De Meere, Inkomensgroei, p. 38-40. In that year no income was levied but instead the old rateable value norms were used. T has been interpolated on the basis of the rateable-value register.

18 Brugmans, H., Geschiedenis van Amsterdam, Vol. 6, Opgaand Getij 1848/1925, Utrecht/Antwerpen 1973, p. 288.

19 Although there is evidence of an out-migration of higher income groups out of the city, this is of only marginal importance in comparison with the increase in welfare among the lower and middle income groups.

20 Statistiek der bevolking van Amsterdam tot 1921. Nr. 67 der Mededeelingen van het Gemeentelijk Bureau van Statistiek, Amsterdam 1923, p. 254. De Meere, Inkomensgroei, p. 35.

21 De Meere, Inkomensgroei, p. 27. Commissie voor de economische ontwikkeling van Amsterdam, Nota over de economische structuur van Amsterdam, Amsterdam 1960, p. 109,112.

22 For a description of the development of the diamond industry, see Tijn, van, Th., Geschiedenis van de Amsterdamse diamanthandel en -nijverheid, 1845-1897 I and II, in: Tijdschrift voor Geschiedenis nr. 87 (1974).

23 The correlation coefficient between both series suggests a strong relationship: $r = 0.96$ ($t_{0.005} = 16.44 > 2.807$ = significant).
This relationship is also apparent when the same inequality measure, the Theilcoefficient, is used: $r = 0.97$ ($t_{0.005} = 19.14 > 2.807$ = significant).

24 Treub, M.W.F., Oorlogstijd. Herinneringen en indrukken, Haarlem/Amsterdam 1916, p. 387.

25 Treub, M.W.F., De economische toestand van Nederland gedurende den oorlogstijd, Amsterdam 1920, p. 166.

26 Van Dijk, Wealth and property, p.9. Van Dijk basis his conclusion for the 1930's on only two observations: 1929 and 1939 which is clearly insufficient. The figures presented by Hartog and Veenbergen, Dutch treat, p. 532 also point in the direction of a marked levelling during the malaise and crisis years of the interwar period. Moreover Van Dijk makes use of Lorenz-curves which cross each other which renders them inappropriate as measures of total inequality. For an insight into this problem see Schwartz, J., Winship, Chr., The welfare approach to measuring inequality, in: Yearbook Sociological Methodology (1979), p.8-13: "When the Lorenz curves for two distributions do cross, there is no way of using the Lorenz criterion to determine which distribution has more inequality" (p. 10).

27 Williamson, Earnings inequality, p. 471.

28 Hartog, Veenbergen, Dutch treat, p. 540,541,543.

29 Calculated from De Nederlandsche Conjunctuur. Speciale Onderzoekingen nr. 4. Berekeningen over het nationale inkomen van Nederland voor de periode 1900-1920, 's-Gravenhage 1941, p. 18. Het nationale inkomen, p.44.

30 De Nederlandsche Conjunctuur, p. 19.

31 De Nederlandsche Conjunctuur, p. 19.

32 Kuznets, S., Quantitative aspects of the economic growth of nations, VII. Distribution of income by size, in: Economic development and cultural change Vol. XI, nr. 2 (1963), p. 59.

33 See Het nationale inkomen, p. 44.

34 On the basis of the variation coefficients, given in Graph II, and the percentage share of wages and salaries in national income: $r = -.75$ ($t_{0.005} = 4.536 > 2.921$ = significant).

35 For an overview of the bases for the personele belasting see Blok, De Meere, Welstand, p. 182-206.

36 Data for 1807/1808 are contained in Gogel, I.J.A., Memoriën en Correspondentiën, betrekkelijk deen staat van 's-Rijks geldmiddelen in den jare 1820, Amsterdam 1844, appendix B, p. 31. Statistics for 1846 and subsequent years are to be found in Staatkundig en Staatshuishoudkundig Jaarboekje 1849-1883; Statistiek van het Koningrijk der Nederlanden. Bescheiden betreffende de geldmiddelen. Eerste stuk, 's-Gravenhage 1861 and in: Jaarcijfers over 1881 en vorige jaren no.: 1. Jaarboekje, uitgegeven door het Statistisch Instituut der Vereeniging voor de Statistiek in Nederland, 's-Gravenhage 1882. The Jaarcijfers are available for the period 1881-1940.

37 Williamson, Earnings inequality, p. 469. Ibidem, Inequality under early capitalism: Britain and America. Paper presented at the Conference on Economic Growth and Social Change in the Early Republic, 1775-1860. Chicago Illinois (April 1980), p. 8.

38 Sickenga, F.N., Geschiedenis der Nederlandsche belastingen sedert het jaar 1810, Vol. 1, Utrecht 1883, p. 15,108.

39 The Theilcoefficient can also be calculated on the basis of a weighting of the fractions of the numbers in place of the more usual weighting of income fractions. This method of calculation

$$T = \sum_{j=1}^{J} N_j \ln \frac{N_j}{Y_j}$$ produces virtually the same pattern as that shown

in the text and for that reason has not been discussed further. See also Massizzo, A.I.V., Kok, W., Lisman, J.H.C., De ontwikkeling van de inkomensongelijkheid gemeten volgens informatiethheoretische maatstaven, in: Statistica Neerlandica nr. 23 (1969), Nr. 2, p. 4.

40 Meere, de, J.M.M., Standen en klassen in een Noordhollands dorp. De gemeente Wormer in 1844: de visie van een tijdgenoot, in: Tijdschrift voor Sociale Geschiedenis nr. 15 (1979), p. 261. Research into Amsterdam in 1882 revealed that a relationship existed between the levels of incomes of those assessed for income tax and the levels of the rateable value of the dwellings they occupied (a significant correlation coefficient of 0.92). See De Meere, Economische ontwikkeling, p. 137.

41 Dijk, van, H., Rotterdam 1810-1880. Aspecten van een stedelijke samenleving, Rotterdam 1976, p. 132,133.

42 De Meere, Economische ontwikkeling, p. 61.

43 De Meere, Economische ontwikkeling, p. 60.

44 In contrast to the statistics for rateable values, data for three other components of the personele belasting (the number of hearths, the number of household servants and the number of 'personal' horses) were published as early as 1846.

45 Tijn, van, Th., Twintig jaren Amsterdam, De maatschappelijke ontwikkeling van de hoofdstad, van de jaren '50 der vorige eeuw tot 1876, Amsterdam 1965, p. 111. Ibidem, Sociale geledingen in Amsterdam, ca. 1855-1891, in: Handelingen van het XXVIe Vlaams Filologencongres (1967), p. 407-415. Van Dijk, Rotterdam, p. 138.

46 Van Tijn, Sociale geledingen, p. 412.

47 Van Dijk, Rotterdam, p. 419.

48 Tijn, van, Th., Het sociale leven in Nederland 1844-1875, in: Algemene Geschiedenis der Nederlanden Vol. XII, Haarlem 1977, p. 155,156.

49 Calculated on the basis of data in the Jaarcijfers for the years 1881-1914.

50 See Bonger, Vermogen, p. 7.

51 Calculatd on the basis of annual data in the Jaarcijfers, 1895-1940. The figures for Amsterdam are based on statistics from Statistische Mededeelingen, uitgegeven door het Bureau van Statistiek der gemeente Amsterdam, no. 115. Heffing te Amsterdam van de inkomstenbelasting en de vermogensbelasting in de belastingjaren 1930/31 tot en met 1939/40, Amsterdam 1940, p. 12/14.

52 Wilterdink, N., Vermogensverhoudingen in Nederland: empirische bevindingen, in: Amsterdams Sociologisch Tijdschrift Vol. 4 (1977), nr. 2, p. 182-203.

53 Wilterdink, Vermogensverhoudingen, p. 191.

54 De Meere, Economische ontwikkeling, p. 113.

55 See De Jonge, Industrialisatie, p. 290.