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How the HNA changed the view of Finland's past development

In the late 1940s Finnish economists and politicians were worried because their understanding was that the Gross Domestic Product of Finland was declining every year. Then in 1948, Statistics Finland (previously Central Statistical Office) started annual calculations of the GDP and – surprise – it was rising every year.
Statistics Finland had had an early start in publishing the first efforts to calculate the annual production and incomes of the Grand Duchy of Finland (under the Russian Tsar), for 1880, and then even compared the annual production and incomes with the other Nordic countries. According to the calculations, the Finnish incomes per capita were much behind the other countries. The concepts of the calculations were rather different, basically narrower and the results, accordingly, gave lower totals than the present historical national accounts.

After various other early constructions of national accounts in the 1920s and the 1930s, the annual official national accounts started in 1948. They were mainly based on the recommendations of the United Nations Committee formulating a common basis for the national accounts – the System of National Accounts – in the late 1940s (published in 1953).

This paper deals with the history of the construction of the Finnish historical national accounts. During my career, I worked rather much in the construction of them, actually between 1965 and 1987, although not constantly. I will also give some

examples how the constructed series changed the understanding of economic development in Finland since 1860. They actually changed that in many aspects. Similar to starting of the annual national accounts in 1948.

History of the HNA in Finland

Historical national accounts were already on the agenda of some countries in the 1950s, and also discussed in Finland. When Simon Kuznets, an early Nobel Laureate in economics, suggested in 1959 that people in national accounts in different countries start constructing historical national accounts, The Finnish team joined the group. Kuznets presented this suggestion in the meeting of *The International Association for Research in Income and Wealth,* an association of people in national statistical offices, universities and international organisations and institutions interested in developing national accounting.

The work was started in Statistics Finland 1960. An ambitious plan was drafted for the project and the work started. The plan included separate publications by industries, balance of aggregate supply and demand and a concluding publication with a complete HNA. The Bank of Finland put some money into it, but certainly not enough to do the job. The plan did not exactly meet the projected scope or the time table either. One volume did come out in 1965. Pentti Viita's Maataloustuotanto Suomessa 1860–1960 (the Historical National Accounts for Agriculture in Finland, 1860–1960) was published in 1965 by the Bank of Finland. 'Growth studies' as we call them, for several other industries were also started and nine were published in the 1970s, two industry volumes and the concluding volume as the 13th in Finnish and in English in the late 1980s.

When the Department of Economic and Social History was founded in 1966 at the University of Helsinki, it joined the growth study group. Erkki Pihkala did the study on Finland's foreign trade 1860–1917, which came out in 1970.[1] Sawmilling, an

[1] Pihkala

important old industry in Finland, got its own special study, because the source base for that was really difficult. Kai Hoffman did a profound archival study on that. Likewise the private consumption got its own special study by Eino H. Laurila at Research Institute of the Finnish Economy. Hoffman's and Laurila's studies were published by other publishers. [2]

The concluding volume, *The Finnish Economy 1860–1985. Growth and Structural Change* [3] contains gross domestic product at market prices and at factor cost as well as an almost complete balance of aggregate supply and aggregate demand.[4] Gross domestic product is shown by industries: agriculture, forestry, hunting and fishing, total industry and handicrafts (mining and quarrying, wood and paper industry, metal and engineering industries, other manufacturing, electricity, gas, water and other utilities), house construction, land and water construction, transport and communications, trade, banking and insurance, ownership of dwellings, private services, central government services and local government services. All is expressed in current prices and in volume indices.

We also have wage and salary totals and entrepreneurial incomes by industry groups, the distribution of private consumption in percentages: food, beverages, tobacco, clothing, housing and other private consumption, as well as series for gross fixed capital formation by type of capital goods, foreign trade, exports and imports, total population and finally some central price indices.

Nowadays Statistics Finland updates the tables and they are available in internet somewhat less detailed than in the original publication.[5]

There is one considerable problem in the updating of the historical series. This is the fact that national accounting is constantly changing. Due to changing structure of the

[2] Hoffman, Laurila
[3] Hjerppe
[4] We do not have data for foreign trade of services, 1860–1947.
[5] http://pxnet2.stat.fi/PXWeb/pxweb/fi/StatFin/StatFin__kan__vtp/210_vtp_tau_210.px#_ga=2.23645561.232745387.1496324431-1939228630.1477462266

economy and also better statistics there is a need to make changes into the accounting methods, concepts etc. The old society was difficult to calculate according to the concepts of the 1950s, 1960s national accounting. A researcher is in difficulty when, for example, the classification of economic activities divides farming-related activities into at least agriculture, forestry, house building, land and water construction (clearing land for cultivation) and manufacturing (production for sale of small cottage industries, tar burning). Because of structural changes, due to changes of the society and technology many industries have practically disappeared and new industries have emerged.

Slow but accelerating growth at the beginning of modernisation

Earlier economic historical research on industrialisation and beginning of economic growth, in absence of HNA, was based on narrow statistical information, often on commercial export industries, which showed high growth figures. This led the researches to draw conclusions of high growth of the total economy. With national accounts we cover the total economy, all economic transactions, the picture often becomes more balanced.

Walt W. Rostow published his book in the late 1950s and it was even quickly translated into Finnish when the research of industrialisation and economic growth really started. Rostow introduced the concept of take-off when the investment ratio rises from 5 percent to 10 percent in a relatively short period, and this launched new research with this idea in mind. Obviously there was disappointment in the air when rapid economic growth normally was not the result of the studies, but on the contrary, this rise of investments took a considerably longer time. No sudden demand or supply shock quickly appeared to change the economic development to a faster growth.

Other ways to mark the start of industrialisation was for example when in Finland well-known social scientist Heikki Waris, concluded that industrialisation started in

the 1860s because of liberal legislation, which paved the way for industrialisation.[6] Some other researchers joined him, while Eino Jutikkala, a historian, considered the early 1870s the crucial starting decade when after the French – German War a boost of timber demand contributed to foundation of large steam sawmills, and sawmill exports did jump to unprecedented growth for a few years.[7]

The new GDP series showed no sudden burst of industrialisation or a takeoff jump in the 1860s (1,8 % per year) nor in the 1870s (1,7% per year), which according to our rough estimates of the preceding decades 1820–1860 were not much higher. From the 1860s on the annual series show slightly accelerating growth to the early 1970s (Figures 1 and 2).This was cut off by shorter or longer depressions caused either by domestic or international factors or more crucial factors like the world wars of the 20th century, the Russian revolutions of 1917 and Finland's Civil War in 1918. After the slumps the economy has normally returned to fast development of catching up and convergence.

The well-known turning point to deceleration of GDP growth was the 1970s oil crises to almost the whole world.[8] Finland's economy has often suffered more than many other countries during these decelerations. Being a small open economy, international crises and big political changes like the collapse of socialism in Eastern Europe in the early 1990s affected Finland a lot as well as domestic activities. We see the downturn of Nokia, the mobile phone producer, around 2005 as a turning point as well as the inability of the economy to renew after the financial crises of 2008.

The process of gradually accelerating growth does not fit well with the old take-off or industrial revolution theories. According to these, a supply or demand shock would also require a leap in the savings and investment ratios of the economy; such

[6] Significant legislative reforms were carried out: a prohibitive order on the establishment of steam-powerd sawmills was repealed 1857, Parliament was reconvened after an extended adjournment 1863, Finland gained its own monetary unit 1860–1865, limited liability legislation was introduced in 1864, trade guilds were abolished 1859 and 1868 (and complete freedom of trade 1879 and freedom of movement of citizens in 1883). Hjerppe 1989, 19.
[7] Ikonen Valkonen Some estimates put beginning of industrialisation to the 1840s, some to the 1920s the 1930s.
[8] Schön, p. 383.

development is not likely. Because of historical national accounts we now know that economic growth starts on narrow areas; a few modern companies may start expanding. New products, machines and technologies, which improve productivity, are first taken into use in narrow sub industries, and this expands them. For the most part the economy continues along its traditional path of slow development. Gradually, new impulses spread throughout the whole economy, and the pace of technological development and innovations quickens. This results in acceleration of growth.

Much of the new growth has happened because of structural change. The new expanding industries with higher productivity increase their share in the economy while the share of traditional industries with low productivity decreases. This increases the total growth.

In Finland economic growth from 1860 to about 1900 can be called extensive growth where production increased because of inputs of new labour and machinery and other capital, but productivity growth was still modest. Around 1900 this started changing into so-called intensive growth, which is based more on rising productivity, which again is based on better technology etc.

Another primarily big change happened in the 1960s when the total labour input started gradually decreasing because of increasing education time, shorter working years and a clear change in the pension system: people started to retire at the age of 63 to 67.

We can compare Finland's economic development and level with other countries with GDP per capita in international currency[9] with Maddison's data until 1998 and Eurostat since (Figures 3a and 3b). In 1900 Finland was about 40 percent behind 15 European Union countries (15 mainly western European members in 1995), and 25 percent behind Sweden, and the gap to Sweden was widening up to WWI, because of faster growth in Sweden. Finland's standing to Sweden fluctuated around -25 percent

[9] Geary-Khamis fixed prices with purchasing power parities used by Angus Maddison.

from the 1920s to the 1970, but was catching up to Western Europe, with some exceptions. Since 1970, the average GDP per capita in Finland and Western Europe has been about the same, and Finland has clearly converged to Sweden.

Structural change

With economic growth, typically, the production structure as well as many other basic structures of the economy start changing. The normal development is a declining primary production, particularly agriculture, growing manufacturing and gradually also growing services. In a mature phase, primary industries have a very small share, 1–2 percentages, in the western countries and services are the biggest industries. The Finnish HNA brought some surprises in that too.

In Finland the primary industries, agriculture, forestry, hunting and fishing were naturally very big, also because of the large forestry in the beginning of this examination. Before HNA we had statistics about the population, and this showed that in the 1860s four fifths of the economically active population was in the primary industries. Services again had a small share, fewer than 10 percent.

In the HNA we calculated both the employment (employees and entrepreneurs) of the economy and the value added shares (Figure 4 and 5). Comparing these gave interesting results. In the 1860s, 80 percent of the economically active population was in primary industries. But the share of value added of the total GDP was clearly less than the employment share, little over 60 percent. This was simply due to the very low productivity of labour in agriculture and forestry. The 19th century agriculture and forestry in Finland were very traditional, primitive and labour intensive production, much of them being used for own consumption and use only. The share of market production was very low in these. Also the productivity of grain growing was low because of the cold climate and the short growing season.

The second surprise was the relatively high share of value added in services in total GDP compared to employment. It has actually been higher than the share of

secondary production, i.e. manufacturing and construction almost all the time 1860–2015. This was higher than in some other earlier industrialising countries.[10] The reason for that turned out to be, firstly, the estimated fairly high income from ownership of dwellings, and secondly, the high average wages and salaries in services from the 1860s at least until the fierce inflation during WWI as well as WWII continued to bring down the relative productivity. Since WWII the relative productivity has been pretty much the same as in secondary industries.[11]

Who were the early highly paid employees and entrepreneurs in services? There were naturally low-waged servants in the mainly urban and better off households, but much of the economically active people were entrepreneurs in businesses like in private trade (the merchant houses), ship-owners and officers in transport, owners of hotels and restaurants, or educated people like medical doctors, teachers, clergy, lawyers, bank clerks, and civil servants in government services.

The nature of services started to change only in the 1920s, when the growth of employment started to move towards less educated assisting personal. More nurses and secretaries. More women with lower wages into government services, railroads, post offices, banks, schools. More shop assistants, waiters and waitresses etc.

Both primary and secondary industries had very few people earning high entrepreneurial incomes or wages, mostly owners and managers of large farms or manufacturing companies.

But on the other hand, this result could partly be due to a systematic error because the poor source material for private services or possibly other errors in the results. In services we have fairly good estimates of many groups of employees and their wages and salaries, but there are also sub industries were considerable estimations had to made about the level and variation of employment for example in business cycles.

[10] Hartwell
[11] Arto Kokkinen, Jukka Jalava, Riitta Hjerppe and Matti Hannikainen, Catching up in Europe: Finland's Convergence with Sweden and the EU15. Scandinavian Economic History Review 2007/2.

And finally, we had to roughly extrapolate estimates for operating surplus and consumption of capital from the 1860s to the 1940s as there was no direct information available.

If the value added of production of private services has been estimated too high, this means that the total GDP is too high for the earlier period, and accordingly, economic growth has a actually been somewhat faster. Here obviously more research could be needed.

Other crucial structures: capital formation and foreign trade

We certainly did not know about the earlier investment rate or foreign trade ratios in relation to the GDP either.

Investment rate followed logically the accelerated growth of GDP. The early time until WWI shows rather low investment rate between 10 and 20 percent, which varies with business cycles. In the interwar period investment rate jumped to a higher average level of about 15 percent, but was disturbed badly by the 1930s great depression and WWII (Figure 7).

After WWII the investment rate jumped again to an even internationally high level between 20 and almost 30 percent. This continued until the 1980s, and only the 1990s depression lowered the investment rate. On the other hand, the lower investment rate is possibly partly due to lower relative prices of investment goods.

The very high investment rate of the after-was period was accomplished as part of economic policy which forced the country into high public savings and high investments from the late 1940s on.

Later on this economic policy was criticized particularly by Matti Pohjola in a book "Tehoton pääoma" (The ineffective capital), where argues that the lavish public support to investments did not lead into such fast economic growth as was expected.

x x x

The Finnish researchers clearly understood that Finland as a small economy had a lot of exports and imports of goods (we were not able to estimate the annual service exports and imports before 1948), but the HNA, however, brought a surprise how much exports and imports there were even in the pre-WWI time. This result clearly showed the openness of the economy in an early stage (Figure 8).

On the other hand, the large difference between export rate and import rate has given us much pondering the obvious importance of the role of selling services in foreign trade. We have rough estimates of the 1860–1913 exports of services: much of the services trade was due to Finland's autonomic position in the Russian empire. In the 1860s and 1870s the Russian army garrisons were placed and built in the most important towns. The costs were paid by the Russian state. Also the shipping incomes from foreign trade were positive.[12]

From the 1880s on, these items lost some of their significance and were replaced by financial transfers from emigrants and incomes from the Russian villa settlements on the Karelian Isthmus in South-eastern Finland, which were rising. According to estimates, about 100 000 Russians spent summers in South-eastern Finland on the Carelian isthmus. When noble rich Russian families spent their summer in Finland they moved to a fairly big villa with household servants and continued their extravagant life, for the good of the local society.

Not all of the unbalance of trade balance was covered by service exports, and the balance of payments was balanced by foreign borrowing. Fortunately, foreign borrowing did not grow into unbearable levels and could be handled when the economy was normally growing.

The high role of exports particularly between the 1860s and WWI was actually surprising because the economy was still very traditional, and the commercial,

[12] Pihkala 1970a (Hjerppe engl, 154).

marketed share of production was significantly low. Consequently, a surprisingly high share of the market production was actually exported.[13]

The high average share of exports and imports of goods continued until WW2. After that it took until the late 1970s before trade shares in Finland reached the preWW2 levels and gradually rose considerably, as international trade was long hindered by various trade limitations, high customs duties and other restrictions. Only gradually from the 1950s on, various European and world integration processes opened trade relations and, accordingly, expanded world trade enormously.

One rather unknown factor in the economy was the clear improvement of the terms of trade of the foreign trade. The index of terms of trade doubled from 1860 to early 1900s because during industrialisation in Western Europe prices of new consumer goods, particularly grain, and capital goods were decreasing but Finnish export prices were gradually increasing (Figure 9).[14]

The other period of considerable improvement of terms of trade was the period after 1945 to the middle of the 1950s.[15] Then the structural change of the Finnish exports to more processed goods, paper and new rise of ships and metal industry products, as well as the Korean War boom contributed to the growth.

During the after-WWII period devaluations corrected the terms of trade several times when relative foreign trade prices have fluctuated in world trade. Since the 1970s the Finnish terms of trade was shaken up and down like a roller-coaster – when with changing oil prices, rise and fall of Nokia phones, dot.com turbulences, financial crises etc.

The favourable development of the terms of trade definitely helped the economy in convergence by increasing the Finnish purchasing power.

[13] Heikkinen, Hjerppe
[14] Pihkala, Foreign trade, 63.
[15] Hjerppe 1989, 261.

Conclusions

HNA clarified several aspects in Finland's economic development over the long run. Long statistical series of production by industries, aggregate supply and aggregate demand annually gave us the possibility to observe fundamental economic relations and structural changes in the economy.

Overall, Historical National Accounts in all countries, where they have been constructed, have made tremendous contributions to our understanding the economic development in several countries and their relationships to the outside world. We can be thankful to the developers of the conceptual framework of the national accounts.

It was successfully used by the big group of researchers in the field. Professor Angus used to invite us "chiffrephiles" to workshops to discuss the common problems to fill the vast holes in our understanding of our path till today.

Figures.

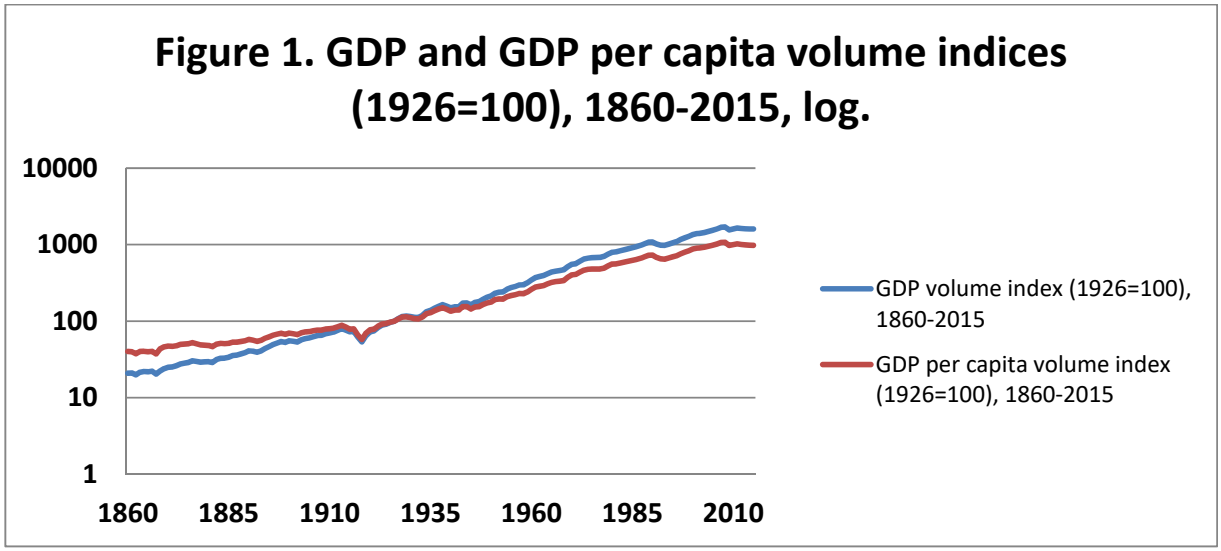


Figure 2. GDP and GDP per capita growth at time time intervals, 1860-2015, %/y.

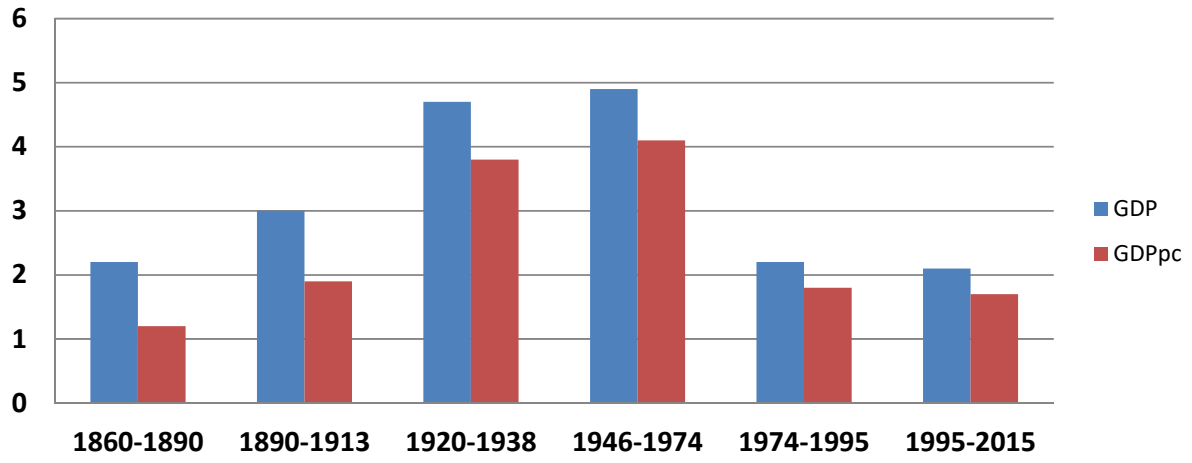


Figure 3a. Finland's, Sweden's and EU-15/18 real GDP per capita in Geary Khamis 1990 US$ and PPPs, 1900-2015.

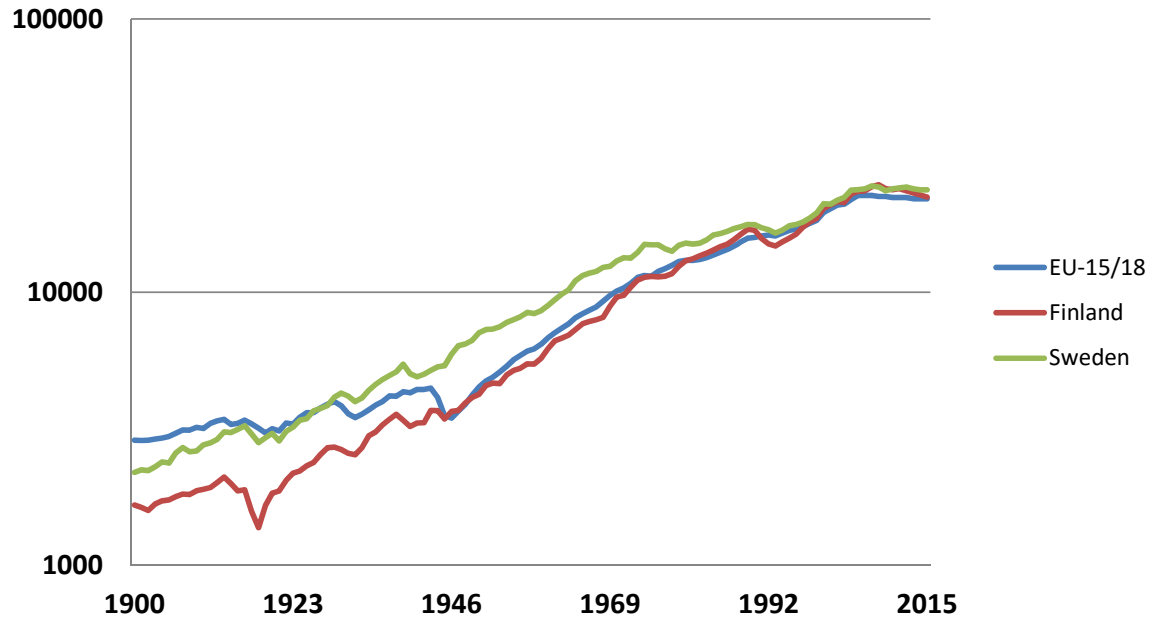


Figure 3b. Finland's real GDP per capita in relation to EU-15/EU-18 and Sweden, 1900-2015, %.

Line 100 if they are equal.

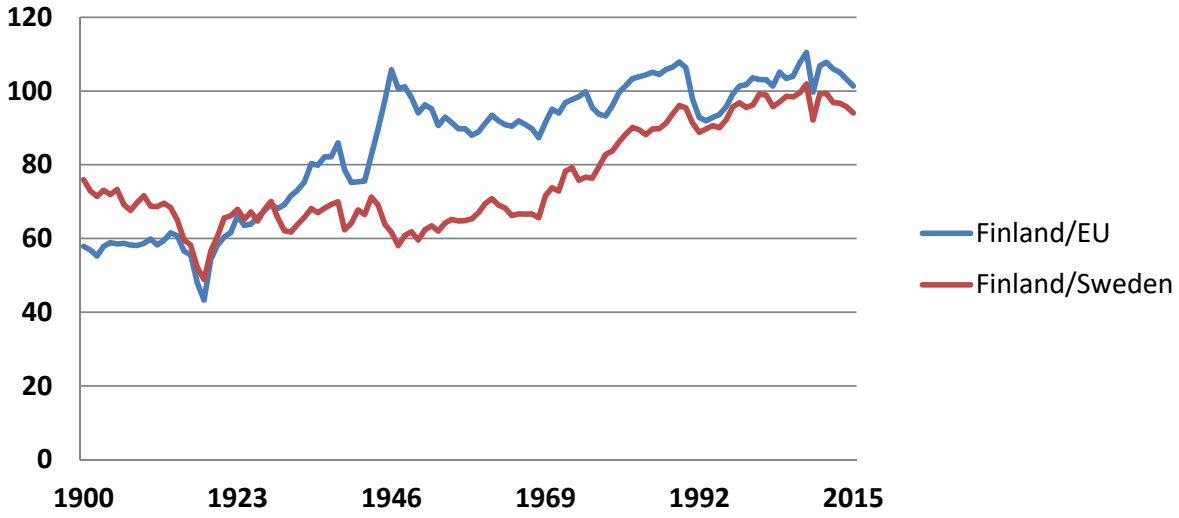


Figure 3 Shares of primary, secondary and service industries in GDP, 1860-2015, %.

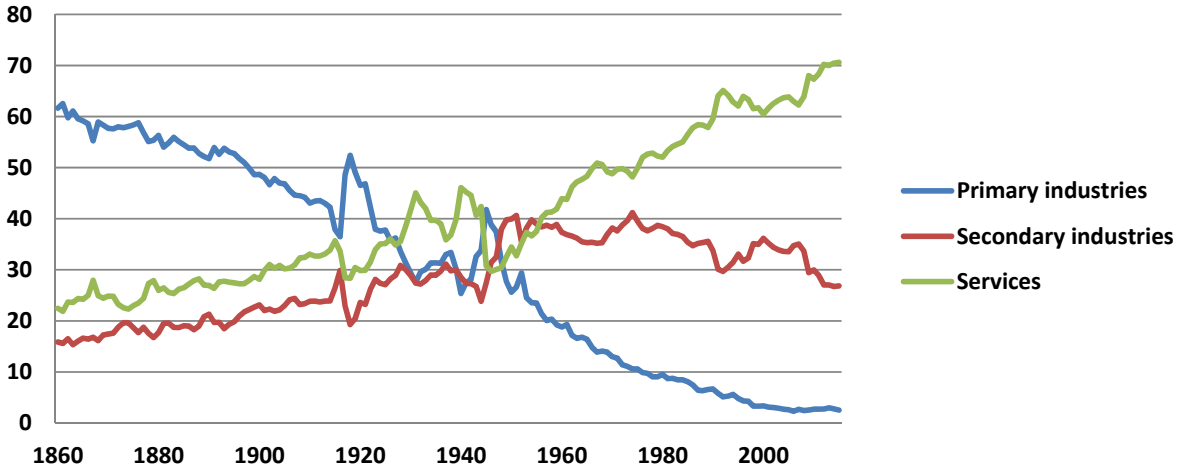


Figure 5. Shares of employment in primary, secondary and service industries in GDP, 1860-2015, %.

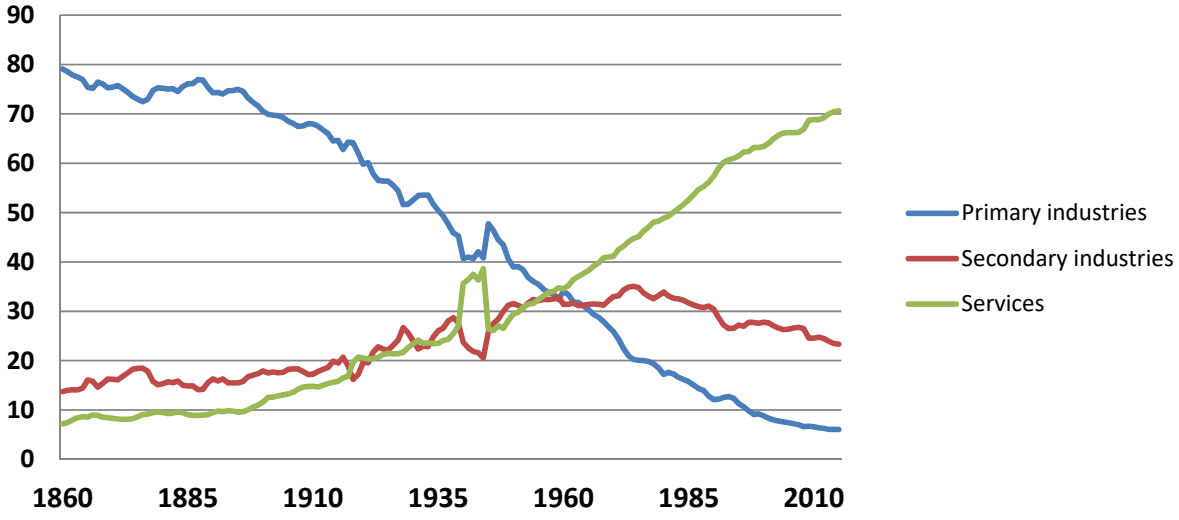


Figure 6. Relative productivity of labour in primary, secondary and service industries (share of value added/share of employment), 1860-2015.

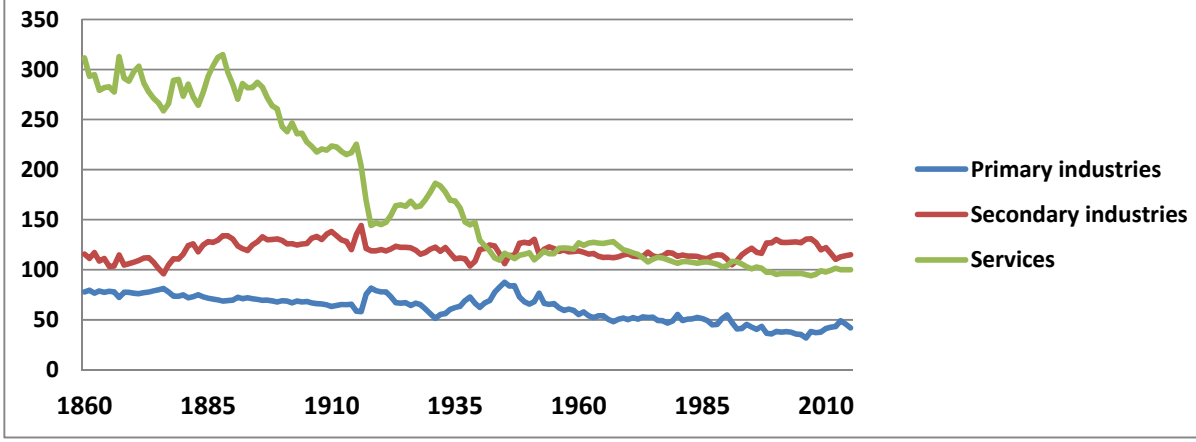


Figure 7. Investment rate 1860-2015

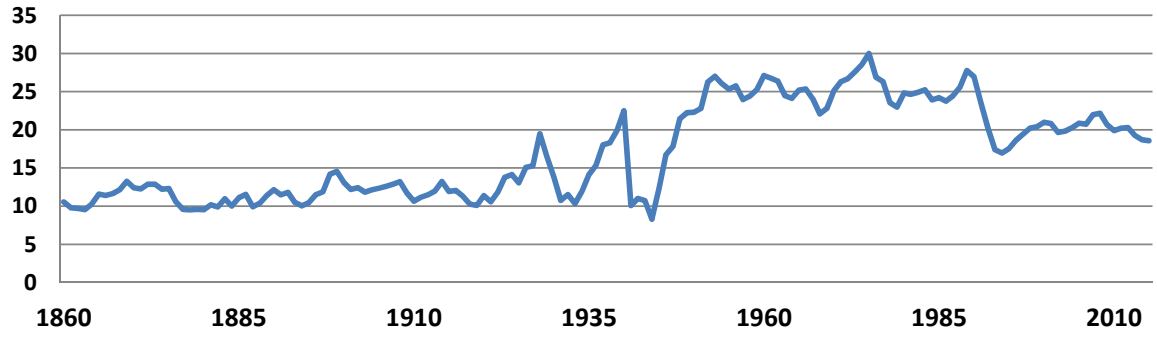


Figure 8. Imports and exports of goods in relation to GDP, 1860-2015, %.

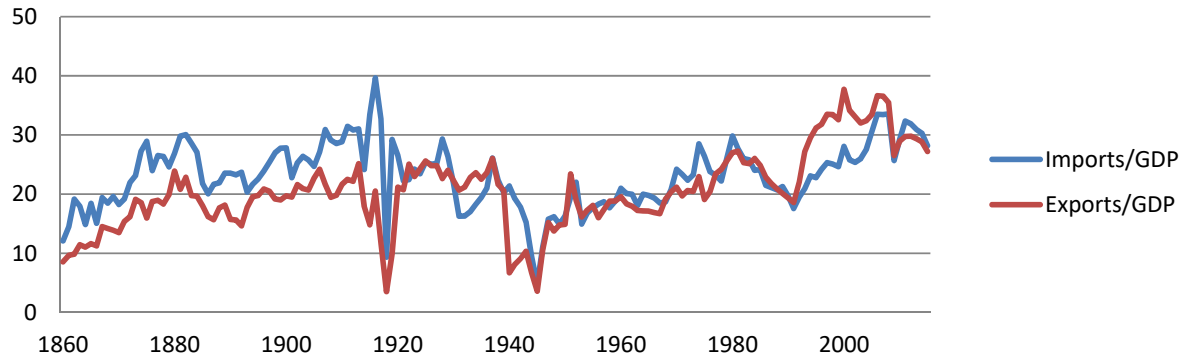


Figure 9. TERMS OF TRADE, 1865-2015, 1926=100.

