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Modern Finnish Economic History

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Introduction

Finland's economic history features centuries of being a part of larger states, namely Sweden and Russia, and since 1917 a century of independence, with rapid economic, social, and political changes. During the centuries of being a part of Sweden, before the 19th century, Finland caught up to, by and large, to more affluent parts of the realm, yet Finland was a rather poor agricultural region between the East and the West. The long 19th century, under Russian rule, Finland slowly developed into an actual state, which however industrialized very slowly and fell behind its Nordic neighbors in terms of living standard. Yet, Finland was able to develop its own institutions in the latter part of the 19th century, which strengthened its path towards statehood. In the long 20th century, which featured conflicts that often involved Finland as well as Cold War, Finland started to catch up to leading Western, as well as Nordic, economies, and it was able to transition towards a welfare society with high levels of human capital and equality. Finland in the 2020s encompasses both the strengths and weaknesses of modern Western economies: high living standards, plenty of human and other types of capital, high levels of happiness and belief in the societal institutions; yet, also, an aging population, productivity slowdown, as well as social and political challenges arising from globalization for a small, export-oriented state.

In this chapter, we will compare Finland's economic and social structures to various societies over several centuries, namely based on demographic changes, gross domestic product (GDP), and wages. In addition, we will discuss the long-run development of human capital, institutions, and other socio-economic factors. Our chapter builds on the joint work we have engaged in the last ten years to expand long-run data series concerning the Finnish economic history¹. This type of data is now slowly coming together, for example in terms of expanding the GDP series to cover several centuries before 1860. Moreover, the use of these types of historical comparative indicators is always somewhat problematic, given the differences in the available statistical and other types of sources.² The newer historical research into Finland's past centuries has shown that it has always been situated between East and West via regional and global trade as well as other social, cultural, and political connections. Furthermore, Finland has become an interesting object of study due to its fast structural transformation into a service sector dominated society, with its vibrant industrial sector and even global dominance in some areas (Nokia, forestry industry, gaming and IT sector), exceptionally well-functioning education system (Pisa test results), and its welfare state. These processes, however, has not been a linear process, rather it has had its ups and downs, and the roots of these phenomena can be found in centuries of history. The Covid-19 pandemic has also shown

¹ See especially Eloranta and Ojala 2018, which builds upon largely the same data and narrative as this article.

² van Zanden et al. 2014, 27–30.

the Finnish society to be capable of handling crises, even when compared to its Nordic neighbors. All of these factors make long-run Finnish economic history a compelling story.

Here we want to place a strong emphasis on the need to engage in comparisons in order to understand the Finnish development processes, and in particular we wish to place Finland in the context of global socio-economic changes and globalization waves.³ The importance of regional and global connections have become a bigger focus in the research, as the domestic markets in Finland were for a long time rather undeveloped and certain key transitions that occurred in Northwestern Europe like the so-called industrious revolution took place quite late in Finland.⁴ Moreover, comparisons with its neighboring states like Sweden provide further perspective on what aspects of the Finnish story are unique and what are common to the region, for example various types of institutions or seafaring competition.⁵

In the following, we will first analyze long-run demographic trends, to be followed by examination of patterns of economic growth, and structural changes over time. We will conclude our chapter by contemplating on the main results and what the Finnish story can offer to the analysis of modern economies. In addition, we will discuss what still needs to be explored by scholars in the future.

Demographic Trends

Economic activity in its various forms is aimed at satisfying the physical and social needs of people, which can manifest via demographic changes and patterns. Thus, being able to produce credible data on demographic trends is vital in order to understand the economic development of a society. In this regard, Finland has always had a small population: recent estimates show that during the 17th century the population never reached even half a million and was constantly affected by different kinds of shocks up until the last severe famine during the 1860s⁶. Respectively, the population of the world increased from one to seven billion from the beginning of the 19th to the early 21st century, whereas Finland's population grew from one million to a little over five million. Finland's population actually grew faster than that of Western Europe during this period, and even faster than the world's until after the Second World War. (Figure 1) This population growth was mainly influenced by the declining mortality and increasing birth rates, which in turn were arose from increased food supply, health, hygiene, education, and many other factors. This population growth has had similar effects in Finland as elsewhere in the developed world, namely in the age structure of the population, labor supply, women's rights, and welfare state creation. Today's Finland thus faces the aging of the population as a major challenge. In fact, Finland in the 21st century had, for the first time ever, more people over 65 years of age than those

³ See e.g. Kocka 2003 – on comparative methods, see e.g. Osinsky and Eloranta 2015.

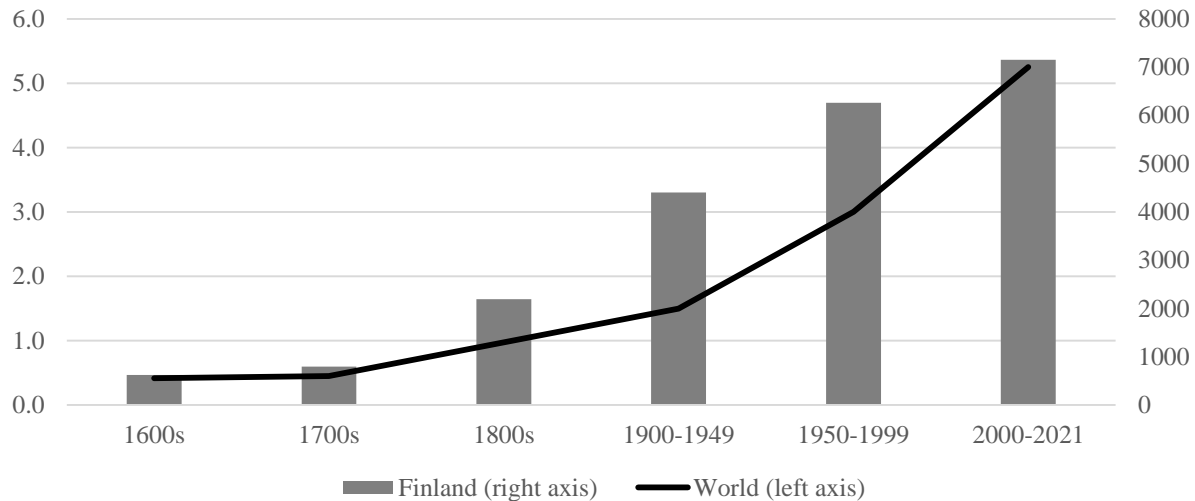
⁴ de Vries 1994, 2008; O'Brien 2006; Hemminki 2014; Uotila 2014.

⁵ Ojala and Kaukiainen 2012.

⁶ Voutilainen et al. 2020.

that are under 15. Therefore, demographic growth is no longer a factor in the economic growth of the country.

Figure 1. Finnish and World Population from the 1600s to 2020s (Millions)



Note: Finnish population data comprises the years 1647 to 2021 (century averages), world population from the Maddison figures and from the UN.

Sources: *The Maddison Project*: <http://www.ggdgc.net/maddison/maddison-project/home.htm>, Bolt and van Zanden 2014; *United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects, the 2015 Revision*: <http://esa.un.org/unpd/wpp/>. (retrieved June 23, 2021); Voutilainen et al. 2020.

Finland's population growth from the mid-18th century until today has been fairly stable, with the exception of a few major crises, namely the famine of the 1860s, the Civil War of 1918, and the world wars. For example, compared to Norway, the growth of the Finnish population was quite fast after the 1860s. In turn, Sweden's population grew even faster than Finland's, especially in the 20th century, although Finland has clearly caught up again by the early 21st century, in relative terms. These patterns have also been influenced by flows of immigration and emigration. For larger European nations, the world wars were massive demographic and economic shocks. In the First World War, more than 30 countries fought each other, causing over 20 million premature deaths. The Second World War was even more devastating, with over 60 countries participating and over 55 million deaths.⁷ "Finnish war deaths 1914-1922" -project has identified nearly 40,000 Finns to have died during the First World War and its aftermath – over 90 per cent of these occurred during the Civil War of 1918 and its repercussions. In turn, 95,000 Finns died during the Second World War in 1939-1945.⁸ The proportion of Finns during both world wars was about the same,

⁷ Broadberry and Harrison 2005.

⁸ *Suomen sotasurmat 1914–1922* as well as *Suomen sodissa 1939-1945 menehtyneet*, Kansallisarkisto (=National Archive): <http://vesta.narc.fi/cgi-bin/db2www/sotasurmaetusivu/main>. (Cited 30.9.2015).

circa 0.2 per cent, whereas the Second World War caused a clearly larger demographic shock as Finland lost 2.6 per of its population.

Finnish population growth will, based on estimates, cease in the 2020s, whereas for example Sweden's population will continue to increase in the coming decades. This is a typical development pattern among mature Western economies in the 21st century. In many European countries the populations have already begun to decline. In Finland, the population structure was particularly suited for economic growth from the 1950s to the 1990s. The share of working age population was relatively high during that period. After that, this share has declined substantially, with clear implications for the labor supply, pension system, and the welfare state. In addition, the increased pressure by certain interest groups for more immigration has resulted in political tensions in the Finnish society.⁹ In fact, immigration and emigration have been substantial even during the post-Second War period in all of the Nordic countries. Typically, immigrants are younger than the aggregate population, which provides help with the aforementioned problems. On the other hand, the Nordic societies and Finland in particular have not been able to absorb easily larger numbers of refugees, like during the 2015 larger influx of people escaping the violence in the Middle East and Northern Africa, which have presented these societies with increased challenges in terms of providing adequate services and employment.

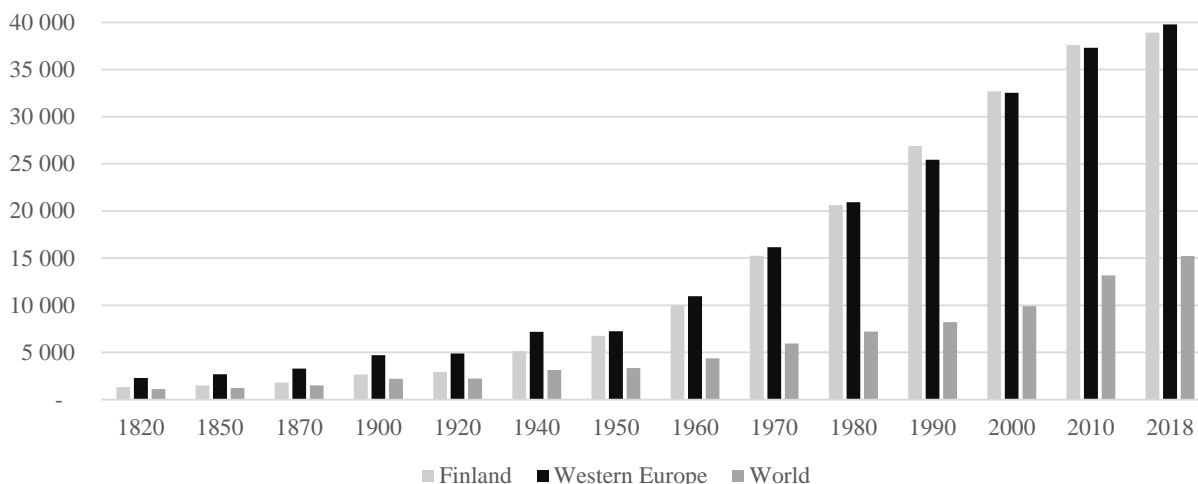
Measures of Economic Growth

GDP (per capita) is the most commonly used indicator to measure economic growth, although it has been criticized plenty as well.¹⁰ One of the key points of criticism focuses on the fact that GDP only provides information about economic activity, not the ethical foundations or impacts of it, let alone examine the effects on income or wealth distribution or the environment. Regardless, GDP (per capita) is the most obvious way of demonstrating aggregate economic changes over time, which is why it has been used prolifically in economic history analyses. GDP, relative of the population, also gives a better sense of the overall resources available in a society that may have a large population. In many countries, like Great Britain, the GDP has been estimated almost a thousand years into the past, similar to for example Sweden (until 1300). For Finland, for a long time we have not had similar data series, yet now we have robust estimates of demographic growth and early estimates of economic growth over the last 400 years.

Figure 2. GDP per Capita in Certain Cross-cutting Years 1820 –2018, Finland, Western Europe, and the World (Real GDP in 2011\$)

⁹ Hannikainen 2018.

¹⁰ Stiglitz et al.2010.

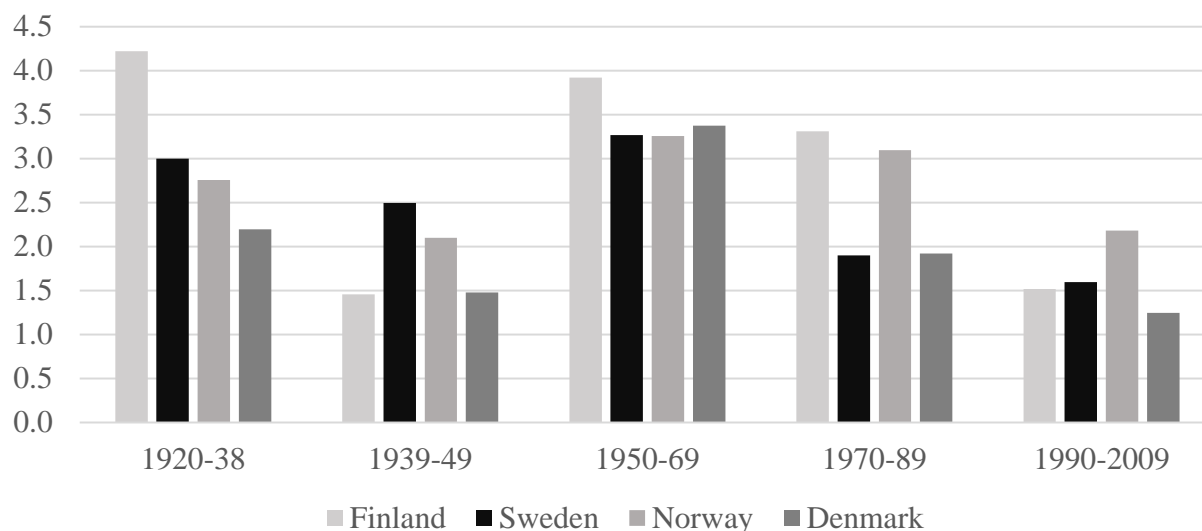


Sources: The Maddison database <https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020> (retrieved June 23, 2021); Bolt and van Zanden 2014 and 2020; Maddison 2001 and 2007.

Finland has for a long time been mentioned as a case of late industrialization and a prime example of a catch-up process, whose real GDP per capita caught up to the richest nations in the world until in the last few decades. The aggregate global production increased by 70-fold during the last 200 years, and it increased even by ten-fold in per capita terms. At first, this led to an increased gap between the living standards of the West and the rest, until the 1950s, and then to a rapid decrease of the gap with the industrialization and economic growth of China, India, and other parts of Asia.¹¹ Finland moved from the group of the poorest nations in the world to the richest group in the last 200 years. Finland's real GDP per capita has grown faster than the world's or Western Europe's during the same period, which is partly based on the catch-up process. Moreover, Finland rarely experienced negative economic growth after the Second World War, with the exception of the 1990s recession. In the 21st century, Finland's economic growth rates have been more modest, and the country was falling behind from the Western European average growth figures. (Figure 2)

Figure 3. Average GDP Growth Rates in Finland, Sweden, Denmark, and Norway, 1920–2009 (%)

¹¹ Van Zanden et al. 2014, 32.

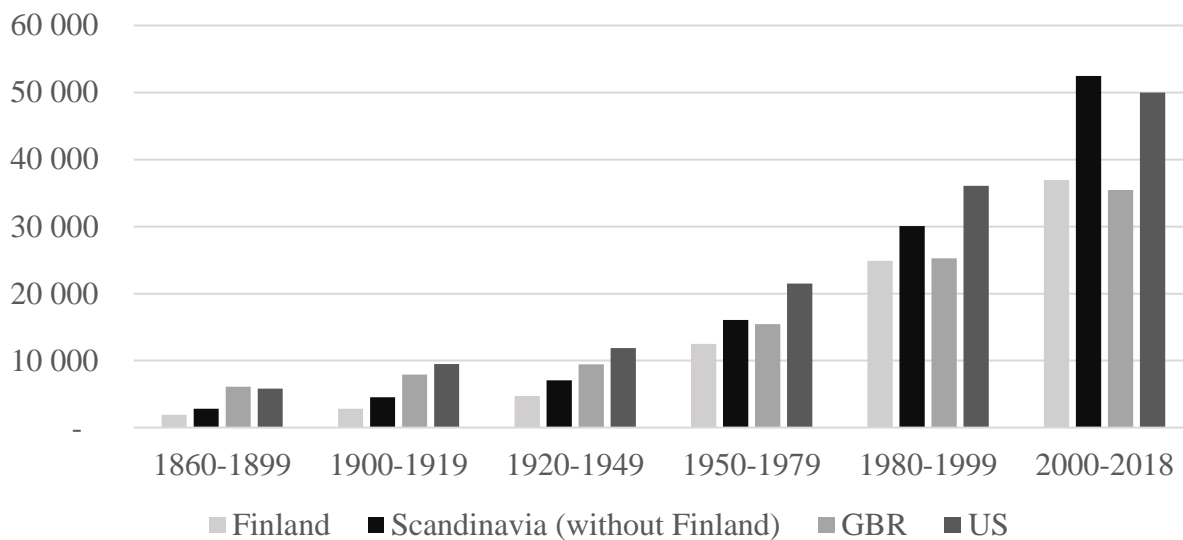


Source: Bolt and van Zanden 2014; Eloranta and Ojala 2018.

Finland's GDP per capita, at least based on early estimates, was only slightly behind that of Sweden or Norway in the beginning of the 19th century. Denmark was clearly ahead of the other Nordic states at that point, similar to Norway's position in the 21st century. Finland, by and large, stagnated in the 19th century, due to slow industrialization, limited state capacity, and material vulnerabilities of the society in food production, as well as faster demographic development than elsewhere in Europe. By the First World War, however, Finland was clearly behind its Nordic neighbors, although also Norway had fallen behind Sweden. Since that period, the Nordic countries converged among each other in terms of economic growth, at least until the late 20th century, with Norway pulling ahead. Finland's average growth trends exceeded those of its Nordic neighbors during the 1920–1930s and the 1950s–1960s, as witnessed in Figure 3. The Second World War and the 1990s recession, though, hit Finland hard, which impacted the economic growth trend. Finland's real GDP per capita caught up to Sweden in 2008 momentarily, but since then Sweden's economy has performed better. Finland's economic slowdown since 2013 also applies in comparative terms to the other Nordic states.

If we compare Finland's real GDP per capita to Nordic countries, UK and the US (Figure 4), we can see that though the high growth figures have converged Finland with its Nordic neighbors and the US, the country was still in the early 2000s in the process of catching up. The high figures of Nordic countries, though, can partly be explained with the exceptionally high growth rate of Norway. Nevertheless, Finland did catch up to the United Kingdom already by the 1980s.

Figure 4. Convergence of Finnish and Scandinavian Economies to the United Kingdom and the USA (Real GDP in 2011\$)

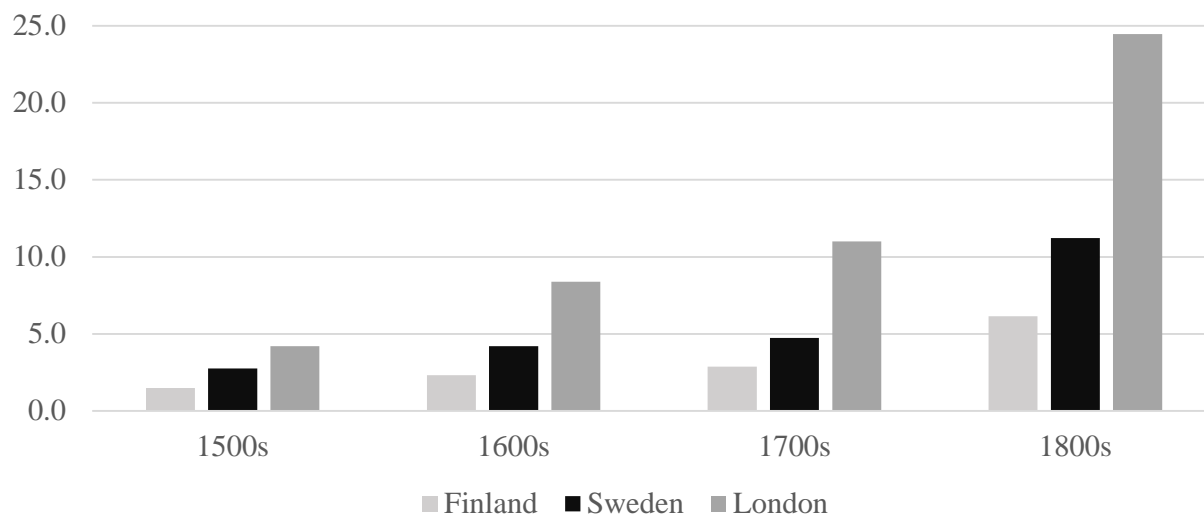


Sources: The Maddison database <https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020> (retrieved June 23, 2021); Bolt and van Zanden 2014 and 2020; Maddison 2001 and 2007.

Note: Scandinavia in this figure includes Sweden, Denmark, and Norway.

While the compilation of the GDP figures for the earlier centuries is still underway, we can get some sense of the longer-term patterns with the use of wages, in this case nominal wages converted into silver values (due to still limited price data). In the 20th century, Finnish real wages, like real GDP per capita, converged with Western Europe, albeit somewhat late. In general, labor costs were rather low until the 1970s, which was also reflected in the production structures. Finland's real wage levels converged more clearly to Western levels after that, which also enable Finland to catch up to Swedish living standards in the late 20th century. Since then, the cost of labor in Finland has been comparatively high, which has caused difficulties in a globalizing world.

Figure 5. Average Nominal Silver Wages in Finland, Sweden, and London, 1541–1899 (Grams of Silver per Day)



Sources: Söderberg 2011; Eloranta and Ojala 2018. Calculation for Finland based on the data compiled by Ilkka Nummela.

The silver wages of Finnish and Swedish urban workers were fairly similar in the early modern period, and they converged in the 18th century in particular. During the early 19th century, Finland's economy stagnated, which can be seen in the development of the wages as well. While Finland's economy experienced some positive developments - such as increasing volume of foreign trade, some modest industrialization, increasing handicrafts production, as well as more consumption - overall its economy was constrained under Russian rule and its restrictive imperial economic policies.¹² In the latter half of the 19th century, economic growth picked up only modestly. The societal structures were still frail and unable to cope with shocks such as the Crimean War in the 1850s and the famine in the 1860s.¹³ The economic liberalization and the creation of new institutions helped strengthen the economy by the end of the century, which was based on industrialization, increased domestic demand, and growth of exports. Yet, Finland remained an agrarian nation, which limited the growth of wages as well. Inequality also increased in this period, similar to other parts of Europe and the US. Moreover, wage work increased in the economy in this period too.

Finland's development appears slightly different, when we compare it to the rest of Europe in the early modern and modern period, based on nominal silver wages. (Figure 5) European wages increased faster than in Finland in the early modern period, which is not that uncommon for the period. Northwestern Europe started to pull ahead at this time, resulting in the so-called Little Divergence. In general, the differences between the European cities grew at this time, as did the differences between North and South Europe. Finnish silver wages reached the European average level in the 18th century, only to diverge again during the 19th century stagnation. European silver

¹² Schybergson 1973, Kaukiainen 2006.

¹³ Nikula 1948; von Bonsdorff 1956; Voutilainen 2015; Pitkänen 1993; Häkkinen 1991.

and real wages started to converge again during the late 19th century, which is also when Finland's wages began to catch up to them. Moreover, in some sectors, such as the wages of Swedish-Finnish seamen, the wages were internationally competitive during most of the 19th century. The latter part of the 19th century was also period of intensifying globalization, and the volume of Finland's foreign trade increased ten-fold in 1860-1914. Similarly, the earnings of the poorest and unskilled workers in Finland increased substantially at this time.¹⁴

Of course, there were large regional differences in levels of development within Finland, in the past centuries as there are today. Moreover, the differences between towns and rural areas were substantial. In comparisons with other parts of Europe, the development of Finland was in many ways similar to parts of Eastern Europe like Krakow and Warsaw in the early modern period. For example, Leipzig's real wage levels were higher in the 17th century, yet Finland caught up to them in the 18th century. And, as other comparisons have shown, Finland fell behind in the 19th century in terms of real wages. Finland resembled Eastern and Southern European economic development patterns for most of the 19th century, until it diverged in the early 20th century.¹⁵

Structural Change

Pre-industrial societies were agrarian societies almost constantly at the brink of subsistence, and some of them have been hypothesized to have been caught in the so-called Malthusian Trap.¹⁶ Economic historians have debated about the validity of this model, but clearly some European societies were constrained by their demographic patterns in the early modern period, until the Industrial Revolution changed these societies profoundly.¹⁷ As Simon Kuznets pointed out, structural change is one of the components typically posited to be a part of the formative process of modern economic growth. As such, Finland is a great example of the impact of structural change, given its historical development patterns.¹⁸ (Figure 6)

Figure 6. Structural Change of the Finnish Economy, 1860–2020 (Per Cent Share of Employment by Sector)

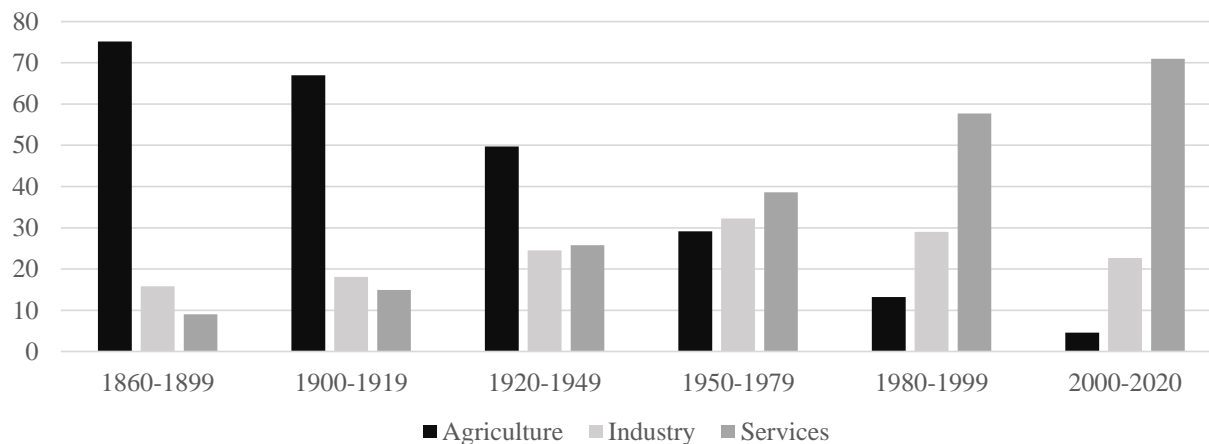
¹⁴ Maddison 1995; Williamson ja O'Rourke 1999; O'Rourke ja Williamson 2002; Kaukiainen 2006.

¹⁵ Eloranta and Ojala 2018.

¹⁶ Ojala and Nummela 2006; Clark 2008, Persson 1999.

¹⁷ Voutilainen 2015.

¹⁸ Kuznets 1972.



Sources: Hjerppe 1988; 1996; www.stat.fi (Retrieved June 23, 2021).

The big picture of Finland's structural change is quite clear since the 1860s. Industrialization began rather late in the 19th century, despite some early signs in the 1840s. However, industrialization really picked up speed in the 1930s and after the Second World War. In comparison, the industrialization process in Sweden began substantially earlier and more intensely than in Finland. On the other hand, both in Finland and Sweden the service sector grew almost simultaneously with the secondary sector, albeit earlier in the case of Sweden. This was a pattern common to all of the Nordic countries. The main turning points accelerating the structural change in Finland in the 20th century included the world wars, the 1960s emigration, the 1990s recession and European integration process, and the second globalization wave of the late 20th century.¹⁹

In the beginning of the 19th century, 90 per cent of the labor force was engaged in agriculture, and even in the 1870s the share was 75 per cent – respectively, less than half of the labor force was engaged in primary production in Western Europe. By 1910, the West-European share had dropped to 46, while it was around 70 per cent in Finland.²⁰ Consequently, the economic importance of agriculture remained high until the Second World War, and Finland urbanized at a slower pace than most parts of Europe. There were many towns in Finland, but they were small and dependent on the surrounding countryside for food products. In fact, the first industrial communities were established in the countryside, near the source of power and access, namely water. Subsequently, in the beginning of the 1950s only a third of Finns lived in towns, and even in the beginning of the 21st century a third of Finns lived in the countryside, albeit in smaller urban-like centers. Comparatively, in Great Britain half of the population lived in towns or cities in 1850, and by 1950 this share was already 80 per cent. Finland's urbanization was, however, similarly slow as in Sweden.

¹⁹ See e.g. Blomberg et al. 2002; Jónsson ja Stefánsson 2013.

²⁰ Ojala and Nummela 2006.

The growth of agriculture in Finland until the mid-20th century occurred by increasing the inputs into the production process, namely by increasing the amount of land under cultivation and utilizing the growing labor inputs on the farms. The number of farms increased until the period after the Second World War, and it mostly comprised of smaller-sized farms. This development pattern differs from most Western European nations, as well as the other Nordic states. For the same reason, the structural change in Finnish agriculture was particularly abrupt since the 1970s. This has led to the formation of larger farms and substantial increases in productivity. At the same time, the share of population engaged in primary production has fallen from 80 per cent in the 19th century to four per cent in the 21st century.²¹

Finland industrialized, albeit slowly, in the 19th century, and the number of industrial workers surpassed the number of handicrafts laborers in the 1860s. Textile industry, similar to other parts of Europe, was the first industrial growth area with the spread of the steam engine. The forestry industry was, however, the largest growth sector, even though the metal industry at times even surpassed it in the 19th century.²² There was industrial production in some form even before these early form, namely in tar production that was important for the shipbuilding industry in the early modern era. Moreover, water-powered sawmills were quite effective industrial units in their time, and ironworks of the early modern period formed substantial economic centers in their regions.²³ Overall, Finland was well behind Western Europe in industrialization. Most of the Finnish industrialization in fact took place during the so-called Second Industrial Revolution from the 1860s to the First World War. From this time period on, the forestry industry maintained its position as the largest industrial sector until the 1990s, even if it experienced several structural changes in terms of technologies, markets, and products. The post-Second World War period was a growth period for the Finnish industrial sector, which resulted in the formation of business clusters featuring shipbuilding, metal production, as well as planning services. The forestry industry has been vital for Finland's export-oriented economy, yet Finland's share of the global forestry industrial production was less than two per cent in 1908 and below 4 per cent in the beginning of the 21st century.²⁴ After the Second World War Finland's industrial growth has been around the European average until the Oil Crises of the 1970s. Since then, the very structure of Finnish industry has changed to favor large multinational corporations and new growth sectors like the mobile phone production, the IT sector, and the gaming industry. Overall, however, Finland has experienced de-industrialization like most European nations since the 1970s, and this process is still going on.²⁵

²¹ Ojala and Nummela 2006.

²² Hjerpe 1988.

²³ Ahvenainen 1984; Kuisma 1993; Ojala and Karonen 2006.

²⁴ Ojala et al. 2012.

²⁵ Haapala 2009.

Like some other late-industrializing nations, Finland transitioned from an agrarian economy to a service-sector-dominated economy fairly quickly.²⁶ The share of services of the GDP was, however, fairly high already early in the 20th century compared to many of its neighboring nations. The strongest period of growth for the Finnish service sector took place in the 1950s and the 1960s, which led to faster growth than in Sweden.²⁷ In addition to private sector services, the growth of the welfare state accelerated the expansion of services in Finland. Since the 1960s, Finland experienced fast movement of people to urban centers and this increased the demand for services in the areas of social services and healthcare, along with education at various levels. This growth of services has only accelerated in the 21st century. By 2014, Finland had more or less caught up with Sweden, and it was clearly ahead of for example Norway and Estonia.

The impact of private and public services on the aggregate Finnish economy was particularly great during 1960-1990, even double compared to the earlier periods. All sectors of services increased their relative shares. This growth trend continued to the 21st century, when the service sector's share of the GDP rose to near 70 per cent. In the 21st century, the growth of public services has halted, contrary to what has happened in private services.

Finnish Modern Economic History in Retrospective

Finland emerged from being a rather poor, peripheral, and agrarian country to becoming a prosperous and highly educated country from the mid-19th century until the turn of the millennium. This development path encompassed a lot of similarities with other Nordic countries, though there are also striking differences. Even though the Finnish industrialization emerged already during the 19th century, it was still falling behind the overall Western European development path at that point. It was not until the 20th century when Finland really caught up to the Western European economies. But there were also severe setbacks: Second World War, the 1990s recession, and also the development since 2008 has exhibited relatively slow growth in Finland when compared to the other Nordic countries. However, we must note that the Finnish economy has also been throughout the centuries been interconnected to the European and global development patterns, as a small economy that has been dependent on export-led growth²⁸. Thus, the demand for the Finnish export items (tar, timber, pulp, paper, and lately metal industry and high-tech products) has always been important for this growth process. Therefore, all kinds of barriers of trade have been harmful for the Finnish economic development. Until the 1970s, Finland was to a large extent a low-cost country, having a competitive advantage in terms of low wages. Thereafter, however, Finland emerged in a relatively short period of time as a high-cost country, which incurred several challenges to the traditional industries and demands to improve productivity.

²⁶ Hjerpe 1988.

²⁷ Kokkinen et al. 2007.

²⁸ North 1955; North & Thomas 1973.

Finnish economic history is, thus, tied up with general trends emergent in the world economy: modernization, industrialization, structural changes, globalization waves, various kinds of crises, and institutional changes have had an effect on the development of modern Finland. Some of these changes occurred slowly, over several decades. Some, however, have been relatively rapid changes, usually related to crises, such as the aftermath of the Finnish Civil War set forth some new institutional rules for the country or that the war reparations to the Soviet Union after the Second World War shaped the Finnish industries for decades to come. In all, Finland industrialized relatively late and led to rapid structural change especially during the post-war decades. The building of the welfare society started already during the 1930s, but it peaked only in the late 1980s. By the 21st century, Finland had developed an extensive welfare state that affects most areas of the society and is accepted by most in the society as a necessity. Additionally, the high living standards, ability to achieve social and economic mobility, stability of society even during crises (like the recent Covid-19 pandemic), and high levels of human capital have all contributed to high levels of happiness among the population, despite some societal and political tensions arising from immigration and globalization. Finland's challenges in the next decades are related to these cleavages, as well as the aging of the population and reforming of the welfare state functions to suit modern demographic and regional challenges.

References:

- Ahvenainen, J. (1984). *Suomen sahateollisuuden historia*. Porvoo.
- Blomberg, H., M. Hannikainen & P. Kettunen (eds.) (2002). *Lamakirja. Näkökulmia 1990-luvun talouskriisin ja sen historiallisiin konteksteihin*. Turku: Kirja-Aurora.
- Bolt, J. & J. L. van Zanden (2014). The Maddison Project: collaborative research on historical national accounts. *The Economic History Review*, 67 (3), 627–651.
- Bolt, J. & J. L. van Zanden (2020). Maddison style estimates of the evolution of the world economy. A new 2020 update. Maddison-Project Working Paper WP-15 (October 2020). <https://www.rug.nl/ggdc/historicaldevelopment/maddison/publications/wp15.pdf> (retrieved June 23, 2021).
- Bonsdorff, L. G. von (1956). *Linne och jern. Gustaf August Wasastjerna*. Helsinki.
- Broadberry, S. & M. Harrison (2005). The Economics of World War I. An Overview. In: S. Broadberry ja M. Harrison (eds.) *The Economics of World War I*. Cambridge: Cambridge University Press.
- Clark, G. (2008). *A Farewell to Alms: A Brief Economic History of the World*. Princeton: Princeton University Press.
- de Vries, J. (1994). The industrial revolution and the industrious revolution. *The Journal of Economic History*, 54(02), 249-270.
- de Vries, J. (2008). *The industrious revolution: consumer behavior and the household economy, 1650 to the present*. Cambridge: Cambridge University Press.
- Eloranta, J. & Ojala, J. (2018). Suomi kansainvälisessä taloudessa 1600–2000. In P. Haapala (ed.) *Suomen rakennehistoria: Näkökulmia muutokseen ja jatkuvuuteen (1400-2000)* (pp. 143-169). Tampere: Vastapaino.
- Haapala, P. (2009). Modernisation of Finland 1800–2000. *Perspectives to Global Social Development*, 48.
- Hannikainen, M. (2018). Rakennemuutos ja hyvinvointivaltio 1900-2000. In P. Haapala (ed.) *Suomen rakennehistoria: Näkökulmia muutokseen ja jatkuvuuteen (1400-2000)* (pp. 244-267). Tampere: Vastapaino.

- Hemminki, T. (2014). *Vauraus, luotto, luottamus. Talonpoikien lainasuhteet Pohjanlahden molemmin puolin 1796-1830*. Jyväskylä: University of Jyväskylä.
- Hjerpe, R. (1988). *Suomen talous 1860-1985: kasvu ja rakennemuutos*. Helsinki: Valtion painatuskeskus.
- Hjerpe, R. (1996). *Finland's historical national accounts 1860-1994. Calculation methods and statistical tables*. Jyväskylä: University of Jyväskylä.
- Häkkinen, A. (1991). *Kun halla nälän tuskan toi. Miten suomalaiset kokivat 1860-luvun nälkävuodet*. Porvoo: WSOY.
- Jónsson, G. ja Stefánsson, K. (eds.) (2013). *Retrenchment or renewal? Welfare states in times of economic crisis*. Helsinki: The Nordic Centre of Excellence NordWel.
- Kaukiainen, Y. (2006). Foreign Trade and Transport. In: J. Ojala, J. Eloranta ja J. Jalava (eds.) *The Road to Prosperity. An Economic History of Finland*. Helsinki: SKS, 127-163.
- Kocka, J. (2003). Comparison and beyond. *History and theory*, 42(1), 39-44.
- Kokkinen, A., Jalava, J., Hjerpe, R. & Hannikainen, M. (2007). Catching up in Europe: Finland's Convergence with Sweden and the EU15. *Scandinavian Economic History Review*, 55(2), 153-171.
- Kuisma, M. (1993). *Metsäteollisuuden maa. Suomi, metsät ja kansainvälinen järjestelmä 1620-1920*. Jyväskylä.
- Kuznets, S. (1972). Modern Economic Growth: Findings and Reflections. Acceptance Speech for the Nobel Prize in Economic Science. Stockholm, December 1971. *American Economic Review*, 63, 247-258.
- Maddison, A. (1995). *Monitoring the world economy 1820-1992*. Paris: OECD.
- Maddison, A. (2001). *The World Economy: A Millennial Perspective*. Paris: OECD.
- Maddison, A. (2007). *The world economy volume 1: A millennial perspective volume 2: Historical statistics*. Academic Foundation.
- Nikula, O. (1948). *Malmska handelshuset i Jacobstad*. Helsingfors: Svenska litteratursällskapet i Finland.
- North, D. C. (1955). Location theory and regional economic growth. *The Journal of Political Economy*, 243-258.
- North, D. C. ja Thomas, R. P. (1973). *The rise of the western world: A new economic history*. Cambridge: Cambridge University Press.
- O'Brien, P. (2006). Historiographical traditions and modern imperatives for the restoration of global history. *Journal of Global History*, 1(01), 3-39.
- Ojala, J. & Nummela, I. (2006). Feeding economic growth: agriculture. In: Ojala, J., J. Eloranta ja J. Jalava (eds.) *The road to prosperity: an economic history of Finland*. Helsinki: Suomalaisen Kirjallisuuden Seura, 65-91.
- Ojala, J. ja P. Karonen (2006). Business: rooted in social capital over centuries. In: Ojala, J., J. Eloranta & J. Jalava (eds.) *The road to prosperity: an economic history of Finland*. Helsinki: Suomalaisen Kirjallisuuden Seura, 92-125.
- Ojala, J. & Kaukiainen, Y. (2012). Finnish shipping – a Nordic exception. In: Tenold, S., Iversen, M. J. & Lange, E. (eds.) *Global shipping in small nations: Nordic experiences after 1960*. Houndmills, Basingstoke: Palgrave Macmillan, 129-155.
- Ojala, J., M. Voutilainen & J. Lamberg (2012). The Evolution of the Global Paper Industry: Concluding Remarks. In: J. Lamberg, J. Ojala, M. Peltoniemi ja T. Särkkä (eds.) *The Evolution of Global Paper Industry 1800-2050. A Comparative Analysis*. World Forests Vol. 17. Dordrecht: Springer, 345-363.
- O'Rourke, K. H. ja J. G. Williamson (2002). After Columbus: explaining Europe's overseas trade boom, 1500-1800. *The Journal of Economic History*, 62(02), 417-56.
- Osinsky, P. ja Eloranta, J. (2015). Longitudinal comparative historical analysis: challenges and possibilities. In: Y. Tanaka, T. Tamaki, J. Ojala & J. Eloranta (eds.) *Comparing post-war Japanese and Finnish economies and societies: longitudinal perspectives*. Abingdon: Routledge.
- Persson, K. G. (1999). *Grain markets in Europe, 1500-1900: integration and deregulation*. Cambridge: Cambridge University Press.
- Pitkänen, K. (1993). *Deprivation and disease. Mortality during the great Finnish famine of the 1860s*. Suomen väestötieteen yhdistyksen julkaisu. Helsinki: Suomen väestötieteen yhdistys.

- Schybergson, P. (1973). *Hantverk och fabriker 1. Finlands konsumtionsvaruindustri 1815-1870. Helhetsutveckling*. Bidrag till kännedom av Finlands natur och folk. Helsingfors: Finska vetenskaps-societeten.
- Stiglitz, J. E., Sen, A. ja Fitoussi, J. (2010). *Mismeasuring Our Lives. Why GDP Doesn't Add Up*. New York: The New Press.
- Söderberg, J. (2011). "Long-term trends in real wages of labourers" In: Edvinsson, R., T. Jacobson ja Daniel Waldenström (eds.) *Historical Monetary and Financial Statistics for Sweden: Exchange Rates, Prices, and Wages, 1277-2008*. Stockholm, 453–478.
- Uotila, M. (2014). *Käsityöläinen kyläyhteisönsä jäsenenä: prosopografinen analyysi Hollolan käsityöläisistä 1810-1840*. Jyväskylän yliopisto, Jyväskylä.
- van Zanden, J. L., Baten, J., Mira d'Ercole, M., Rijpma, A., Smith, C. ja Timmer, M. (2014). *How was life? Global well-being since 1820*. Paris: OECD Publishing.
- Williamson, J. G. ja K. O'Rourke (1999). *Globalization and History. The Evolution of a Nineteenth Century Atlantic Economy*. Cambridge, Mass: MIT Press.
- Voutilainen, M. (2015). Malthusian checks in pre-industrial Sweden and Finland: a comparative analysis of the demographic regimes. *Scandinavian Economic History Review* 63(3), 1-25.
- Voutilainen, M., Helske, J., & Högmänder, H. (2020). A Bayesian Reconstruction of a Historical Population in Finland, 1647–1850. *Demography*, 57, 1171-1192.