

**LIST OF ABSTRACTS FOR THE WORKSHOP
'THE ECONOMIC GEOGRAPHY OF LONG-RUN INDUSTRIALIZATION'**

22 - 23 MARCH 2018, INTERNATIONAL INSTITUTE OF SOCIAL HISTORY, AMSTERDAM

ORGANIZED BY BAS VAN LEEUWEN (IISH) AND ROBIN PHILIPS (IISH)

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THE HISTORICAL DYNAMICS OF INDUSTRIALIZATION IN
NORTHWESTERN EUROPE AND CHINA



The HINDI research group, in collaboration with the International Institute of Social History (IISH), will be organizing at Thu-Fri 22-23 March 2018 a workshop on the economic geography of long-run industrialization (approx. 1800 – 2010) in Amsterdam, the Netherlands. The aim of this workshop will be to bring together economic historians, economists, and economic geographers with an academic interest in both the quantitative long-run regional process of industrialization, as well as the empirical and political conclusions one can derive from it.

The central question of this workshop is how and why industrialization spread across regions and over time. To deal with this question, the book will be subdivided in three parts. After an “econography” of industrialization dealing with the various models of industrialization and, more importantly, their empirical implications, part 1 and 2 of this workshop will deal with specific case studies of regional industrialization over the Eurasian continent. Walking first through the historiography of spatial industrialization, each chapter will cover one particular region during the 19th and 20th century, including various Western, Eurasian and Asian countries. This not only makes it possible to test if existing theories on economic agglomeration can be globally applied, but also contributes to the debates on regional divergence and the role of economic integration and globalization. In part 3 and 4, the various presentations will deal with the question how the fields of economic history and geography explain agglomeration and dispersion of industry, as well as why manufacturing firms move across time, regions and countries.

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Part 1. An European Perspective on Regional Industrialization

Chapter 1. The regional foundations on which the world's first industrial nation was built

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This paper analyses Britain's transition from a predominantly agricultural to an industrial economy through the lens of developments in occupational structure. Historical occupational data have the advantage of being available in large quantities and, thereby, enable the economic historian to study structural shifts in the economy at high temporal and – critical for the subject under study here – geographical resolution. As the name suggest, the Occupational structure of Britain 1379-1911 project is aimed at understanding developments in the composition of the labour force over a very long time period. The results from this project show that the 1800-2010 time frame adopted for other papers in the Economy of Long-Run Industrialisation program is ill-suited for addressing the program's central question 'how and why industrialization spread across regions and over time' in the case of Britain. In England and Wales, the manufacturing share of the labour force reached fifty per cent as early as 1700, whilst less than forty per cent of men and women were still working in agriculture by then. By comparison: in Belgium, such low levels of agricultural employment were first seen in the 1870s, in France in the 1890s, in Germany and the US in the early 1900s, and in Japan in the 1950s.

The foundations for this precociously manufacturing-dominated economy were laid in the sixteenth and seventeenth century, which witnessed a shift of twenty-five per cent in male labour share from agriculture to manufacturing. Remarkably, at the national level, the occupational picture changed much less dramatically over the eighteenth and early nineteenth century; if anything, the occupational share in manufacturing slightly decreased in the run-up to and the first phase of the British Industrial Revolution, up to c.1820. However, this is where a regional analysis of economic developments comes into its own. The new occupational estimates show that, below this calm surface, this was a period of great turbulence, which witnessed rapid concentration of economic activities in specific counties, in small regions within counties, in towns compared to the surrounding countryside – with all of these rapidly specialising regions held together by an ever growing transport sector. The role of small, highly specialist regions as incubators of technological innovation and novel forms of economic organisation is well-known in present-day economies. Since the new estimates show that strong regional specialisation clearly preceded the Industrial Revolution, it raises the intriguing question to which degree a uniquely decentralised yet well-integrated early-eighteenth-century economy was instrumental or even crucial in Britain's precocious transition to modern economic growth.

Nineteenth-century regional developments from the 1830s were less spectacular, with specialist industrial and agricultural regions now well established, but nevertheless interesting. Whereas canals and turnpikes had facilitated a process of regional specialisation in the preceding two-and-a-half centuries, a certain decentralisation of industrial production can be observed in the railway age, with formerly de-industrialising regions now (somewhat) re-industrialising. Whether this was primarily driven by regional wage differences or by the nationwide availability of cheap railway-transported coal is an as yet unanswered question. Although the share of the labour force working in manufacturing showed residual growth in the nineteenth century post 1830, the twentieth century in Britain was one of, at first, slow and, then, increasingly rapid de-industrialisation, with the former industrial heartlands hardest hit.

Chapter 2. Regional Industrial Development in the Low Countries (1820 - 2010)

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By comparing the occupational records in the population censuses and the censuses of industry, we aim to construct a comprehensive standardized database about the number of companies and employees on the regional (provincial) and local (municipal) level in the Netherlands and Belgium since 1820 to present. After closely attributing each of the sectors in the census data to its most-fitting ISIC revision 4 sectoral counterparts, we will be able to present a more detailed dataset on the sectoral level which is consistent over time. Not only does this geographical and sectoral detailed scope gives us a more precise account of the dynamics of the manufacturing sector, but it also provides us of the opportunity to see how manufacturing sectors geographically clustered or dispersed throughout the 19th and 20th century.

This spread of industries will not only be studied in a cross-sectional, but also in a dynamical perspective. It could be that at first most firms of the energy-intensive manufacturing sectors concentrated around a limited set of towns, possibly clustering near centers of peat digging, coal mining or other producers of cheap energy. This, while more commercial oriented industries, such as clothing or food industries initially chose their establishment near centers of consumers or export and transport facilities such as ports, roads or railroads. The end of the 19th and the early 20th century gave rise to another evolution: due to the fall of transport costs and relative lower energy prices, firms and sectors were again driven by a shock of relocation. As Marshall (1890) pointed out, benefits of agglomeration linked to the transport of goods, labor and human capital were crucial to the location of industries as firms tended to locate near their centers of suppliers and clients. In Belgium for instance, in recent times the chemical and machinery manufacturing sectors have been described as highly clustering (Bertinelli and Decrop 2005), while there exists a high co-location among certain industrial couples such as the apparel and leather manufacturing sectors (De Ruytter and Lecocq 2013).

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Chapter 3. Regional industrialization of Yugoslavia in the long-run

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How did industry spread at the South-Eastern periphery of Europe? The consensus view is that the de-industrialization phase in place since the 1990s, was preceded by rapid industrialization from 1945, and a lack of considerable development before that (Gerschenkron, 1962; Lampe and Jackson 1982; Teichova, 1985; Kopsidis and Ivanov, 2017). This consensus is, however, based on a country level approach which ignores potentially large within-country differences. For example, recent evidence shows that industry was highly unevenly distributed in interwar Yugoslavia, with the North-West of the country being the most industrially advanced (Nikolić, 2017). In this chapter we study regional industrialization of Yugoslavia in the long-run, in order to shed light on how industry spread across time and space at the European periphery.

We explore industrialization of Yugoslav regions from the time of proto-industry until the present. To enable comparability over time, the analysis is carried out on regions roughly comparable to present day Yugoslav successor states. The location of industry is measured using data on manufacturing employment. Novel measures of employment shares in the manufacturing sector on a regional basis are calculated using a new data set we compiled from periodic census returns. The long-term patterns of regional industrialization are explained in the light of historical economic geography (Roses, 2003; Crafts and Mulatu 2005, 2006; Wolf, 2007; Klein and Crafts, 2012; Martinez-Galarraga, 2012). Theoretical predictions of New Economic Geography are weighted against comparative advantage and path dependence theories. The role of energy, labour, capital, technology, and markets in driving the location of industry is discussed.

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Chapter 4. Old Patterns Die Hard: Regional Aspects of Italian Industrialization in the Long Run

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The regional dimension is a fundamental one when studying the economic history of Italy. In particular, the forging ahead of the Norther regions of the country from the late 19th century and the consolidation of the “Italian economic dualism” over the 20th century have been attracting the attention of scholars. At the time of the Unification of 1861, the regional divide in terms of GDP per capita and industrial value added was already present but not particularly marked. On the other hand, many of the preconditions for industrialization, such as literacy and energy endowments, were already unevenly distributed. Moreover, the access to markets of the different regions was unevenly distributed, with the North being better positioned within the domestic market. Therefore, the development of a modern industrial sector in the second half of the 19th century is regarded as a fundamental turning point in the shaping of the economic and industrial geography of the country over the second half of the 20th century. This paper reviews the main contributions in this area, both quantitative and qualitative, and proposes an interpretative model that takes into account of both the Heckscher-Ohlin view on factor endowment and the New Economic Geography view on market access to explain the rise and persistence of the uneven industrialization of the Italian regions.

Part 2. An Asian Perspective on Regional Industrialization

Chapter 5. Long term regional dynamics of industrialization, from the late Ottoman Empire to the Republic of Turkey in the twentieth century, 1850-2000

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Turkey is not an industrial country. The Ottoman Empire was not an industrial country either. It had an agrarian economy with low urbanisation rates. The nineteenth century state initiated industrialisation attempts in the Ottoman Empire were too late and too little to vitalise the economy and to generate modern economic growth. Political, military and social calamities starting from the mid-nineteenth century resulted in a continuous decline of the economic activity from the 1850s until the end of the Ottoman Empire. The Republic of Turkey inherited an agrarian, sparsely populated, underdeveloped economy. The Great Depression did not result in a collapse but in a closed economy, which retarded trade and development until the 1950s. Only after liberalisation of the economy and consequent wave of privatisations in the 1980s economy, started to reach higher levels of economic growth.

The lines above are an over-simplified version of generally accepted, and uncritically re-produced narrative of the last 160 years of Ottoman/Turkish economic history. This book piece aims to question, revisit, geographically differentiate, and revise this narrative. The Ottoman decline paradigm has been rightfully rejected quite a while ago. Quataert's work also convincingly argued that the history of manufacturing in the late Ottoman Empire was not solely a story of de-industrialisation and decline. Nevertheless we still lack a detailed survey of regional economic activity in the late Ottoman Empire and in the Republic of Turkey within a long-term perspective. In this paper we will focus on long-run shifts in occupational structures and urbanisation dynamics of two regions centred around cities of Ankara and Bursa in a three-tier case study design. First, for the 1850s, we will extract, code, and analyse sectoral distribution of individual occupational descriptors of all male dwellers in the cities of Ankara and Bursa, then in three small-towns surrounding these two cities, and lastly in around ten villages for each town and city (a: villages surrounding in total six small-towns in the hinterlands of two cities; b: villages surrounding two cities of Ankara and Bursa). For this first step we will extract and analyse occupational data on micro level from an empire-wide Ottoman tax survey from 1845. As the second step using the mid-nineteenth century population registers we will calculate and compare urbanisation rates for chosen two regions using the same three-tier system for data sampling. After building our observation and data base for occupational structure and population geography for the mid-nineteenth century, we will use occupational and demographic data, on matching sub-district levels, obtained from in total 14 national population censuses conducted in Turkey in the twentieth century for these two regions.

In our examination we will use sub-provinces, which are smaller than regions, as a spatial unit of analysis. This unprecedented spatial disaggregation will allow us to reach a higher spatial resolution than regions yet will also allow us to scale our results up to regional units. In our regional analysis we will use two proxies to assess the magnitude, timing, and geography of industrialization: shifts in occupational structures away from agriculture to industry and services; and changes in population geography in general and urbanisation in particular. Lastly, although we will focus on two regions for the period 1850 to 2000, we will also compare and contrast industrialization dynamics of these two regions with other regions of Turkey for the period 1927 to 2000.

Chapter 6. Regional Industrial Development along the Yangtze (Jiangsu and Anhui) and Zhujiang (Guangdong and Guangxi) Rivers, ca. 1850-2014

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Studies on industrial development of China are plentiful. Yet, most of them focus on sectors (e.g. textiles) or industrial characteristics (e.g. modern industry). Unfortunately, studies covering regions within China are scarce. The main reason is the extremely fragmentary sources. This implies that for every estimate that is provided, many sources need to be added together. A second problem concerns differences in classification of industry across regions. Third, reporting of industry changed over time from traditional/modern in the Republican period, to commune and brigade in early New China, Xiang and cun in later New China. Today there are various levels of production required to be reported in surveys. These problems have caused even today discussions about the trends in Chinese industry (see e.g. Carsten Holtz and Harry Wu). In this paper, we aim in providing 5 benchmarks, that is 1850, 1915, 1933, 1955 and 2000, with regional industrial data by sector. Whereas the first two benchmarks only provide provincial level data, the latter are on a prefectural level. Our focus is on the Yangtze and Zhujian river delta's, two regions that experienced fast economic development.

Chapter 7. The economic geography of Japanese industrialization (1800-2010)

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The proposed paper accounts for the regional dimension of structural change in Japan between ca 1800 and 2010 using quantitative and qualitative information. For the period 1800-1874, we rely on regional studies, some of these quantitative (e.g. Nishikawa 1987), and new tentative regional estimates for 12 regions. For the period 1874-2010, we combine quantitative information at the level of the 47 prefectures, a number of mostly qualitative regional case studies (e.g. Nakamura 2010; Nishitani 1998), and various business history reports focused on a given industry but including some discussion of regional patterns. Our quantitative analysis builds on recent GDP estimates at the prefecture level for the benchmark years from 1874 (Fukao et al. 2015), and informed guesses based on backward extrapolation for 1800 and 1850. Prefecture level estimates of labour force and labour productivity by sector (primary, secondary, and tertiary sectors) have been constructed, along with a breakdown of value added manufacturing into subsectors (food, textile, wood, printing, chemicals, ceramics, metals, machinery, and misc. manuf.) for 1874, 1890, 1909, 1925, 1935, 1940, linked with yearly series from 1955 (and labour force estimates with the same subsector breakdown from 1909).

The paper examines the regional patterns in the development of Japanese industrialisation during six periods from ca 1800 to 2010. Between ca 1800 and 1858, the manufacturing sector experienced a slow expansion in a context of political fragmentation and remained almost exclusively restricted to cottage industry. Between 1858 and 1868, the opening to international trade resulted in regional asymmetric shocks, with some winners in eastern Japan, and many losers in western Japan (the issue of spatial effects usually ignored in study on the impact of the opening; e.g. Bernhofen & Brown 2004); some limited import of technology took place, particularly in treaty ports. In the period 1868-1913, corresponding approximately to the Meiji era (1868-1912), a gradual shift to modern economic growth occurred, with an acceleration of the handicraft based industrialisation across most Japanese prefecture during a first phase lasting until around 1890, followed by a second phase a spatial concentration in urban areas of high productivity manufacturing activities from 1890 to 1912. The period 1914-1965 was a phase of diversification and amplification of the geographical concentration in heavy industry, mostly in suburbs of major urban areas, but intra-sectoral labor productivity gap across prefectures declined substantially, especially in traditional manufacturing activities. In the period of high speed and then sustain growth 1965-1985, driven by the expansion of the manufacturing sector, the spatial dominance of the major urban areas gradually declined. Most prefectures experienced an expansion and diversification of their manufacturing sector. This was associated with intra-industry regional convergence of TFP within the manufacturing sector. During the final phase, 1985-2010, as large firms relocate their factories to other Asian countries a rapid decline of manufacturing in terms of share of total employment and of total GDP occurred, but it was rather homogenous in spatial terms, as opposed to other OECD countries where major industrial regions morphed into Rust Belts.

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Part 3. A Thematic Perspective on Regional Industrialization

Chapter 8. Shift from proto-industrialization to industrialization

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In the historiography on long-run industrialization, the research focus remained largely on the factory-based form of manufacturing. However, it is often neglected that the route to mechanization and factory production did not follow such a straightforward linear pattern. First, the concept of the high wage economy by Allen (2009) ignores the long-run existence of a domestic-based, labor-intensive production in the textiles sector in the rural hinterland of the first industrializer, as Humphries (Humphries 2011, Humphries and Schneider 2016) found evidence for the domestic hand spinning sector in England. Second, some have argued that the concept of proto-industrialization is considered to have outlived its usefulness (Marfany 2010) after approx. 35 years of debate since the publication of Mendels (1972). However, the effect of proto-industrialization in reducing hidden unemployment in the countryside (Ogilvie and Cerman 1996) and an increasing purchasing power in the rural hinterland (De Vries 2008) still holds ground.

Therefore, the influence of the domestic-based or proto-industrial activities on the factory-based and mechanized modes of production has to be reviewed. Both factory-based and domestic-based production seems to have co-existed during the 19th and 20th century, to a certain degree even being complementary, with proto-industrial or domestic-based activities providing essential products or services to the factory-based production. In order to shed new light on this debate, we will re-examine the proto-industrial or domestic-based production in the Netherlands and Belgium, with the latter including the region where the debate of proto-industrialization took off (Mendels 1972).

In a first part, we will look at the relative importance of the factory-based, handicraft-based, and domestic-based manufacturing in two well-documented countries, i.e. Belgium and the Netherlands. In 1820, 15 % of all employees in the manufacturing sector were employed in factory-based establishments, 48 % in handicraft-based and 36 % in domestic-based production. In 1900, this picture changed to 39 % in factory-based, 52 % in handicraft-based and only 9 % in domestic-based employment. Given the rapid industrialization process in Belgium (Mokyr 1976), this not only signals a gradual substitution to more factory-based employment in favor of domestic-based employment but also a drain of employees from domestic-based production to handicraft-based production. Additionally, we seem to find evidence to support the view of Berg and Hudson (1992), who credited the emergence of factories in specific sectors and regions to the earlier regional presence of domestic and handicraft businesses in the same sectors, leading to regional specialization.

In a second part, we will examine through a case study how the largest center of domestic-based production in these countries, the textiles and apparel sectors in the provinces of East and West-Flanders, could survive until the beginning of the 20th century alongside the rapid industrialization process in this region and sector. Since the end of the 17th century, proto-industrial or domestic activities of spinning and weaving were important to the rural economy, most notably in the former county of Flanders (Vandenbroeke 1996, Ronsijn 2011). Although factory-based production did take off quickly in these regions, with 106 steam engines operating in the textiles sector of these provinces alone in 1850, domestic production persisted to exist until the beginning of the 20th century. For instance, according to the census of industry in 1896, while approx. 80 000 employees were working in textiles and apparel businesses on a labor force of approx. 204 000 employees in manufacturing in this region, approx. 43 000 women were still employed in the domestic spinning manufacturing.

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Chapter 9. The use of the Midelfarth-Knarvik-model to study determinants of historical industrial locations

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The last two decades, the study of determinants of industrial locations gained in popularity, not only from a contemporary but also from a historical perspective. In 2015 we presented an overview that illustrated the popularity of this topic. As stated, studies were conducted primarily for the United Kingdom, Spain, Poland, the United States and for the whole of the European Union. We added Belgium to the list by analyzing why the industry shifted from the southern to the northern part of the country.

Initially, much attention was paid to the importance of natural endowments, but the increasing popularity of the New Economic Geography since the 90's highlighted agglomeration effects. Depending on the studied country and period, one of these two theories was argued to be more suitable to explain industrial patterns. However, both theories were never combined in one model until the year 2000. The publication of *The location of European industry* was a milestone for the field. Since then the Midelfarth Knarvik model has been used increasingly to study determinants of industrial locations. The model combines elements from the Heckscher-Ohlin theory with New Economic Geography and hence allows to test whether endowments or agglomeration effects are relatively dominant in explaining industrial patterns.

Although the model has proven its value, there are several pitfalls to take into account when applying it for historical research. Methodologically, the accuracy of the model is questioned when historical data is used. The basic model requires qualitative information about a variety of variables, which are often not available for the period before 1960. This does not imply that it is not suitable to analyze historical case studies, but a critical assessment of the potential and the limitations is advisable. This article addresses these and discusses potential solutions that allow to deal with endogeneity and missing variables. If possible, we would like to demonstrate these solutions by analyzing our own data (for Belgium on Lau2 level) or data sets of contributors of this volume.

Chapter 10. Market integration and economic geography in history: an overview

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New Economic Geography (NEG) models offer a theoretical framework to analyse the spatial distribution of economic activity. In the case of manufacturing (where increasing returns have traditionally tended to operate), the reduction of trade costs favours the emergence of agglomeration forces that, through a cumulative causation process, may lead to the spatial concentration of manufacturing activities. This framework thus seems particularly appropriate to better understand the evolution in the spatial distribution of manufacturing activities from a historical perspective. In the last two centuries, a significant fall in transport costs has taken place. This is the result, among others, of the construction and expansion of railways, and the improvement of roads or maritime navigation. Other trade costs, such as tariffs have also been reduced over time although with different intensities in historical periods. This overall reduction in trade costs is directly linked with the advance in market integration. On the one hand, during the nineteenth and twentieth centuries national domestic markets became gradually integrated. On the other, since the mid-nineteenth century there was an increasing integration of international markets coinciding with the globalization impulse in that period. This process of economic integration, both at the national and international level, had consequences on the spatial distribution of manufacturing activities within states.

This paper has a three-fold aim. First, we survey the seminal theoretical papers within the NEG literature that explain the relationship between market integration and the spatial distribution of economic activity, mainly manufacturing, over time (Krugman, 1991; Krugman and Venables, 1995; Puga, 1999). In addition, we present a selection of works that have analysed how international integration may affect the internal economic geography of countries (Hanson, 1996; Krugman and Livas, 1996; Crozet and Koenig, 2004). Second, we survey the economic history works that, within an economic geography framework, have analysed the evolution of manufacturing over time for different countries, such as the United States, France or Italy (Crafts and Venables, 2003; Kim and Margo, 2003; Combes et al. 2011; A'Hearn and Venables, 2013). Finally, we focus on Spain. In this context, the interest of Spain lies in the fact that a good number of economic history studies have empirically tested some of the predictions that emanate from the NEG theoretical models reviewed in the first part of this paper, thus allowing to link both economic geography and economic history (Tirado et al., 2002; Pons et al., 2007; Martinez-Galarraga, 2012; Tirado et al., 2013).

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Chapter 11. Co-Location of Manufacturing Firms

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In order to study the location patterns of manufacturing firms, and particularly the tendency for industry sectors to cluster relative to overall manufacturing, we develop distance-based tests of localization. In order to treat space as continuous rather than using an arbitrary collection of geographical units, we follow the point-pattern methodology of Duranton and Overman (2005, 2008). We apply these techniques on two datasets of Dutch manufacturing firms in two benchmark years, to explore the differences of co-location over time. On the one hand, we will use an augmented edition of the Struve and Bekaar dataset, which listed the larger factories in the Netherlands in 1896. On the other hand, we will make use of the LISA dataset, which provided location data of all the Dutch enterprises in 2010. Presenting thus two cross sections with a gap of one century, we aim to provide a first empirical test of the agglomeration theories of Marshall (1890) in his period of research and repeat these tests for the recent period. In particular, we intend to examine if the location of the overall manufacturing sector, a confined set of more detailed-studied sectors, large versus small enterprises, and capital-intensive versus labor-intensive establishments changed over time.

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