KNHG BMGN — Low Countries Historical Review | Volume 138-1 (2023) | pp. 4-30

Global Shifts and Local Actors

Revising Macro-Level Theories on the Relocation of Textile Production From the Lens of the Household in the Netherlands and Java, c. 1820-1940

ELISE VAN NEDERVEEN MEERKERK, CORINNE BOTER, SARAH CARMICHAEL AND KATHARINE FREDERICK

The location of major textile manufacturing centres has shifted several times over the past 250 years, from Asia to Europe and the US, then back to Asia. Mainstream explanations for these shifts take a macro-approach and hence oversimplify the mechanisms behind them. We investigate these mechanisms at the micro-level of the household to gain a deeper understanding of the relocations of textile production worldwide. We do so by studying Dutch and Javanese households' productive and consumptive behaviour in the period 1820-1940, when colonial relations between these two regions played an important role. We show that households' labour allocation, livelihood strategies, and consumption preferences are crucial to understand the interaction between global shifts and local actors.

De geografische concentratie van textielproductie is gedurende de afgelopen 250 jaar meermaals verplaatst, van Azië naar Europa en de VS, en toen weer terug naar Azië. De gangbare verklaringen voor deze verschuivingen zijn macro-economisch van aard en geven de mechanismen die hieraan ten grondslag liggen te eenvoudig weer. Wij onderzoeken deze mechanismen op het microniveau van huishoudens om de verplaatsingen van textielproductie beter te begrijpen. We doen dit door de productie en consumptie van huishoudens in Nederland en Java te bestuderen in de periode 1820-1940, toen koloniale relaties tussen deze twee gebieden een belangrijke rol speelden. We laten zien dat de arbeidsverdeling, de strategieën om in levensonderhoud te voorzien en consumptievoorkeuren cruciaal zijn om de interactie tussen wereldwijde verschuivingen en plaatselijke actoren te begrijpen.

Published by Royal Netherlands Historical Society | KNHG

DOI: 10.51769/bmgn-lchr.10961 | www.bmgn-lchr.nl | e-ISSN 2211-2898 | print ISSN 0165-0505

Introduction[1]

In 2018, total Dutch consumption of textiles and clothing was worth 14,565 billion euros (circa 850 euros per capita). About 40 per cent was directly imported from Asia, and even more textiles originally produced in Asia were imported via other EU-countries.[2] The fact that neither Europe nor the US, but Asia is now the most important centre of textile production results from a long-run historical process. Although textile manufacturing has taken place in all world regions, its major centres of handicraft and, later, factory production have shifted location several times over the past 250 years, from Asia to Europe and the US, then back to Asia.[3]

These shifts have had profound economic implications. The manufacture of cotton cloth was the key driver of industrialisation in the Global North during the eighteenth and nineteenth centuries. The subsequent relocation of industrial textile production back to East and Southeast Asia in the late twentieth century initiated structural economic change in much of the Global South.[4] Over the past decades, nineteenth- and early twentieth-century trends of industrialisation and de-industrialisation have reversed: while countries in the Global North have largely become 'post-industrial' societies, many parts of the Global South have (re)industrialised.[5] Cotton textile production has been at the forefront of this historical reversal. However, the mechanisms underlying the global relocation of textile production in the long run are still poorly understood.[6]

Given that all stages of textile production are highly labour-intensive, the supply and cost of labour have featured prominently in explaining the relocation of manufacturing. The two mainstream explanations offered in the historiography both engage with issues of labour, but primarily from a *macro* perspective that ignores the decision-making of labourers themselves. For instance, the institutions-centred argument, which highlights the role

1 The research for this article was funded by the European Research Council, ERC Consolidator Grant (grant number 771288 – TextileLab).

2 Central Bureau of Statistics, StatLine.

3 Elise van Nederveen Meerkerk, Lex Heerma van Voss and Els Hiemstra-Kuperus, 'Covering the world: some conclusions to the project', in: Lex Heerma van Voss, Els Hiemstra-Kuperus and Elise van Nederveen Meerkerk (eds.), *The Ashgate Companion to the History of Textile Workers, 1650-2000* (Routledge 2010) 773-792. DOI: https://doi.org/10.4324/9781315612683.

4 Sven Beckert, *Empire of Cotton: A Global History* (Vintage Books 2014); David Jeremy, 'The International Diffusion of Cotton Manufacturing Technology, 1750-1990s', in: Douglas Farnie and David Jeremy (eds.), *The Fibre that Changed the World: The Cotton Industry in International Perspective, 1600-1990s* (Oxford University Press 2004) 87.

5 World Trade Organization, *Global Value Chains in a Changing World* (World Trade Organization 2013) 23; Margaret McMillan, Dani Rodrik and Íñigo Verduzco-Gallo, 'Globalization, Structural Change, and Productivity Growth, with an Update on Africa', *World Development* 63 (2014) 11-32. DOI: https://doi.org/10.1016/j.worlddev.2013.10.012.

6 Jeremy, 'The International Diffusion', 85.

of industrialists' demands for, and exploitation of, cheap labour tells us very little about the incentives for textile workers to *supply* their labour to textile manufacturing. Was this out of necessity and lack of alternatives, or were consumption desires at the household level driving these decisions?[7] Second, neoclassical theory suggests that from circa 1800 onwards, countries in the Global North increasingly imported raw materials from the Global South to support their expanding industries. They assume that, as a result, developing countries focused increasingly on providing these raw materials to global markets and, consequently, abandoned their industrial activities. However, such propositions – suggesting that global market forces provoked voluntary labour reallocation from industry to agriculture – fail to account for the persistence of small-scale household-based textile manufacturing in many parts of the world.[8] Understanding the resilience and/or relocation of textile industries in different parts of the world thus requires attention for the labour allocation decisions of workers, which in turn necessitates a micro-level approach incorporating household-level choices and constraints alongside the macro-level considerations already present in the literature.

We address these missing pieces of the global textile puzzle in the ERC-funded research project that started at Utrecht University in October 2018. The project, entitled *Race to the bottom? Family labour, household livelihood and consumption in the relocation of global cotton manufacturing, ca. 1750-1990*, investigates mechanisms at the micro-level of the household to gain a deeper understanding of the macro-economic relocations of textile production worldwide. It proposes that households' labour allocation choices and consumption preferences were key in the resilience of textile production in some contexts, as well as in the disappearance in others. While much literature has suggested that markets and institutions played a vital role, this project investigates the relatively understudied influence of household production and consumption preferences in the textile sector's relocation and/or resilience across the world (see Figure 1).

This article illustrates how the inclusion of micro-level production and consumption choices (the shaded core of the model) illuminates the

7 See e.g.: Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge University Press 2008). DOI: https://doi.org/10.1017/CBO9780511818196.

8 Paul Minoletti, *The Importance of Gender Ideology and Identity: The Shift to Factory Production and its Effect on Work and Wages in the English Textile Industries, 1760-1850* (unpublished PhD thesis; University of Oxford 2011) 3-9; Tirthankar Roy, *Artisans and Industrialization: Indian Weaving in the Twentieth Century* (Oxford University Press 1993); Gareth Austin, 'Resources, techniques and strategies south of the Sahara: Revising the factor endowments perspective on African economic development, 1500-2000', *Economic History Review* 61:3 (2008) 587-624. DOI: https://doi.org/10.1111/j.1468-0289.2007.00409.x; Elise van Nederveen Meerkerk, 'Challenging the de-industrialization thesis: Gender and indigenous textile production in Java under Dutch colonial rule, c. 1830-1920', *Economic History Review* 70:4 (2017) 1219-1243. DOI: https://doi.org/10.1111/ehr.12424.

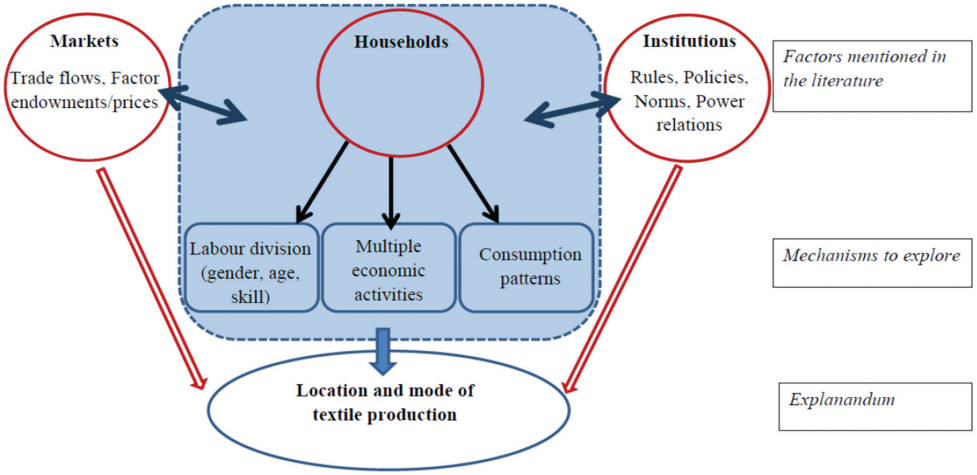


Figure 1. Explanatory model for the project.

drivers and mechanisms that have influenced the global relocation of textile manufacturing and help explain varying industrial trajectories among textile producing regions over time and space. With this, we follow a relatively recent trend in the historiography on de-industrialisation that pays attention to local differences in demand- and supply-side factors. For example, recent comparative research on handicraft producers in the Global South has found that highly specified local demand patterns often helped domestic producers compete with machine-made imports from abroad during the nineteenth and twentieth centuries. At the same time, relatively low labour costs could even enable handicraft manufacturers to compete on the basis of cost.[9]

This article takes a North-South case study approach to explore contrasts and connections between textile industries in two different parts of the Dutch Empire in the nineteenth and early twentieth centuries. We aim to illustrate how various factors at the micro- and macro-level interacted to influence industrial pathways in both the Netherlands, more specifically the Twente region and the town of Tilburg, and on Java, calling into question monocausal explanations that focus primarily on macro-level explanations.

9 Katharine Frederick and Elise van Nederveen Meerkerk, 'Local advantage in a global context. Competition, adaptation and resilience in textile manufacturing in the "periphery", 1860-1960', *Journal of Global History* 18:1 (2023) 1-24. DOI: https://doi.org/10.1017/S1740022821000425. See also Douglas E. Haynes, *Small Town Capitalism in Western India: Artisans, Merchants, and the Making of the Informal Economy* (Cambridge University Press 2012); Tirthankar Roy, 'Labour intensity and industrialization in colonial India', in: Gareth Austin and Kaoru Sugihara (eds.), *Labour-Intensive Industrialization in Global History* (Routledge 2013) 107-121. DOI: https://doi.org/10.4324/9780203067611; Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis'; Katharine Frederick, *Twilight of an Industry in East Africa: Textile Manufacturing, 1830-1940* (Palgrave Macmillan 2020). DOI: https://doi.org/10.1007/978-3-030-43920-0.

After a short discussion of the historiography on de-industrialisation in the following section, we discuss rising trade flows of machine-made manufactures from the industrialising Global North to the Global South during the nineteenth century and consider implications of these global trade developments for both Java and the Netherlands. In our analysis, we highlight the agency of both consumers and producers, with particular emphasis on the role of *consumer preferences*, *flexible responses to technological change*, and *informal institutions* at the household level in influencing the resilience and development of industries in both contexts.

Specifically, based on our study of textile trade flows between the Netherlands and Java during the long nineteenth century, we find that Javanese consumers often continued to demand aesthetically superior domestic products even as imports rose. Thus, quality differences between imported and domestic cloth cannot be overlooked. At the same time, flexible adaptations in production processes proved to be key ingredients for success in both Java and the Netherlands. In the Netherlands, for instance, industry boomed in areas that adopted the flying shuttle and steam-driven machines, which sped up output. Meanwhile, in Java, domestic producers began utilising imported unbleached Dutch-made cloth to speed up the production of locally hand printed cloths, which competed effectively with imported printed material.

Finally, in both areas, flexible household-level labour arrangements kept textile industries dynamic amid shifting global and local contexts. In Java, for example, flexible gender distributions of labour helped household-based textile manufacturers persevere even when confronted with exploitative colonial labour regimes under the Cultivation System. And, in both the Netherlands and Java, members of textile-producing households strategically combined agricultural and industrial work to maximise family incomes. Thus, contrary to much existing literature on the global relocation of textile manufacturing, our analysis makes clear that the implications of macro-level developments can only be fully understood through a micro-level lens that explores how consumers and producers respond to shifting contexts.

Debating de-industrialisation in the Global South

In *Empire of Cotton*, Sven Beckert proposes that the main actors in the global relocation of textile production have been powerful capitalists, in their 'search for ever cheaper labor'.[10] Facilitated by state policies that enabled coercion and worker suppression, the dictates of capital have thus long determined how the nodes of cotton textile production have shifted over the globe, influencing interregional and global divisions of labour. Beckert's vision stands in a longer

10 Beckert, *Empire of Cotton*, 440.

tradition of institutional and power-related explanations for divergence in the global economy, building on dependency theory. In short, this theory entails that from circa 1600 onwards, exogenous forces such as merchant capitalism and colonial extraction enforced a worldwide division of labour that impoverished countries in the Global South either by destroying local manufacturing industries or by actively impeding their development.[11]

In contrast, neoclassical economists have ascribed the 'backwardness' of economies in the Global South to endogenous factors, such as 'primitive conditions' of indigenous economies or a lack of dynamism among local elites.[12] Another, more recent neoclassical economic explanation has been provided by Jeffrey Williamson, who suggests that the relocation of textile production from 'the East' to 'the West' was primarily a result of global market forces that prompted de-industrialisation in the 'poor periphery'. He argues that the nineteenth-century transport revolution led to global market integration and a deepening of existing patterns of specialisation, in which the 'poor periphery' increasingly allocated labour to the export of primary products and raw materials, thereby satiating the growing demands of manufacturing enterprises and consumers in the 'core'. Growing demand for primary commodities drove up their world market prices, while rapid efficiency gains and competition in manufacturing production in the 'core' depressed prices for industrial products, leading to a 'terms-of-trade-boom' (the increase of the price of exports relative to the price of imports) in the 'poor periphery' that offered a dual incentive for de-industrialisation.[13]

Both viewpoints, however, tend to neglect the agency of textile producers and consumers. Recent studies on colonial India, for instance, have shown that local production of cotton cloth was often more resilient than the sweeping generalisations of dependency or neoclassical theory predict. In colonial India, early-nineteenth-century British textile imports did affect local production, but the degree of devastation has been vastly overestimated by many authors due to the under-registration of cottage textile production, which diminished the true scale of the domestic industry in official records.[14] However, traditional rural hand-spinning and -weaving remained

11 See for example: André Gunder Frank, 'The Development of Underdevelopment', *Monthly Review* 18:4 (1966) 17-31. DOI: https://doi.org/10.14452/MR-018-04-1966-08_3; Walter Rodney, *How Europe Underdeveloped Africa* (Bogle-L'Ouverture Publications 1972).

12 E.g.: Peter Thomas Bauer, *Dissent on Development. Studies and Debate in Development Economics* (Harvard University Press 1976) 148; Clark Kerr, John T. Dunlop, Frederick Harbison and Charles A. Myers, *Industrialism and Industrial Man: The Problems of Labour and Management in Economic Growth* (Harvard University Press 1960).

13 Jeffrey Williamson, *Trade and Poverty: When the Third World Fell Behind* (The MIT Press 2011). DOI: https://doi.org/10.7551/mitpress/9780262015158.001.0001.

14 Marika Vicziany, 'The Deindustrialization of India in the Nineteenth Century: A Methodological Critique of Amiya Kumar Bagchi', *Indian Economic and Social History Review* 16:2 (1979) 107. DOI: https://doi.org/10.1177/001946467901600201.

vital, predominantly providing poor Indians with coarse, but affordable cotton cloth. Also in some more valuable segments of the textile market, handicraft Indian fabrics remained important, withstanding competition from principally British factory cloth until the 1920s.[15] While India is the best documented case study, recent research has shown that other colonised regions, such as sub-Saharan Africa and Indonesia, also experienced more differentiated pathways than outright de-industrialisation.[16] It is important to delve into these other case studies in the Global South, not only to better inform ourselves about the factors that determine the resilience or relocation of industries, but also because they highlight the generally unknown and often unintended consequences of colonialism on economic development.

This article specifically highlights one of our project's research lines pertaining to the Dutch Empire to help illustrate some of our broader arguments regarding industrial developments in the Global North and South during the nineteenth and early twentieth centuries. The history of textile production in the Dutch Empire provides excellent grounds for testing both neoclassical economic and dependency theory perspectives on industrial development. First, nineteenth- and early-twentieth-century colonial Indonesia specialised in primary commodity export production and increasingly imported manufactured goods. In fact, based on a study of its terms of trade, Williamson claims that 'globalization must have done bigger damage to industry in Indonesia than almost anywhere else in the non-European periphery'.[17]

Second, in line with dependency theorists' proposition that Western state intervention – in support of capitalists – influenced the location of textile manufacturing across the globe, the Dutch colonisers indeed actively intervened to create new markets for the emerging metropolitan textile industry in the large population of Java. Dutch colonial economic policies during most of the nineteenth century were directed towards simultaneously stimulating the cultivation of export crops and extracting raw materials, notably by implementing a system of forced cultivation, the *Kultuurstelsel* (Cultivation System, 1830-ca. 1870).[18] At the same time, the

15 Haynes, *Small Town Capitalism*; Rajnarayan Chandavarkar, 'Industrialization in India before 1947: Conventional Approaches and Alternative Perspectives', *Modern Asian Studies* 19:3 (1985) 623-628. DOI: https://doi.org/10.1017/S0026749X00007757; Tirthankar Roy, *Artisans and Industrialization: Indian Weaving in the Twentieth Century* (Oxford University Press 1993); Prasannan Parthasarathi, 'Rethinking Wages and Competitiveness in the Eighteenth Century: Britain and South India', *Past and Present* 158:1 (1998) 79-109.

16 Jeremy Prestholdt, *Domesticating the World: African Consumerism and the Genealogies of Globalization* (University of California Press 2008); Frederick, *Twilight of an Industry*; Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis'.

17 Williamson, *Trade and Poverty*, 41.

18 Cees Fasseur, *Kultuurstelsel en koloniale baten: De Nederlandse exploitatie van Java 1840-1860* (Universitaire Pers Leiden 1975); Robert Edward Elson, *Village Java under the Cultivation System, 1830-1870* (Allen and Unwin 1994).

colonial authorities introduced tariffs of 25 to 35 per cent for non-Dutch textile imports to the Dutch East Indies, whereas Dutch metropolitan textile importers to Java paid a much lower rate of just six per cent.[19] These favourable trading conditions for the coloniser, in turn, stimulated technological innovation in the Dutch textile manufacturing industry, with economy-wide industrialisation only taking off during the late nineteenth century.[20] At the same time, in spite of these interventions, we will see that domestic textile manufacturing in Java would prove remarkably resilient through the nineteenth century.

Global trade, imperialism and local industry in colonial Java

Textiles formed an intrinsic part of intra-Asian trade before 1600. Cotton and silk cloths were shipped from the coasts of China and India for consumption by Indonesian elites all over the archipelago, in exchange for spices and other goods. In the seventeenth century, the Dutch East India Company (Verenigde Oost-Indische Compagnie, VOC) tried to gain control over trade in the Dutch East Indies, most notably on Java and the 'spice islands' of the Moluccas. Although the VOC never succeeded in monopolising the textile trade, their interference in the region considerably raised prices of South- and East-Asian cloth over the course of the seventeenth century.[21] In response, domestic cotton spinning and weaving on the islands of Java, Bali and Sumatra, which had earlier suffered fierce competition from Indian imports, actually revived between the late seventeenth and the early nineteenth centuries.[22] As a result of this growing production, the VOC shifted to collecting cotton yarns produced by the local Indonesian population to satisfy the increasing demand for cotton

19 These tariffs on Dutch imports were raised to 12.5 per cent in 1836, after fierce British protests. In 1874, with the abandonment of the Cultivation System, preferential tariffs for Dutch textiles were abolished. Pierre van der Eng, 'Why Didn't Colonial Indonesia Have a Competitive Cotton Textile Industry?', *Modern Asian Studies* 47:3 (2013) 1025-1026. DOI: https://doi.org/10.1017/S0026749X12000765.

20 This was partly due to the unforeseen secession of the Southern Netherlands (Belgium) in 1830, where Willem I had first planned all industrial production of the United Kingdom of the Netherlands. Jan Luiten van Zanden and Arthur van Riel, *The Strictures of Inheritance: The Dutch Economy in the Nineteenth Century* (Princeton University Press 2004).

21 Hiroshi Matsuo, *The Development of Javanese Cotton Industry* (Institute of Developing Economies 1970) 2; Om Prakash, *The Dutch East India Company and the Economy of Bengal, 1630-1720* (Princeton University Press 1985).

22 Barbara Watson Andaya, 'The Cloth Trade in Jambi and Palembang Society during the Seventeenth and Eighteenth Centuries', *Indonesia* 48 (1989) 38-40. DOI: https://doi.org/10.2307/3351265; William Gervase Clarence-Smith, 'The Production of Cotton Textiles in Early Modern South-East Asia', in: Giorgio Riello and Prasannan Parthasarathi (eds.), *The Spinning World. A Global History of Cotton Textiles, 1200-1850* (Oxford University Press 2009) 131-134.

yarn in Europe, for which the port of Amsterdam formed an important transit. In regions where the VOC cooperated closely with Indonesian elites, they imposed a tax on the local population to be paid not in cash, but in yarn.[23]

After 1799, when the VOC had been abolished, the Dutch changed their colonial strategy drastically. They intended to install more direct and centralised rule over the East Indies. During a short British interregnum in Java (1811-1816) following the Napoleonic Wars, the British accelerated this process of establishing central colonial rule. On the relatively populous island of Java, the temporary British colonial government attempted to secure new markets for their factory-made calicoes, which they tried to gear towards indigenous consumer tastes. However, in 1815 Raffles, the British Lieutenant-Governor-General of Java, noted about the quality of these imports:

> A very extensive and valuable assortment of these cottons, imitated after the Javan and Malayan patterns, was recently imported into Java by the East India Company, and on the first sale produced very good prices; but before a second trial could be made, the natives had discovered that the colours would not stand, and the remainder were no longer in demand.[24]

Clearly, the European dyeing technology was inferior to the wax-printing techniques of Javanese *batik* producers and local consumers eschewed from buying them.[25]

When the Dutch regained control over Java after 1816, they tried to replicate the British strategy to utilise Java as a market for textiles. In 1824 the Dutch king Willem I established the Netherlands Trading Association (*Nederlandsche Handel-Maatschappij*, NHM), which was tasked with handling both the export of tropical commodities from Java and the import of textiles coming from the Netherlands. Willem I hoped to kill two birds with one stone: make a profit on trade in coffee, sugar, and tea, and stimulate the Dutch textile industry that was lagging behind. His loyal servant and Governor-General of the East Indies (1830-1833), Johannes van den Bosch, imposed forced cultivation of export commodities via the colonial Cultivation System, according to which Javanese peasants were obliged to cultivate around twenty per cent of their land with cash crops for the world market.[26] While the export of tropical goods from Java took off accordingly, the Dutch also sought to increase imports of textiles from the Netherlands

23 G.P. Rouffaer, 'Aanhangsel: De voornaamste industrieën der inlandsche bevolking van Java en Madoera', appendix in: Conrad Theodor van Deventer (ed.), *Overzicht van den economischen toestand der inlandsche bevolking van Java en Madoera* (Martinus Nijhoff 1904) 12-13.

24 Thomas Stamford Raffles, *The History of Java*, vol. 1 (John Murray 1830) 241.

25 Maria Wronska-Friend, *Batik Jawa Bagi Dunia/ Javanese Batik to the World* (Komunitas Lintas Budaya Indonesia 2016) 110.

26 For more on these entangled colonial histories of Java and the Netherlands, as well as on the Cultivation System, see Elise van Nederveen Meerkerk, 'Threads of Imperialism. Colonial Institutions and Gendered Labour Relations in

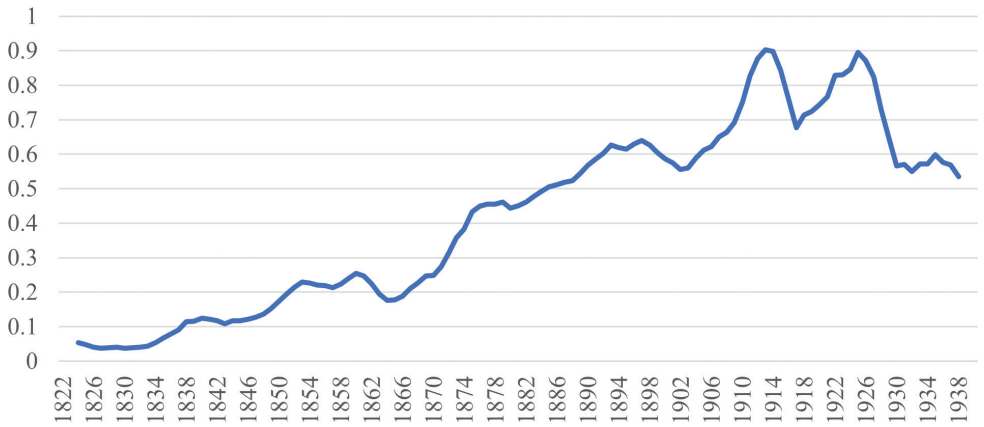


Figure 2. Imports of cotton cloth per capita (in kg), 5-year moving average, excluding yarns, Java, 1822-1940. *Based on*: Van der Eng, 'Why Didn't Colonial Indonesia', 1023, and on Van der Eng's database 'Indonesian Textiles', version 2015.

to artificially create a new market for its emerging textile factories. Scholars have argued that this system seriously undermined the local Javanese cloth industry.[27]

However, a closer look at cloth imports in Java, both in quantitative and qualitative terms, casts serious doubt on these claims. We can see that cloth imports indeed began to increase after 1830, the year in which the Cultivation System was established. However, imports would not rise dramatically until the 1870s, when the Cultivation System was abolished (see Figure 2).

Placing this figure in context reveals three crucial details. First, while per capita imports did rise to around 0.35 kg in 1874, one person required about *three times* as much cloth per year for minimum clothing, which means that the majority of total Javanese demand for textiles was still met with indigenous production.[28] Indeed, colonial reports from the 1890s and 1900s show that, particularly in West-Java, there were entire villages where

the Textile Industry in the Dutch Empire', in: Karin Hofmeester and Pim de Zwart (eds.), *Colonialism, Institutional Change and Shifts in Global Labour Relations* (Amsterdam University Press 2018) 135-172; Elise van Nederveen Meerkerk, *Women, Work and Colonialism in the Netherlands and Java: Comparisons, Contrasts, and Connections, 1830-1940* (Palgrave Macmillan 2019). DOI: https://doi.org/10.1007/978-3-030-10528-0.

27 E.g. Peter Boomgaard, 'Female Labour and Population Growth on Nineteenth-Century Java', *Review of Indonesian and Malayan Affairs* 15:2 (1981) 1-31; Thomas Lindblad, 'De handel in katoentjes op Nederlands-Indië, 1824-1939', *Textielhistorische Bijdragen* (hereafter THB) 34 (1994) 89-104; Elson, *Village Java*, 272; Jan Luiten van Zanden and Daan Marks, *An Economic History of Indonesia 1800-2010* (Routledge 2012) 92-93. A notable exception is Van der Eng, 'Why Didn't Colonial Indonesia'.

28 Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis', 1231.

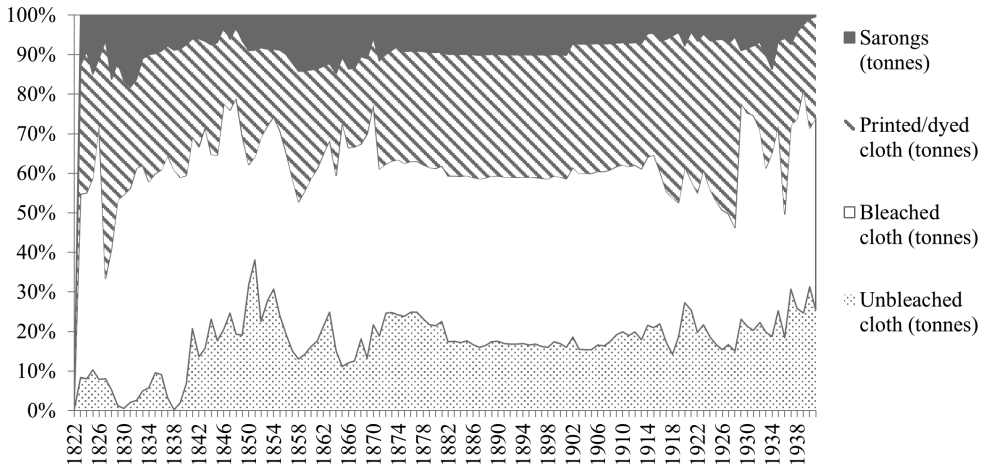


Figure 3. Composition of cloth imports into Java, 1822-1940. *Based on*: Van der Eng, 'Why Didn't Colonial Indonesia', 1054, and on Van der Eng's database 'Indonesian Textiles', version 2015.

'[t]here is hardly a quarter, a hamlet, or a house where the clattering of the loom does not resonate'.[29] Second, if we break down the *type of cloth* that was imported (see Figure 3), we can see that the majority concerned bleached and unbleached cloth, which was further processed by indigenous producers into more elaborate garments.

Indeed, the *batik* industry, a traditional wax-printing specialty of Indonesia, flourished towards the end of the nineteenth century. Meanwhile, less labour-intensive techniques of block printing were developed by the 1860s, resulting in less expensive finished cloth, which proved more popular than the factory-printed imitation wax-prints that were created in the Netherlands for Javanese markets (see subsequent sections).

As a matter of fact, the inflow of Dutch-made textiles in nineteenth-century Java actually *stimulated* rather than hampered indigenous textile production, in the form of both hand weaving and cloth printing. Hand weaving would only experience significant decline after the First World War, when cheap Japanese textiles began to flood the Indonesian market.[30] As we will show, global trade developments and imperialist policies had different outcomes than initially intended, both for colonial Java and for the Dutch metropole.

29 This quote was translated by the authors, the original text is in Dutch. Rouffaer, 'Aanhangsel', 12. This observation also applied to regions in Middle and East Java, where handicraft weaving was well developed. Nationaal Archief Den Haag (National Archives of the Netherlands, The Hague, hereafter NA), Handelingen van de Staten-Generaal 1814-1940, inv. no. 197, Koloniaal Verslag 1889, Bijlage PPP.

30 Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis'.

Multiple pathways: textiles, household economy and gender in the Dutch Empire

As we illustrated above, monocausal macro-level theories regarding industrialisation and de-industrialisation in global context have oversimplified complex processes that involved many interacting constituent parts on both the micro- and macro-level. In this section, we further showcase our project's multi-faceted micro-macro approach by illustrating complex interplays between global market forces, institutions and policies, and household labour choices, as modelled in Figure 1. Various combinations of these factors influenced social and economic developments at the local level and consequently help account for differences in industrial experiences. Here, we compare cases in the Netherlands and Java during the nineteenth century, to illustrate global-level interactions, as well as global and regional diversity in the timing and character of industrial developments.

Global trade, state policy, and local manufacturing in the Netherlands

Developments in the Dutch and the Javanese textile industries were closely intertwined in the nineteenth and early twentieth centuries. Dutch textile exports to Java were of particular importance for Dutch industrialisation in the first half of the nineteenth century, most notably for the cotton textile industry of Twente. Compared with other European countries, Dutch industrialisation had fallen significantly behind by the 1830s.[31] To help stimulate development, the Dutch government allowed private textile companies to secure contracts with the NHM, thus realising a set outlet for their goods in the East Indies. Moreover, import tariffs were covertly refunded after the cloth had arrived in Batavia (now Jakarta). The government heavily subsidised these refunds until the 1860s, interfering in the global market in an effort to combat – especially British – competition.[32]

Dutch industrialisation would, in turn, affect Javanese textile production by providing both the unbleached factory-made cloth that helped boost the Javanese cloth-printing industry (see above), as well as large quantities of machine-produced yarn that stimulated a rise in Javanese weaving and an associated decline in spinning. Moreover, in both the Netherlands and Java, divisions of labour changed as gender norms (for

31 This industrial retardation has been heavily debated. Proposed explanations are, among others, lack of coal, a specific economic structure inherited from the early modern era, and economic and political fragmentation. See for instance: Jan Luiten van Zanden, 'Industrialization in the Netherlands', in: Mikuláš Teich and Roy Porter (eds.), *The Industrial Revolution in National Context: Europe and the USA* (Cambridge University Press 1996) 78-94; Van Zanden and Van Riel, *Strictures of Inheritance*.

32 Van Zanden and Van Riel, *Strictures of Inheritance*, 114-119.

example about who spun and who wove) were adjusted to meet changing household labour needs and opportunities that arose due to confluences of global market forces, state policies, and technological change. Moreover, the precise direction and speed of these changes were influenced by local-level conditions, as is well illustrated by a comparison of the Dutch areas of Twente and Tilburg.

During the early modern period, the textile industry in Twente had been principally geared towards linen production for domestic use. After 1750, the influx of cotton and fustian fabric – a mixture of cotton and linen – from Scotland, Ireland and Silesia, led to a crisis in the Twente linen industry, causing producers to largely switch to also working with cotton.[33] The year 1830 was an important turning point, as the southern provinces – present-day Belgium – seceded from the Netherlands, after which the import of Belgian cotton cloth was immediately restricted. This posed a significant problem for the NHM, which had started exporting cotton yarn and cloth to the Dutch East Indies that had previously been produced in the seceded provinces. To keep the flow of textile exports going, the Dutch state and the NHM actively sought to boost the cotton industry in Twente. Specific local conditions drew the state's attention to the region: the population was already familiar with linen and cotton textile production and wages were low because spinning and weaving usually provided the household an additional income to farming. In short, the region was ideally suited to a rapid factory-based expansion in cotton textile manufacturing, which would be underpinned by infusions of modern technology.

To quickly ramp up production, the flying shuttle was introduced in 1830, which significantly increased weavers' output and required less physical strength than old-fashioned handlooms.[34] Hereafter, Twente's cotton industry expanded swiftly, and steam-driven machinery would become increasingly prevalent during the succeeding decades. Table 1 shows how many manually and steam-driven spindles and weaving looms were in use in Twente following the shift of the Dutch cotton-cloth centre of gravity from Belgium.

During the first ten years after the Belgian secession, the number of both manually and steam-driven spindles increased dramatically, but in the

33 Joyce Mastboom, 'Protoindustrialization and Agriculture in the Eastern Netherlands: Industrialization and the Theory of Protoindustrialization', *Social Science History* 20:2 (1996) 235-258. DOI: https://doi.org/10.1017/S0145553200021611; François Hendrickx, 'From weavers to workers: Demographic implications of an economic transformation in Twente (the Netherlands) in the nineteenth century', *Continuity and Change* 8:2 (1993) 333. DOI: https://doi.org/10.1017/S0268416000002101.

34 Elise van Nederveen Meerkerk, Lex Heerma van Voss and Els Hiemstra-Kuperus, 'The Netherlands', in: Lex Heerma van Voss, Els Hiemstra-Kuperus and Elise van Nederveen Meerkerk (eds.), *The Ashgate Companion to the History of Textile Workers, 1650-2000* (Routledge 2010) 378-379.

Year	Spindles		Weaving looms	
	Manual	*Steam*	*Manual*	*Steam*
1831	28,000	3,000	8,000	-
1841	64,000	30,000	9,100	-
1851	4,500	34,000	8,500	-
1860	500	42,500	8,500	2,000
1871	-	165,860	2,800	8,338
1881	-	175,500	1,325	10,697
1891	-	231,262	375	15,472
1901	-	324,066	200	20,500
1911	-	471,906	-	29,700
1921	-	660,512	-	37,874
1931	-	1,150,311	-	44,600

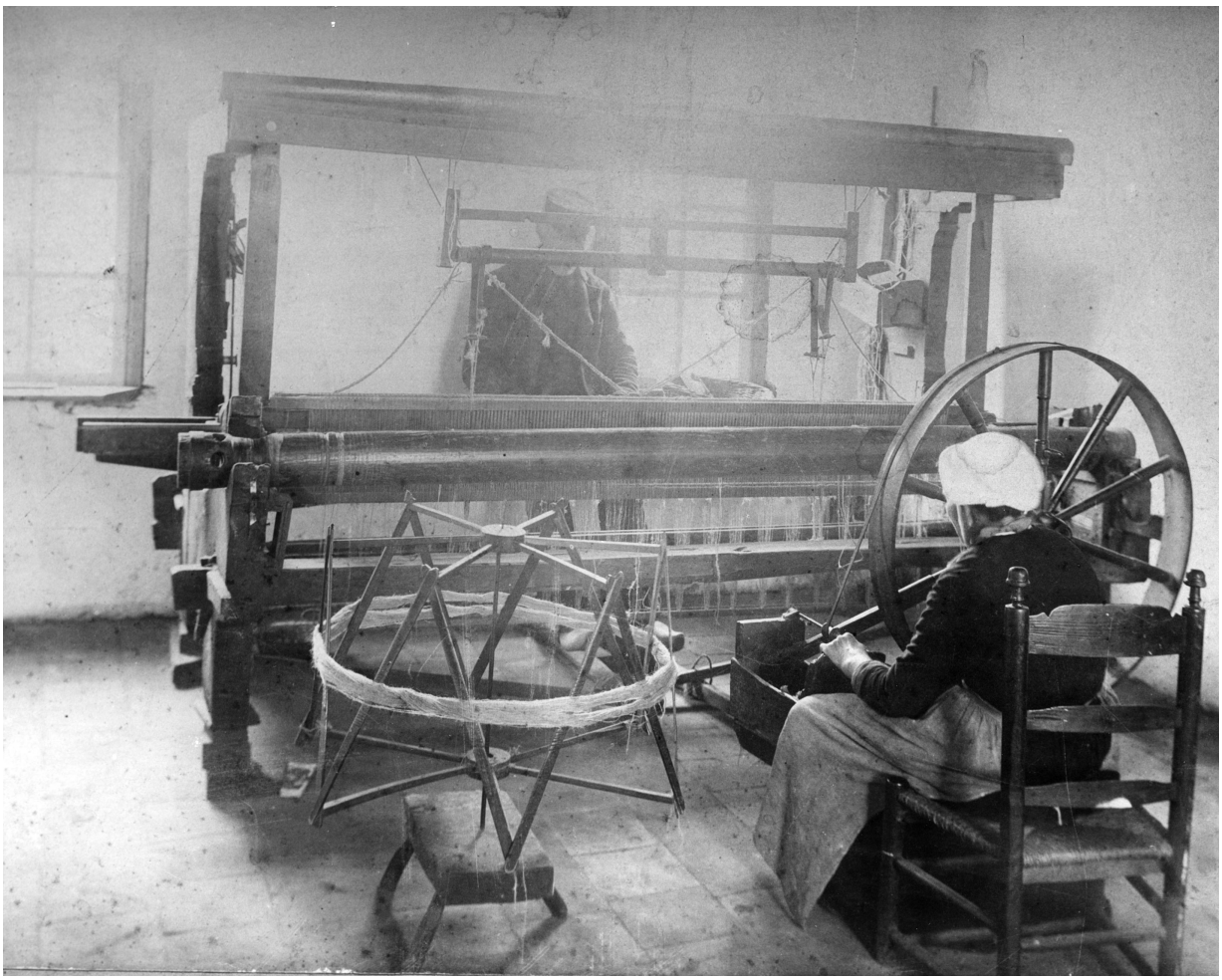
Table 1. Number of spindles and weaving looms in use in Twente, 1831-1931.

Source: Erik J. Fischer, 'De ontwikkeling van de Twentse katoenindustrie en de toename van de arbeidsproduktiviteit tussen 1800 en 1930', *Textielhistorische Bijdragen* 22 (1981) 27.

1840s hand-spinning started to decline until it died out in the 1860s and was replaced entirely by steam-based spinning. Over the next 70 years, the number of spinning mills with steam-driven machines decreased from ten to nine, but the number of steam-driven spindles in use increased 27-fold, indicating the vastly increasing economies of scale in the factories. Weaving looms, on the other hand, remained manually operated for much longer. The flying shuttle could be used at home, which was convenient for the thousands of people who combined the craft with agricultural activities. Power looms were introduced in Twente only in 1860, but they expanded rapidly thereafter, growing from 2,000 in 1860 to 20,000 in 1900 and to 44,500 in 1930.[35]

In contrast to Twente's cotton industry, the Tilburg wool industry grew only modestly during the nineteenth century. As had been the case in Twente, weaving schools were founded, but unlike in Twente, the goal was not to train as many workers as quickly as possible to meet urgent cotton cloth export demands. Rather, in Tilburg, schools were geared toward gradually professionalising factory-based wool weaving. The transition to factory production would thus occur in Tilburg, but more gradually. As in Twente, a shift to steam power in spinning occurred during the 1840s and 1850s in Tilburg, but weaving remained manual and home-based for much longer. Indeed, where power looms took off in Twente by the 1870s, in Tilburg 55

35 Fischer, 'De ontwikkeling van de Twentse katoenindustrie', 20-22. See also: Erik J. Fischer, *Fabriqueurs en fabrikanten: Twente, Borne en de katoennijverheid 1800-1930* (Matrijs 1983) 76-83.



▲

Figure 4. Home weavers Jan Dirken and Petronella Donders. They lived and worked around 1900 in Goirle, a town in the Tilburg region. © Regional Archives Tilburg, Photo collection Goirle, Nr. 260039, maker unknown. https://hdl.handle.net/21.12103/9ed0c3e4-0b28-ee72-e3e0-434e74e02de2.

per cent of the weavers were still working at home in 1897. The share of handloom weavers in Tilburg only began to decrease rapidly in the early twentieth century, finally declining to 22 per cent in 1905 and 7 per cent in 1909.[36] This more gradual expansion of mechanisation in the Tilburg region was undoubtedly linked to the influence of market forces on state policy – the pronounced market incentives to stimulate rapid output of cotton manufactures simply were not as prevalent for the woollen industry, which had a much more stable, less global, market.

Gender divisions of labour in the Netherlands and Java

Interactions between global demand patterns, state policy, and technology would influence not only the speed of industrial mechanisation, but also the character of textile industries in Tilburg and Twente. Furthermore, the distinct ways in which these two textile industries mechanised – rapidly in Twente and gradually in Tilburg – resulted in different types of gender-based labour division, which affected household livelihood strategies.

In Twente, both men and women were needed to meet the sudden boom in demand for labour after 1830, as demand for cotton manufactures rapidly rose. Both were thus taught how to use the flying shuttle. Consequently, weaving became a gender-mixed occupation, and it would remain so as production was increasingly relocated from homes to factories. This was a decisive break with the proto-industrial past, when weaving had predominantly been done by men. Spinning, on the other hand, had been a female profession, but was largely taken over by men with the introduction of factory-based modern spinning machinery.[37] Still, even though elements of occupational segregation existed in Twente's textile factories, the labour force was generally mixed, with men and women working side by side.[38]

In Tilburg, occupational segregation was far stricter, not only in terms of the type of work, but also in terms of workplace. Because the transition to steam-driven machines that were operated in factories was gradual and demand for wool products less urgent, the demand for factory-based weavers could be met exclusively by a male labour force. Men and boys were the first to move to the factories, but unmarried women and girls soon followed as ancillary tasks were relocated to factories too. However, unlike in Twente, male and female factory workers were strictly separated. The gender division

36 Gertjan de Groot, *Fabricage van verschillen: Mannenwerk, vrouwenwerk in de Nederlandse industrie (1850-1940)* (Aksant 2001) 193.

37 Specific types of spinning machines were mostly operated by women, such as the ring spinning machine, which was introduced in the early twentieth century. De Groot, *Fabricage van verschillen*, 346-348.

38 Angélique Janssens, 'De rol van vrouwen in de eerste demografische transitie in Nederland. Een vergelijking van twee textielsteden', *Tijdschrift voor Sociale en Economische Geschiedenis* 6:4 (2009) 87-114.

of labour was the same in factories as it had been in the home industry: men wove and women mended the cloth. Moreover, married women were absent from factories in Tilburg, although they had performed the same type of work at home as unmarried women did in factories.[39] Because of the gradual transition to factory-based production, the home industry remained important in Tilburg until the early twentieth century (see Figure 4),[40] although it did not completely disappear in Twente either.[41]

The economic policies of the NHM and the Dutch state not only affected industry and gender divisions of labour in the Netherlands, but also in Java. After the introduction of the Cultivation System in 1830, men's labour time was increasingly devoted to the cultivation of crops for the Dutch state. As a result, women's role in subsistence agriculture, the market, and non-agricultural work in the countryside expanded swiftly.[42] The implementation of the Cultivation System led to a brief disruption of textile production in Java, but the industry recovered by the mid-nineteenth century, partly aided by imports of Dutch cotton manufactures. Ultimately, however, the importation of Dutch yarn and cloth that accompanied increasing trade between colony and metropole did not lead to the demise of the Javanese textile industry. While it is true that hand spinning disappeared in most regions, the focus of female producers shifted from spinning to weaving and cloth printing. Estimates indicate that the amount of labour time needed to process all imported yarn into cloth increased drastically, from 2,515 to 340,000 'woman-years', during the period 1830-1920 (see Table 2).[43] Particularly between around 1850 and 1910, the number of potential women needed to weave with imported cotton yarn approximately doubled each decade, with the exception of 1880-1890. This trend only abruptly ended with the First World War, never to recover again. Hand weaving with factory-made imported yarns therefore remained a vital side-employment for Javanese peasant women for a long period of time (see Figure 5). This was a rational choice, as the hours spent on weaving were more profitable than those expended on hand spinning.[44]

In Java, as in the Netherlands, an eventual shift towards mechanisation would impact gender divisions of labour. Whereas weaving remained the domain of women up to the 1920s, Javanese men would increasingly enter the profession from the 1930s, when power looms and factories were introduced

39 De Groot, *Fabricage van verschillen*, 200-201.

40 Directie van den Arbeid, *Onderzoekingen naar de Toestanden in de Nederlandsche huisindustrie, Deel III: Textielindustrie – Kleeding en reiniging* (Algemeene Landsdrukkerij 1914) 23-35.

41 Arbeidsinspectie, *Enquête, gehouden door de staatscommissie benoemd krachtens de wet van 10 Januari 1890 (Staatsblad no. 1) (Tweede Afdeeling)* (Den Haag 1890) 241.

42 Van Nederveen Meerkerk, *Women, Work and Colonialism*, 85-126.

43 *Ibid*., 140.

44 *Verslag van den waters- en voedingnood te Semarang uitgebracht door de Commissie,*

	imported yarn (x 1,000 kg)	*index (1870=100)*	*woman years*	*index (1870=100)*
1830	22.5	4	2,515	4
1840	149.0	24	12,000	21
1850	284.9	45	15,147	26
1860	375.6	60	30,102	53
1870	627.8	100	57,213	100
1880	2424.5	386	125,507	219
1890	1619.0	258	75,412	132
1900	2392.0	381	178,098	311
1910	4256.0	678	340,000	594
1920	1831.8	292	152,129	266

Table 2. Estimated woman years of weaving labour needed to process imported yarn (own calculations), Java, 1830-1920.

Sources: Hendrik Muller Szoon, *De Nederlandsche katoennijverheid, en het stelsel van bescherming in Nederlandsch-Indië* (Rotterdam 1857); Statistisch Instituut, *Bijdragen van het Statistisch Instituut* (Amsterdam 1887); W.L. Korthals Altes, *General trade statistics 1822-1940. Changing economy of Indonesia, vol. 12* (Amsterdam 1991) 107-112; G. Dalenoord, 'Textielnijverheid in Nederlandsch-Indië', *Koloniale Studiën* (1926) 172.

and declining agricultural prices forced people – mostly men – to find employment beyond the primary sector. By 1941, only a third of the weavers working on the modern power looms was female.[45]

In cloth printing, too, the gender division of labour had changed with the introduction of new techniques, partly stimulated by global trade. Traditionally, the art of producing *batik tulis* – hand-painting cloth with beeswax – was mostly performed by women. This process was, however, extremely time-consuming, and so *batiks* were unaffordable for most Javanese people. In order to remain competitive with Dutch factory-made imitation wax-prints, the less labour-intensive *cap batik* method of block printing was developed in the 1860s, which was done solely by men and primarily on imported unbleached cloth.[46] Interestingly, this made locally hand-printed cloth not only much more affordable to the Javanese consumer, but Java also became a net exporter of *cap batik*, offering serious competition to European imitation wax-print factories.[47]

ingesteld bij Gouvernements Besluit d.d. 2 Juli 1902 (Buitenzorg 1903) appendix L.

45 This reversal of gender division in weaving was not complete, as handloom weaving continued to exist even during the postcolonial period. It has been estimated that right after the Second World War, there were still some 500,000 handlooms in use in Indonesia, most of them operated by women. Van Nederveen Meerkerk, *Women, Work and Colonialism*, 144.

46 J.E. Jasper and Mas Pirngadie, *De inlandsche kunstnijverheid in Nederlandsch Indië. Vol. III, De batikkunst* (Mouton & Company 1916) 79.

47 Wronska-Friend, *Javanese Batik*, 110-112.

▲

Figure 5. Weaving women around 1910 in West-Java, their names are unknown. They are depicted on a chart in the series *Sketched description of the contemporary Dutch colonies* (*Schetsmatige beschrijving der hedendaagsche Nederlandsche koloniën*) (Kleynenberg, Boissevain & Co. 1912-1913) © Southeast Asian & Carribean Images, KITLV A746, maker unkown, http://hdl.handle.net/1887.1/item:922482.

Even while mechanisation of weaving and cloth printing expanded in Java, handloom weaving and the production of traditional *batiks* continued to exist because these activities could be performed in the home, thus facilitating a combination of industry with land cultivation, illustrative of the multiple livelihood strategies pursued by households. In fact, both in the Netherlands and in Java, households typically had diversified income-generating strategies, combining wage labour and/or industrial home production with subsistence agriculture. In the Netherlands, during the early modern period, farmers' households often spun and wove during slack periods of agricultural work.[48] Even after 1860, when textile production increasingly shifted to factories, a tight link between agriculture and industry continued to exist. A survey on the state of the home industry, published in 1914, confirmed this, reporting that '[in Tilburg] the cultivation of land is of little significance, although virtually every house comes with a small plot of land, which is used for cultivation or for keeping some cattle'.[49] For most households, small-scale agricultural activities were a crucial addition to their wage income, and many of these were performed by the housewife. Estimates for textile households in Twente around the turn of the twentieth century show that the yields from land cultivation amounted to almost fourteen per cent of the total household income.[50]

In Java, the Cultivation System drastically changed the household labour division in subsistence agriculture. Before its introduction, women and children were responsible for transplanting rice seedlings, after which men took over the cultivation process, being responsible for weeding, tilling, and irrigation. Harvesting was a joint effort of men, women, and children. However, because the Cultivation System demanded a significant share of men's labour time, women had to compensate these lost man-hours. Indeed, before the Cultivation System, around half of the time spent on subsistence rice cultivation was performed by women, increasing to 75 per cent around 1900. In absolute terms, women's agricultural labour input increased significantly, from 47 days per year in 1815 to 90 in 1880.[51] Women thus played a crucial role in subsistence agriculture and in safeguarding the diversification of sources of income. Importantly, however, the increasing use of machine-manufactured imported yarn enabled women to combine the intensification of agricultural activity

48 Bernard Slicher von Bath, 'Historische ontwikkeling van de textielnijverheid in Twente', *THB* 2 (1961) 21-39.

49 Directie van den Arbeid, *Onderzoekingen*, 34.

50 Corinne Boter, 'Living standards and the life cycle: Reconstructing household income and consumption in the early twentieth-century Netherlands', *Economic History Review* 73:4 (2020) 1050-1073. DOI: https://doi.org/10.1111/ehr.12997.

51 Van Nederveen Meerkerk, *Women, Work and Colonialism*, 97-98.

caused by the Cultivation System with textile production, illustrating a more complex relationship between colonial policy, global trade, and industry than theorists have supposed.

Contrary to the assumptions of neo-classical economists and dependency theorists, neither global trade nor colonial intervention resulted in widespread de-industrialisation in the case of Java. Rather, as in the Netherlands, households responded with resilience and flexibility, regularly reorienting their labour allocation strategies in industry and agriculture to maximise their time and incomes. The cases of Java, Twente, and Tilburg illustrate the complex dance between macro- and micro-level factors in influencing industrial pathways in different contexts. We find that global market forces did influence industrial changes, but in more diverse and nuanced ways than macro-level narratives assume. In Java consumer demand for unbleached cotton cloth and yarn, as well as imported industrial inputs and technique-stimulating competition from imported wax-prints, helped underpin a rapid boost in mechanisation. This is at odds with Williamson's assumption that imports necessarily undermined textile industries in the Global South. But global market forces alone cannot account for the industrial pathways followed in these cases. The timing and intensity of mechanisation in Twente and Tilburg – as well as the attendant differences in gender divisions of labour – were heavily influenced by state policies. Twente was specifically singled out as an ideal centre for cotton textile manufacturing for having low wages combined with cotton textile traditions. New technologies were infused into the region, fundamentally altering the nature of local industry, with significant implications for gender divisions of labour. In Java, too, colonial policy affected industrial developments and gender divisions of labour, as the role of women in the household altered with the implementation of the Cultivation System. However, even as men were pulled into agricultural production for the colonial state, women found ways to both make up for male absence in the agricultural activities at home and pursue other market-oriented activities, including an expansion of handloom weaving, using imported yarn.

Quality matters. Consumer preference and producer agency

The preceding section has highlighted how household labour allocation strategies could influence the resilience of local handicraft textile production. As we will now show, the survival of local textile industries amid increasing global trade during the nineteenth century also depended heavily on local consumption preferences. Recent studies on Java, Africa, and India have drawn fresh attention to this crucial factor that had long been ignored in

much of the literature on the global relocation of textile manufacturing.[52] In the case of colonial Java, there are clear indications that indigenous consumer preferences played an important role in buttressing local textile production in the face of increasing competition from imports.

As we saw earlier, the British had struggled with low demand for their factory-made cloth imports from Javanese consumers during their brief period of colonial rule in the early nineteenth century. Although the imports of cotton cloth from the Netherlands did take off quite remarkably, especially after 1870 (Figure 2), these imports were not only far from sufficient in quantitative terms to clothe the entire Javanese population, but there are strong indications that Dutch cloth was also poorly received by many Javanese. The low price of the imported cloth may have temporarily won over consumers in the first decades of the Cultivation System, when living standards deteriorated; however, local production started to outcompete the factory imports by the 1860s. Local producers successfully competed for both the upper and lower segments of the market by supplying skill-intensive and expensive *batik tulis*, along with the lower-priced stamped cloths produced using the less labour-intensive *cap batik* method, which were preferred by indigenous consumers over printed imports. In 1870, growing competition in the lower end of the market was noted by colonial officials:

> The time is gone, that the native exclusively focused on the making of *batiks* as a form of art, which were of exquisite beauty, but had to be recompensed likewise. Nowadays, he delivers products in this genre that, in quality related to price, are in no sense inferior to those fabricated in Europe. To sustain competition with him, the European *batik* producer will need to be able to deliver his manufactures for a much fairer price.[53]

Along with quality, design and tradition were also of importance to Javanese consumers. Many foreign travellers were amazed by the traditional handicrafts, 'which, concerning their designs could educate European masters'.[54] Dutch contemporaries also remarked that the specific demand for hand-painted batik was related to very particular local tastes, namely 'the love of the Javan for monstrous and impossible shapes', which did not accord as well with the symmetry of the stamping technique as the more whimsical

52 On India, Java and Africa, see: Haynes, *Small Town Capitalism*; Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis'; Frederick, *Twilight of an Industry*; William Gervase Clarence-Smith, 'The Textile Industry of East Africa in the *Longue Durée*', in: Emmanuel Akyeampong, Robert H. Bates, Nathan Nunn and James A. Robinson (eds.), *Africa's Development in Historical Perspective* (Cambridge University Press 2014) 264-294; Colleen E. Kriger, *Cloth in West African History* (AltaMira Press 2006).

53 NA, Koloniën 1850-1900, inv. no, 2362, Verbalen, no. 80, 26 November 1870.

54 J.E. Jasper and Mas Pirngadie, *De inlandsche kunstnijverheid in Nederlandsch Indië, vol. II de weefkunst* (Mouton & Company 1912) 2.

results of traditional batik.[55] More in general, it seems that European observers underestimated the delicate symbolic meanings of the designs and colours in the Dutch East Indies.[56] In fact, Javanese producers had always actively geared their *batik tulis* patterns to local tastes. In Central Java, which was highly influenced by the sultans in the *kratons* (palaces), producers were more bound to specific colours and patterns that were traditionally prescribed by the royal courts. However, on the Northeast coast of Java, which knew a rich tradition of both *batik* production and trade, producers had much more flexibility to adapt quickly to the different tastes of domestic as well as foreign consumers, such as Europeans, Chinese, and Japanese. This led to a wide range of carefully crafted, colourful and durable printed fabrics, which competed fiercely with both factory and stamped wax-prints.[57]

Observers noted that if the indigenous Javanese peasant could afford it, he would choose the artistic *batik tulis* over the more regularly stamp-printed *cap batik*, and *cap batik* over the cheaper imported factory cloth.[58] Living standards of the Javanese had likely increased somewhat after the first, highly exploitative decades of the Cultivation System allowing some segments of the population to afford such luxury consumption.[59] More important, however, was probably the sheer size of the consumer market. In the second half of the nineteenth century, the Javanese population grew considerably, thus enlarging the internal market for textiles. Moreover, other unintended consequences of Dutch colonialism, such as improvements in infrastructure and monetisation of the Javanese economy, contributed to the evolution of local textile markets.[60]

As the Dutch continued to struggle to compete with domestic versions of printed cloth, they began diverting their exports of imitation batiks elsewhere. By the final decades of the nineteenth century, Dutch-printed cloths would find more favourable markets on the western and eastern coasts of Africa. Given the specificity of local demand, Dutch producers adapted their designs to suit local tastes in Africa, combining elements of Javanese prints with domestic stamping patterns, leading to the creation of *kanga* prints that remain popular today.[61] Whereas Dutch-made prints struggled to compete in Java with the authentic Javanese batiks that they sought to directly imitate, Dutch-printed products differed significantly enough from domestic African

55 J.L. Rovers, 'Inlandsche katoen-industrie op Java', *Tijdschrift voor Nijverheid en Landbouw in Nederlandsch-Indië* 18 (1873) 420.

56 For an excellent, richly illustrated, account, see Wronska-Friend, *Javanese Batik*.

57 Nina Stephenson, 'The past, present, and future of Javanese batik: A bibliographic essay', *Art Documentation* 12:3 (1993) 110. DOI: https://doi.org/10.1086/adx.12.3.27948560.

58 Rouffaer, 'Aanhangsel', 26-27.

59 Van Nederveen Meerkerk, *Women, Work and Colonialism*, 175-176.

60 See also, Van Nederveen Meerkerk, 'Challenging the de-industrialization thesis', 1236-1238.

61 Mackenzie Moon Ryan, 'A Decade of Design: The Global Invention of the *Kanga*, 1876-1886', *Textile History* 48:1 (2017) 101-132. DOI: https://doi.org/10.1080/00404969.2017.1294815.

cloth to form a novel complementary – rather than directly competitive – product in African markets and consequently received a more welcome reception by consumers.[62] In fact, printed cloth produced by the Dutch textile company Vlisco continues to enjoy widespread popularity in sub-Saharan Africa, which is still visible today (see Figure 6).[63]

Conclusions

As the preceding comparative case studies have illustrated, processes of industrial change have been far more complex and involved many more interacting factors at the macro- and micro-level than oversimplifying macro-narratives suggest. For example, de-industrialisation theories overlook crucial micro-level factors, like consumer preferences, that complicate assumptions that imports from abroad obliterated domestic textile industries in the Global South, as our analysis of Java illustrates. Likewise, institutional arguments that point to the overwhelming force of powerful state and capitalist actors in driving industrial outcomes across the globe lose sight of local agency, particularly in the case of colonised regions, where producer and consumer behaviour was often at odds with metropolitan aspirations and expectations. Finally, our comparison of industrial developments in Twente, Tilburg and Java highlights complex interactions between world regions, as well as the interplay between numerous factors on the micro- and macro-level – particularly market forces, institutions and policy, and specific local conditions – which resulted in differing industrial trajectories and household production and income diversification strategies in each case.

Only by bringing in an array of overlooked factors, and considering how they interact, can we uncover the complex processes that guided local industrial experiences and broader global transitions in textile manufacturing from the eighteenth century onward. While this article has homed in on a few regions to illustrate some of our central hypotheses and showcase our comparative multi-factor and multi-level approach, our ongoing research is far more global in scope, encompassing comparative studies in Java, the Netherlands, the United Kingdom, China, sub-Saharan Africa, India, and Japan. Through comprehensive comparative studies, we aim to produce a more nuanced view on the global-local and macro-micro drivers of industrial resilience and relocation of textile manufacturing.

62 Frederick and Van Nederveen Meerkerk, 'Local advantage in a global context', 9-10.

63 Willem Ankersmit, 'De opkomst van de waxprint, van imitatiebatik voor Nederlands-Indië tot statussymbool in West-Afrika', *THB* 52 (2012) 7-33; Wronska-Friend, *Javanese Batik*, Chapter 3.

▲

Figure 6. Installation view of the exhibition 'Vlisco: African Fashion on a Global Stage', Joan Spain Gallery, Perelman Building at the Philadelphia Museum of Art, May 5, 2016. © Courtesy of the Philadelphia Museum of Art, photo taken by Tim Tiebout.

Elise van Nederveen Meerkerk is Full Professor of Economic and Social History at Utrecht University. She specialises in the history of labour relations, particularly women's and child labour and the role of households in production and consumption patterns worldwide. Her publications include articles in *Feminist Economics, the Economic History Review*, the *Journal of Global History,* and the *International Review of Social History*. She organised various interdisciplinary comparative projects, on the history of textile work, child labour, domestic workers, and sex work, which all resulted in edited volumes (Brill, Ashgate, Peter Lang). In 2019, she published *Women, Work and Colonialism in the Netherlands and Java. Comparisons, Contrasts and Connections, 1830-1940* (Palgrave Macmillan, DOI: https://doi.org/10.1007/978-3-030-10528-0), on the connections between developments in women's work in the Netherlands and its most exploited colony, the Dutch East Indies (present-day Indonesia). See also: www.elisenederveen.com. E-mail: e.j.v.vannederveenmeerkerk@uu.nl.

Corinne Boter is Assistant Professor of Economic and Social History at Utrecht University. Her research agenda seeks to understand the historical spatial, temporal, and sectoral variation in economic gender inequality. She is particularly interested in how the interaction between economic change and gender ideology affected women's labour market position in industrialising economies during the long nineteenth century. Her publications include articles in the *Economic History Review*, *Feminist Economics*, the *European Review of Economic History*, and *History of the Family*. In 2020, she published 'The impact of sectoral shifts on Dutch unmarried women's labour force participation, 1812-1929', a co-authored article with Pieter Woltjer, which shows that shifting sectoral employment shares drove the falling labour force participation of Dutch unmarried women. This article was published in the *European Review of Economic History* (DOI: https://doi.org/10.1093/ereh/hez020). E-mail: c.a.boter@uu.nl.

Sarah Carmichael is Assistant Professor of Economic and Social History at Utrecht University. She looks at questions surrounding the determinants of contemporary development outcomes and is particularly interested in finding novel ways to measure cultural and institutional phenomena. The bulk of her research focuses on gender inequality and family organisation. She has published in the OECD report "*How was Life*?", in *Feminist Economics*, the *Journal of Family History* and the *Journal of Economic History*. Together with Jan Luiten van Zanden and Tine De Moor she wrote the book *Capital Women: The European Marriage Pattern, Female Empowerment and Economic Development in Western Europe 1300-1800* (Oxford University Press 2019, DOI: https://doi.org/10.1093/oso/9780190847883.001.0001). E-mail: s.g.carmichael@uu.nl.

Katharine Frederick is Assistant Professor of Economic and Social History at Utrecht University. Her research focuses on social and economic transformation during the nineteenth and twentieth centuries, with a particular emphasis on how the intersection of globalisation, colonisation, and industrialisation affected the livelihoods and survival strategies of labourers, especially in sub-Saharan Africa. In 2020, she published *Twilight of an Industry in East Africa: Textile Manufacturing, 1830-1940* (Palgrave MacMillan, DOI: https://doi.org/10.1007/978-3-030-43920-0) which explores the interplay of global and local forces in the decline of textile production across much of East Africa by the turn of the twentieth century. Alongside her specialisation in Africa, she also pursues globally comparative research. For example, 'Local advantage in a global context. Competition, adaptation and resilience in textile manufacturing in the "periphery", 1860-1960' published in the *Journal of Global History* (18:1, 2023, DOI: https://doi.org/10.1017/S1740022821000425), written in collaboration with Elise van Nederveen Meerkerk. E-mail: k.r.frederick@uu.nl.