The Significance of Early Globalization: Arguments and Evidence

Pim de Zwart and Dennis O. Flynn

Introduction

To what extent can the early modern period be viewed as a first age of globalization? This question has been at the centre of an academic debate among economic historians over the past two decades. The answer to the question is, of course, crucially influenced by the definition of globalization. Two definitions have dominated the literature to date. The first, put forth by Dennis O. Flynn and Arturo Giráldez (2004, 2008), defines globalization as sustained interaction among all of the world's heavily populated land masses on a scale that generated deep and lasting impacts. Their geographical definition emphasizes a multidimensional process that includes economic, environmental, epidemiological, demographic and cultural aspects. A second definition offered by Kevin O'Rourke and Jeff Williamson (2002, 2004) describes the process in much narrower terms. They suggest that globalization means integration of markets, and that

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evidence for market integration can be found in analysis of convergence of prices across the globe. Jan de Vries (2010) dubbed the former definition "soft" globalization, and the latter "hard" globalization in his review of this debate.

In this chapter, we first demonstrate that the early modern period can be confidently viewed as the first era of globalization according to either definition. In measurable, quantitative "hard" terms, substantial globalization took place prior to 1800: trade volumes increased, prices converged globally, purchase patterns changed, migration increased, and environmental integration ensued. Second, we show that irrespective of "hard" globalization, effects of sustained global interactions were highly significant. In fact, we argue that impacts of "soft" globalization were often much "harder" than impacts of "hard" globalization. We suggest that globalization was a driving force that influenced patterns of global economic divergence prior to the Industrial Revolution, patterns that largely persist into the twenty-first century.

Integration of Global Commodity Markets

Did commodity markets across the globe become increasingly integrated during the early modern period (ca. 1500–1800)?[1] Until recently, the answer to this question has usually been negative: lack of technological progress in shipping, information asymmetries and monopolies (O'Rourke and Williamson 2002, 2004), as well as low trading volumes compared with total population (De Vries 2010), meant that domestic prices remained unaffected by global trade and events. Since prices did not budge, according to this view, effects of globalization were inconsequential. Technological progress involving steamships and railroads, as well as the demise of monopolies by chartered companies, caused commodity prices to converge globally only after the Napoleonic Wars (O'Rourke and Williamson 2002). This view has been highly influential among economists, and some economic historians even refer to the nineteenth century as "the first age of globalization" without bothering to explain it (see e.g. Alexander and Keay 2019; Chilosi and Federico 2019; Pascali 2017).

[1] See also: De Zwart and Van Zanden (2018).

Recent research, however, has put this view in doubt. While it is true that trade grew faster, and prices converged quicker, during the nineteenth century, there is nevertheless evidence of integration of markets along all major trade routes (between America and Europe, Africa and America, America and Asia, and between Europe and Asia). Flynn and Giráldez (1995, 2002, 2004) had long observed convergence of silver prices (expressed in gold) during both the seventeenth and eighteenth centuries, which—since silver was the main medium of exchange globally—clearly indicates integration of global markets. Klas Rönnback (2009) questioned whether patterns of price evidence observed by O'Rourke and Williamson (2002) would hold for all routes if data analyses were expanded. Rönnback's (2009) analysis showed price convergence for sugar between Brazil and Europe, coffee between Asia and Europe, tea between China and Europe, among others. In addition, he finds convergence in prices of slaves between Brazil and Luanda (Angola). This latter finding has been confirmed with figures on slave prices in Africa and Jamaica (De Zwart and Van Zanden 2018). Additional evidence of integrating Atlantic markets came from analysis by Rafael Dobado-González et al. (2012) of a large database of prices in grain markets in the Americas and Europe. They suggest that, at least regarding grain markets, integration across the Atlantic started during the eighteenth century.

Extensive work on trade between Europe and Asia by Pim De Zwart (2016a, b) is based upon new primary materials extracted from Dutch East India Company (VOC) archives. De Zwart analyzed trends in price convergence between Asia and Amsterdam for 16 products that constituted over 90% of total VOC trade. Ten product series showed statistically significant price convergence trends in the period between 1600 and 1800, while five series showed divergence, and only one product showed no significant trend in price gaps. Some goods were of greater importance than others, of course, and constituted a larger share of total trade in terms of volumes or values. VOC price gaps generally showed convergence when weighted by total volumes, invoice values, or in terms of gross margins (the overall difference between the invoice value of all goods purchased in Asia and total income from sale of these goods in the Dutch Republic). Evidence of VOC prices thus show a substantial scope for convergence of prices between Europe and Asia during the seventeenth and eighteenth centuries. At the same time, it becomes clear that there was no uniform development in these price gaps over time (De Zwart 2016a, b).

The extensive database with consistent data from a single company active in various regions of Asia also permits a deeper probe into the question of what determined price convergence, or lack thereof? An important part of this story is, of course, monopsony and/or monopoly powers held by European chartered trading companies (like the VOC, the British East India Company and the Compagnie des Indes), which influenced market conditions and prices. European chartered companies in principle held monopoly rights for sale of Asian goods in their domestic markets. In practice, pricing power of these companies was often limited due to competition from third markets as well as smuggling (De Zwart 2016a). Furthermore, the extent of control by these companies differed in overseas purchase markets, as shown for the VOC. Whereas in many cases VOC traders represented just one party of traders among many others, and therefore had to pay going market rates, in other cases they obtained special trading privileges in return for military support to a local ruler, while again in other cases the VOC became territorial colonial ruler and held complete control over local production.

Combining information on conditions in purchase and sales markets, De Zwart (2016a, b) identified four different types of commodities: free market goods, contract goods, colonial goods and monopoly goods. Prices converged strongly for those commodities bought in competitive markets throughout China and India (some as fast as 1% per year—reducing the mark-up to almost 1 for textiles and tea by the end of the eighteenth century).[2] Figure 1 shows fast price convergence for tea. Price convergence was less impressive, but still present, for most goods acquired by the VOC in areas where it received special trading privileges (like Japan, Sumatra, and Siam), but the VOC was unable to control production in its entirety. Pepper in Fig. 1 provides an example of a "contract good". A third set of commodities were those produced under colonial systems, like coffee in Fig. 1 and also sugar, which meant that the VOC was in complete control of purchase prices and quantities produced. Since these goods still competed on European markets with the same commodities brought in from elsewhere, however, prices could still converge due to large declines in European sales prices (e.g. the case of sugar). The final group of commodities consists of the famous four monopoly spices. These monopolies could seriously hinder the process of price convergence, and

[2] Since the mark-up is a ratio, a mark-up of 1 implies no difference in prices.

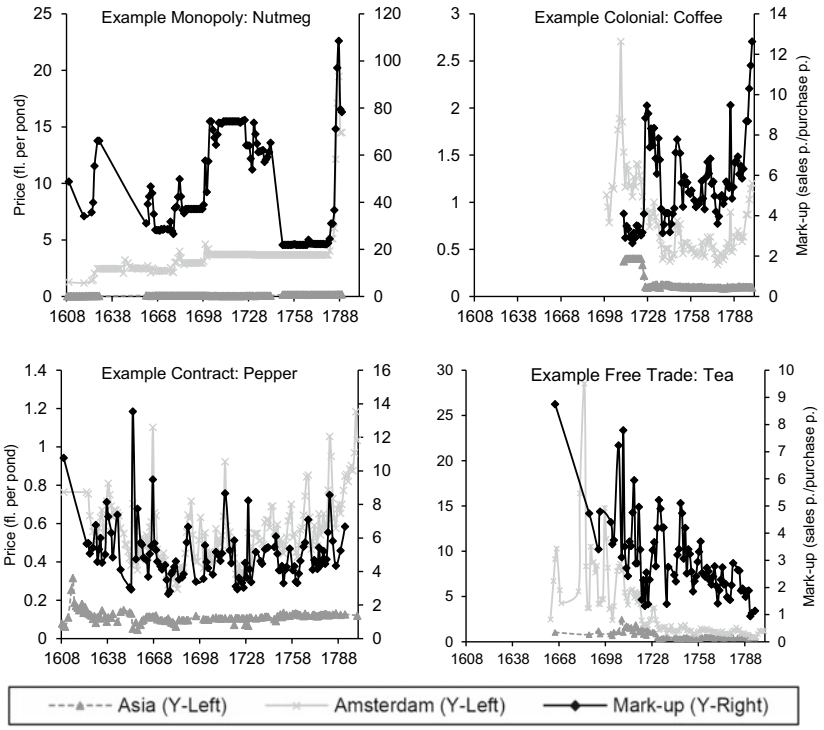

Fig. 1 Purchase and sales prices and the mark-up for example monopoly, colonial, contract and free trade goods (*Source* De Zwart 2016a, b)

mark-ups remained excessively high, as can be seen from the example of nutmeg in Fig. 1.

That no convergence of prices took place (in terms of reductions of the mark-up) for monopolies, however, does not mean that this trade had no impact. In those areas where the VOC hindered increases of prices in production areas, such as the Banda Islands (nutmeg) and Java (coffee) in Indonesia, VOC colonial intrusion in fact had dramatic and long-lasting impacts on local societies. In Banda, for example, almost the entire native population had been killed by the VOC because of its attempt to monopolize production. Furthermore, even in cases where prices may not have converged globally, due to obstacles to the functioning of commodity markets in the Global South, prices in Europe for these "colonial" goods

could still decline substantially compared with developments in domestic product prices. Figure 2 shows prices for sugar, tea and coffee in London and Amsterdam deflated by a local consumer price index. It becomes clear from this picture that prices of these global goods declined significantly compared with prices of domestic goods, making global products attainable for many European costumers.

During the age of mercantilism, the rise of colonialism across portions of Asia was thus a major obstacle to the process of price convergence, rather than a force spurring further integration as has often been claimed for the nineteenth century (De Vries 2010). Over the seventeenth and eighteenth centuries the VOC came to be colonial ruler over large parts of Ceylon (present-day Sri Lanka), Java (Indonesia), and the Moluccas (in the eastern part of the Indonesian archipelago). While in some regions, such as Java, the VOC may have been a 'reluctant imperialist' (e.g. Gaastra 2008), in others it deliberately expanded territorial control in order to safeguard its monopoly. Yet for goods produced in areas where European companies held little to no power (as was the case in, for example, most of India and China), there was clearly sufficient scope for prices to converge across the globe.

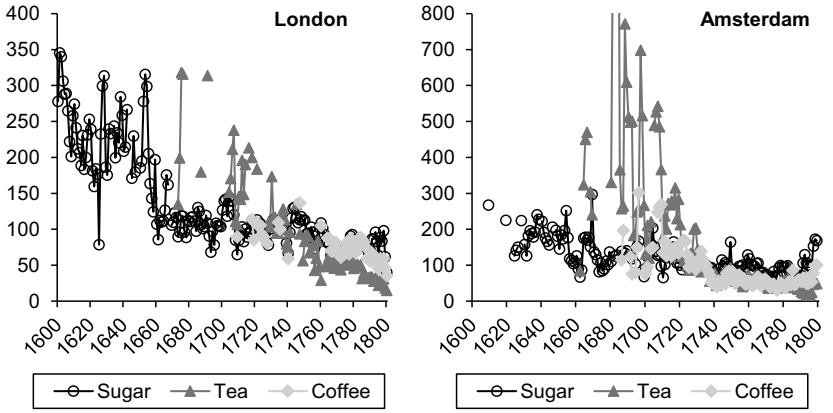

Fig. 2 Prices of sugar, tea and coffee in Amsterdam and London relative to consumer price index, 1600–1800 (*Source* De Zwart and Van Zanden 2018)

The Rise of Global Trade and Migration

Between 1500 and 1800 a boom in global trade and shipping took place (also observed by O'Rourke and Williamson 2009). Trade between Europe and Asia expanded at a rate of about 1% per year (De Vries 2010). Trade between Europe and the Americas, about which data are patchy, possibly increased at twice that rate (ibid.). This growth of trade was quite dramatic when compared with growth of GDP in Western Europe (0.4 per cent per annum) during this same period (Kelly and O' Grada 2019). Total world population between 1500 and 1800 increased a mere 0.25 per cent per annum. Global trade thus became a substantially more important part of European economies, as well as in per capita terms. Most important among commodities traded globally in this period was silver from Spanish American mines. Over these centuries there was a notable increase in both the production and export of American silver across the globe. Because Europeans produced little that was of interest to Asian customers, American silver relieved an important bottleneck of early trade.[3] Silver paid for an ever-increasing volume of pepper, spices, coffee, sugar, silks, and textiles transported from Asia to Europe.[4] Large amounts of coffee and sugar, and later also cotton, were, of course, also produced in the slave economies in the Southern US, Caribbean and Brazil.

Growth of trade was aided by consistent improvements in shipping: ship sizes, labour productivity on ships and ship speeds. First, ocean going ships substantially increased in size over the early modern period. In early decades of the sixteenth century, the average Portuguese ship sailing to India could carry some 280 tons. Later that century, ships with 1,000 tons capacity became the norm. Similarly, VOC ships increased in size from an average of 400 tons in the early seventeenth century to 800 tons by the end of the eighteenth century. Labour productivity also increased, as growth of tonnage was not matched by a similar growth of personnel: as a result, ton-man ratios increased from about 5 to some 9 tons per

[3] On the other hand, Flynn (2019) argues that collapse of the Ming paper money system around 1430 led to expansion of inventory demand for silver, thereby doubling the price of silver within China vis-à-vis European markets. Thus, the great mid-fifteenth century silver mining surge within Europe had already been stimulated by developments within China long before the European voyages of discovery.

[4] See also Palma and Silva (2016) who estimate that without European access to American silver, trade between Europe and Asia would have been significantly lower.

person over the seventeenth and eighteenth centuries—a rather substantial increase in labour productivity. Rönnback (2012) demonstrated that slave ships increased speed from an average of 2 knots in the later seventeenth century to about 4 in the early nineteenth century. In a series of contributions, Peter Solar and co-authors showed the importance of copper sheathing for increased speeds of English ships from the later eighteenth century (Solar 2013; Solar and Hens 2016; Solar and Rönnback 2015; Solar and De Zwart 2017). Morgan Kelly and Cormac O'Grada (2019) confirmed that ship speeds increased from the 1770s on, not only due to coppering, but also as a result of small changes to sails and rigging and improvement of hulls. More speed meant reduction in both capital and labour costs of trade. All this demonstrates that shipping productivity did not stagnate before the Industrial Revolution, even if changes were not as revolutionary as those that followed it.

Finally, no trade can exist without people to organized it, nor can global commodities be produced without labour; thus, the early modern period exhibited an enormous rise in (often forced) migratory flows. The largest flow of people across the Atlantic in the sixteenth century were colonists from Iberia who came to settle in various parts of overseas Spanish and Portuguese empires. Between 1500 and 1600, some 650,000 Iberians crossed the Atlantic. This number was more or less similar in the seventeenth century, and then increased to almost a million in the eighteenth (Lucassen 2016, p. 27). The number of northern Europeans migrating to the (mainly northern) Americas was smaller before the nineteenth century: some 400,000 in the seventeenth century and double that number in the eighteenth (from France, Britain, the Dutch Republic, and Germany combined) (ibid.). A much smaller number of colonists settled in European Asian Empires; according to Giráldez (2013, p. 266), 'in any one year between 1600 and 1740 there were not more than fifty thousand Europeans to be found in the whole of Asia'. Already in the seventeenth century, however, African slaves replaced European colonists as the biggest migratory flow. Whereas in the sixteenth century about 280,000 slaves disembarked in the Americas, this figure increased to almost 2 million in the seventeenth century and 6.5 million in the eighteenth. Taking these migrations together, as well as adding smaller migratory flows between, for example, Asia and Africa,[5] there was a

[5] Based on excellent recent overviews of Richardson (2011) and Lucassen (2016).

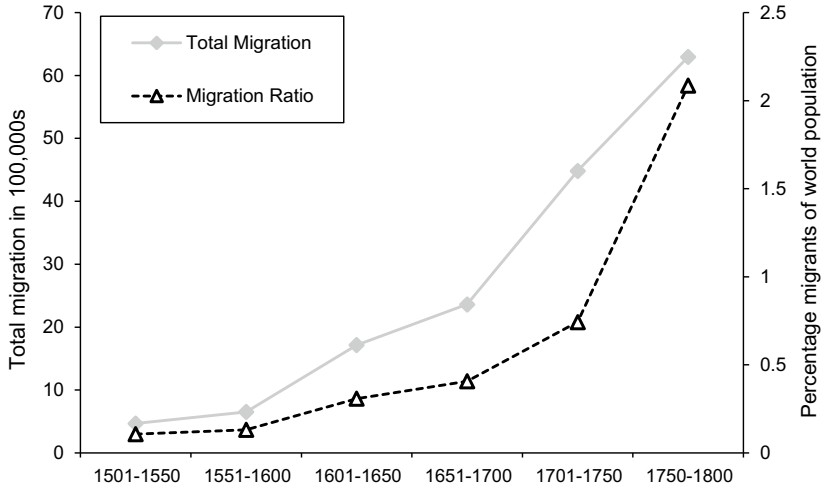

Fig. 3 Total number of intercontinental migrants and migration ratio, 1600–1800 (*Source* De Zwart and Van Zanden 2018)

substantial increase in both total migration and the total migration ratio—that is, migrants as a share of total population—over time (see Fig. 3). This increase in the migration ratio—which can only be an underestimate—provides another clear indication of growing interconnectedness of the early modern world. As a result of this migration, some early modern cities, like Amsterdam and Batavia, transformed into true melting pots where people from all corners of the globe lived together (De Zwart and Van Zanden 2018).

Consequences for Global Development

Debate

Thus far, we have shown how tremendous rise in global trade oftentimes spurred price convergence and thus caused integration of commodity markets, which contradicts the claim of O'Rourke and Williamson (2004, p. 113) that "no evidence" exists in support of price convergence prior to 1820. In this section we review the extent to which early modern globalization affected development across the globe. We argue that the evidence of price convergence is, in fact, not a very good guide for assessing

the impacts of global connections on regional, geographic, economic, demographic, political and social developments.[6]

Some decades ago, influential thinkers of world-systems and dependency theories, like Immanuel Wallerstein (1974, 1989) and Andre Gunder Frank (1969, 1970), suggested that as a result of the growing global trading system, patterns of economic development across the globe diverged as clear winners and losers of the (capitalist) global trading system emerged. Frank (1969, 1970) specifically argued that Latin American underdevelopment resulted from inclusion in the capitalist world economy, stating that the closer ties with Europe, the more underdeveloped a country became. Wallerstein emphasized restructuring of the division of labour throughout the European world-system: whereas peripheral countries in the capitalist world-system focused on low-skilled-labour-intensive production of goods that yielded low profits, core countries (i.e. Western Europe) focused on high-skilled production of high-profit goods.[7]

These interpretations were questioned by Patrick O'Brien (1982, p. 18) who argued that intercontinental trade accounted for at most 1% of British GDP, and therefore concluded that "for economic growth at the centre, the periphery was peripheral". In his view, long-distant trade simply amounted to too little quantitatively for it to have a significant impact on patterns of development. Further doubts were raised by studies in the so-called "Great Divergence" debate concerning comparative living standards in Europe and Asia. For example, studies by R. Bin Wong (1997) and Kenneth Pomeranz (2000) on China and Europe, and Prassanan Parthasarathi (1998, 2011) on India and Europe, suggested that differences in living standards between the Europe and China had not yet emerged before 1800, thereby implying absence of divergence in need of explanation via globalization.

More recently, however, the world-systems and dependency theories have regained some ground as a result of research that showed not only

[6] Ning Ma (2017, p. 52), for instance, documents sweeping societal impacts worldwide reflected in the emergence of the novel "East and West" (specifically in China, Japan, and Spain) beginning in the late sixteenth century.

[7] Arguing against application of "Capitalism" terminology in describing global trade connections, Flynn (2020) includes specific criticisms of the European world-system framework promoted by Wallerstein. Readers should also keep in mind that Frank (1998) repudiated his own early views (and those of Wallerstein) late in his career.

direct, but also indirect effects of trade on patterns of economic development in both Europe and other parts of the world. Daron Acemoglu et al. (2001, 2002), for example, emphasized persistent effects of different types of colonial institutions implemented across the Americas, Africa and Asia. They suggest that Europeans implemented 'extractive' institutions, for example systems of forced labour, in areas like Latin America and Africa, that hindered long-run development. While new historical research with more detailed analyses of institutional developments (and their changes over time) in colonial empires has added nuance to this picture, and in some cases contradicted findings of economists, it is clear that impacts of global connections from the sixteenth century on were large.

Africa and the Americas

Dramatic changes resulting from globalization took place in the Americas. The indigenous population of the New World was decimated (up to 90% of the population had perished by the middle of the seventeenth century) due to diseases spread during worldwide biological integration (discussed more extensively below) (Newson 2006, p. 143). The Americas were subsequently repopulated by Europeans and Africans. In the most northern of American colonies, biographic conditions allowed for economies populated by large numbers of Europeans based around fishing and grain production and greater diversification. More difficult climatic and disease conditions for Europeans in the Carolinas, Georgia, the Caribbean and Brazil, however, led those societies to rely extensively on African slave labour for production of commodities that required concentrated labour inputs. In Spanish America, societies largely untouched by market forces (the Incas, for example, seem to have known almost no market exchange) transitioned into market economies. These economies at first retained many indigenous structures of coercion and monopolization, but later "free" labour and commodity markets began to emerge.

While various economists have emphasized negative long-run effects of European "extractive" colonialism in Latin America (e.g. Engerman and Sokoloff 2000; Acemoglu et al. 2001, 2002; Dell 2010), some recent investigations have questioned this. A wide range of evidence on wages and heights suggest living standards in Spanish America were similar or on a par with Europe in the early modern era (Arroyo

Abad et al. 2012; Dobado-González and García-Montero 2014; Challú and Gómez-Galvarriato 2015; Dobado-González and García-Hiernaux 2017). A recent study suggests high levels of human capital formation, as suggested by numeracy rates estimated using age heaping (Calderón-Fernández et al. 2020). Furthermore, it has recently been argued the Spanish colonial state in eighteenth- and nineteenth-century Mexico should be more positively assessed. The imperial government played an active role in stimulating expansion of the mining sector and mining contributed to economic growth, as proxied by growing tax receipts, in this era (Dobado-González and Marrero 2011). New estimates on GDP per capita suggest that there was substantial economic growth in Mexico and Peru between 1550 and 1800 (Arroyo Abad and Van Zanden 2016). Another investigation showed that funds "extracted" from the Spanish colonies and remitted to Spain were actually rather low, as most colonial state revenues were locally spent (Grafe and Irigoin 2012). A recent survey by Klein and Serrano Hernández (2018) bolsters claims of robust economic and demographic growth across Spanish America during most of the seventeenth century. Likewise, Suarez Espinosa (2018, p. 259) documents Peruvian wine sales at Lima or Panama at over one million pesos in 1677 and 1679 (over 3 million pesos at prices in Potosí) alongside massive flows of contraband silver from Peru across the Pacific Ocean.

Scholarly emphasis upon institutional arrangements makes sense, yet institutions are clearly influenced by physical geographies. Flynn and Giráldez (2008, p. 360) invoke "1/3, 1/3, 1/3 logic" to expand discussion of the birth of globalization from economic considerations alone; economic, environmental/ecological, epidemiological, demographic and cultural components emerged in context of transformative geographical realities. The Pacific Ocean spans one-third of Earth's surface. The Americas (including the Atlantic Ocean) comprise another one-third. The Afro-Eurasian "Old World" therefore cannot comprise more than the remaining one-third. Humans already resided on all of today's heavily populated land masses more than 12,000 years ago (Christian 2004, p. 193). When global warming melted ice caps, sea levels rose 300–400 feet, thereby mutually isolating "New World" from "Old World" for over 10,000 years. The significance of more than 100 centuries of isolation is difficult to overstate because flora, fauna, and diseases had evolved along divergent paths in each hemisphere.

From a geographical point of view, modern globalization occurred once permanent linkages were established among all three "1/3 regions" of the globe. Permanent linkages across the Atlantic began with the voyage of Columbus in 1492, while permanent linkages across the Pacific began with establishment of Manila Bay as a Spanish entrepot during 1565–1571.[8] These transoceanic connections unleashed profound forces summarized by prominent historian Alfred Crosby:

> Tradition has limited historians in their search for the true significance of the renewed contact between the Old and New Worlds. Even the economic historian may occasionally miss what any ecologist or geographer would find glaringly obvious after a cursory reading of the basic original sources of the sixteenth century; the most important changes brought on by the Columbian voyages were biological in nature. (Crosby 1972, p. xiv)

Introduction of Old World plants, animals, and diseases transformed physical landscapes across the Western Hemisphere. It is nearly impossible to imagine histories of North America, Central America, or South America without horses, cattle, donkeys, mules, sheep, goats, pigs, large dogs, bees, coffee, wheat, sugar, rice, grapes, oranges, and other fundamental building blocks of American societies. Crosby refers to associated ecological and social transformations as "a revolution more extreme than any seen on this planet since the extinction at the end of the Pleistocene" (Crosby 1986, p. 271). Utilizing stratigraphic records, Lewis and Maslin (2015) argue that decimation of indigenous American populations led inadvertently to reforestation and carbon sequestration, leading to the Little Ice Age of the seventeenth century; these authors claim that this initiated the Anthropocene era—human domination of the global environment—early in the seventeenth century.[9] Irrespective of whether these events ushered in the Anthropocene, historian Geoffrey Parker (2013, p. XXX) claims that the Little Ice Age crisis "increased an imbalance between

[8] Flannery and Ruiz-Stovel (2020) reveal widespread multi-ethnic connections throughout intra-Asian trade during the eighteenth century via micro-historical analysis of an exceptionally wealthy Manila-based merchant and ship owner from Southeastern India, Thomé Gaspar de León.

[9] See Hamilton's (2015) argument against this proposition by Lewis and Maslin; the argument of this chapter does not depend upon which side is correct regarding proper dating of the Anthropocene era.

supply and demand for resources… that would eventually reduce global population by perhaps one-third" during the seventeenth century.

Previously unknown throughout the Afro-Eurasian Old World, American plants and seeds—including corn/maize, potato, sweet potato, peanut, tomato, most beans, peppers, tobacco, and numerous others—physically transformed Afro-Eurasia. One-third to one-half of calories consumed today worldwide by humans and domesticated animals are attributable to New World plants previously unknown in the Old World. Eighteenth-century population explosions worldwide resulted largely from dissemination of American plants and seeds. Thanks in large part to American plants, the landmass of China doubled and Chinese population more than doubled during the eighteenth century, which in turn unleashed both supply-side and demand-side shockwaves globally (Flynn and Giráldez 2008). While circumstances no doubt continued to change fundamentally during the nineteenth century, as numerous scholars point out, it is nonetheless difficult to imagine the Industrial Revolution in the absence of rubber—unknown in the Old World prior to the sixteenth century— essential for manufacture of gaskets, tires, and other industrial applications (Mann 2011, Chapter 7).

Nowhere were impacts of introduction of American foodstuffs more pronounced than in Africa. As Crosby notes:

> The importance of American foods in Africa is more obvious than in any other continent of the Old World… Very few of man's cultivated plants originated in Africa – only 50 out of 640 [...] – and so Africa had to import its chief food plants from Asia and America. This has been especially true in the rain forest areas, for practically none of the jungle food crops is native to Africa. (Crosby 1972, p. 185)

Moreover, "new American foods imported by Europeans…slowly replaced or supplemented traditional African foodstuffs, often permitting denser and healthier populations" (Klein 1999, p. 106). In an ironic twist, millions nourished by American foods within Africa were subsequently sent in chains to be nourished further by the same foods in the New World.

> Blacks were with Balboa when he claimed the Pacific,… with Cortes when he marched to Tenochtitlan…and Gonzalo Pizzaro…had up to 400 blacks in his forces…The principal role of Black Africans in the Spanish Empire

> was as mainstay of the economy…In no small measure, the black man created the empire that Spain directed in the New World. (Kamen 2003, pp. 139, 141)

Large exports of labour from Africa, a labour-scarce continent already before the sixteenth century (Austin 2008), significantly impacted local developments there. Impacts of the slave trade different substantially between and within regions. Coastal cities may actually have benefitted from growing commercialization, whereas hinterlands—where the slave raiding took place—were negatively impacted. Some areas exported many more slaves than others. For example, Angola and the Bight of Biafra (Cameroon) were disproportionally affected. In regions most heavily engaged with the Atlantic slave trade, it retarded population growth, commercial development and gave rise to violent conflict.

American silver was the main export product exchanged for imported slaves initially, and since a significant portion of New World silver exports ultimately came to rest in Chinese end-markets, China was therefore involved in the Transatlantic slave trade in an indirect sense. Similarly, African slaves crossed Indian and Pacific Oceans in exchange for silver: "The Portuguese need for silver explains why trading ships carried captives from as far away as Mozambique to sell in Manila, where they exchanged them for American silver" (Seijas 2014, p. 12). During the early modern period, massive flows of cowrie shells (an important global money produced mainly in the Indian Ocean's Maldive islands) flooded into West Africa as a major exchange item with which exported slaves were purchased.[10] *Larin* coins manufactured in Persia (from Spanish American silver), on the other hand, dominated the monetary system of the Maldives. As was true of countless products, coins routinely failed to recognize political boundaries. An important advantage of globalization history is revelation of direct and indirect long-distance interconnections that are routinely overlooked in histories restricted to nation-state analyses.

[10] For the most comprehensive history of cowries throughout the world to date, see Yang (2019).

Asia

Southeast Asia was heavily impacted by globalization. The Philippines and parts of present-day Indonesia (Java and the Moluccas) were especially affected by combined forces of colonialism and globalization. Whereas the region as a whole experienced increases in cash crop production and intensified commercialization, growing production for global markets was associated with increased labour coercion in parts of the region. The Dutch aggressively expanded territorial control in the Moluccas in order to control the world supply of cloves, nutmeg and mace (designed to hinder development of "hard" globalization—and no price convergence can be observed for e.g. nutmeg and mace). Virtually the entire indigenous population of the Banda islands was murdered or expelled and a plantation system was implemented. Large shares of population in Java were brought under Dutch control. Whereas for some this meant increased commercial opportunities, for example work as wage labourers in port towns like Batavia or Semarang, for others it may have meant an increase in forced labour (De Zwart and Van Zanden 2015).

Even seemingly isolated places like New Guinea were, in fact, connected to global processes via ecological forces. Consider these comments by Jared Diamond:

> …in former times New Guinea's available root crops were limiting for calories as well as for protein, because they do not grow well at high elevations where many New Guineans live today. Many centuries ago, however, a new root crop of ultimately South American origin, the sweet potato, reached New Guinea, probably by way of the Philippines, where it had been introduced by the Spaniards. Compared with taro and other presumably older New Guinea root crops, the sweet potato can be grown up to higher elevations, grow more quickly, and gives higher yields per acre cultivated and per hour of labor. The result of the sweet potato's arrival was a highland population explosion. (Diamond 1997, p. 149)

This sweet-potato-instigated population explosion, combined with introduction of European guns, fundamentally transformed expanding New Guinean societies. Although imports probably represented an infinitesimal fraction of GDP, globalization impacts upon the economic foundation of New Guinea were profound.

No region in the world played a more prominent role in the birth of globalization than China, notwithstanding periodic efforts by the Ming

Dynasty to disrupt powerful "silverization" forces stimulated by extraordinarily high silver prices in Chinese markets (Von Glahn 1996; Flynn 1996). Vast quantities of silks, ceramics, tea (later on) and other Chinese products were exported in exchange for enormous imports of silver from Japan and Spanish America. The timing and shape of Early Globalization would have certainly unfolded far differently, in ways that are difficult to imagine, had Chinese end-markets not become the most notorious "silver sinks" on earth (as a result of prior collapse of the Ming paper-money system). At least 10 million mostly freehold farmers or freehold tenants, more than the total population of England, migrated internally to underdeveloped parts of China during the late seventeenth and early eighteenth centuries (Pomeranz 2000, p. 84). Traditional depictions of China as backward/stagnant are contradicted by historical evidence. China's landmass doubled, while population more than doubled during the eighteenth century. China's "population growth in the eighteenth century was speeded up by massive ecological change: the introduction of new crops into China from the New World" (sweet potato, peanut, and maize) (Spence 1990, p. 95).[11]

Given such explosive expansion in eighteenth-century Chinese landmass and population, already "silverized," demand-side forces could not help but stimulate an unprecedented surge in silver mining in New Spain/Mexico (and to a lesser extent in Upper Peru). As is the case for any good, end-market concentrations of silver in particular locations were determined by demand to hold silver, one component of wealth in a region.

There is no consensus concerning long-term impacts of silver imports upon China's economy. Andre Gunder Frank (1998) argued that vast imports of silver, from Japan and Spanish America mostly, stimulated economic growth within China for centuries. In direct contradiction, Flynn and Giráldez (2000) reject cause-effect logic employed by Frank, maintaining instead that *demand to hold* silver within China *caused* import flows required to feed and maintain silver holdings. In short, Frank argued that *supply-side inflows* of silver *caused* Chinese economic growth, whereas Flynn and Giráldez maintain that *demand to hold silver (a wealth component)* within China *caused* its importation of silver. Cause and effect are reversed. Frank's position that silver imports *caused* domestic economic

[11] Impacts of New World crops on Chinese agriculture had long been acknowledged by Ho (1959, p. 268) and Naquin and Rawski (1987, p. 23).

expansion is essentially a restated version of "bullionistic/mercantilistic" views repudiated by Adam Smith and countless others since publication of the *Wealth of Nations* (1776). Flynn and Giráldez agree with the logic of Smith on this issue, since staggering volumes of silver were imported for centuries in exchange for voluminous quantities of Chinese silks, porcelains, tea (later on), and other export objects. Chinese exports represent *costs* associated with, as opposed to *benefits* from, obtaining and maintaining Chinese silver stocks. Cause versus effect, as well as costs versus benefits, are reversed.

Dynamics throughout early modern Chinese history were extraordinary, yet domestic trade among regions was interlinked with Chinese foreign trade in complex ways that are difficult to conceptually disentangle. Consider long-distance trade in grains within China:

> In… China.. the share of the harvest that was marketed over long distances seems to have been considerably higher than in Europe. Wu Chengming has conservatively estimated that 30,000,000 *shi* of grain entered long-distance trade in the 18th century, or enough to feed about 14,000,000 people. This would be more than five times a generous estimate of Europe's long-distance grain trade in a normal year during its heyday…. Eighteenth-century China (and perhaps Japan as well) actually came closer to resembling the neoclassical ideal of a market economy than did western Europe. (Pomeranz 2000, pp. 34, 70)

No one knows rates of profit or wealth accumulations attributable to trade directly or indirectly linked to global connections over these centuries, but we know of no evidence to suggest that Chinese merchants profited less than European merchant counterparts. What is known is that American plants rendered intensive exploitation of resources in former Chinese hinterlands possible. Resource sustainability was practiced in some regions of China, but environmental tragedy evolved in other regions:

> Ming… population increase spurred consolidation of a broader marketing system…. But especially important for the movement of large numbers of Han people from the lowlands into the highlands was the availability of new kinds of foods from the Americas that were especially adapted for those environments. (Marks 2017, p. 229)

High prices in lowland markets induced expansion into frontier regions. Upon exhaustion of soil, Han immigrants moved to nearby lands along

with Americans plants (Von Glahn 2016, p. 329), leading to erosion and widespread environmental collapse during the nineteenth century (Marks 2017, Chapter 5, especially pp. 228–247).

Considerable long-term benefits seem to have accrued to Japanese society as a result of Japanese silver mines, which produced about half as much silver as all of Spanish America during the sixteenth and seventeenth centuries. Japanese silver was unsurprisingly exported mainly to Chinese end-markets, and the Shogunate gained control of all Japanese silver mines. Silver mine profits were instrumental in paying for subjugation of more than 250 heavily armed *daimyos* (lords), leading to unification of Japan by the end of the sixteenth century. The Shogun intentionally weakened samurai powers (holding family members hostage in Edo/Tokyo) while collaborating with business interests while turning attention to domestic developments. After a disastrous 160,000 man invasion of Korea in the 1590s CE (in an ill-advised attempt to conquer Ming China), the Tokugawa Shogunate turned attention to heavy investments in domestic land reclamation and other infrastructure projects.

When silver super-profits vanished worldwide during the 1630s, the Shogun replaced troublesome Portuguese intermediaries with compliant Dutch merchants, who were restricted to a small man-made island in Nagasaki Bay, Deshima, a World Heritage Site today. The so-called "closure" of Japan from the late 1630s involved regulation of trade and curtailment of international migration, but portrayal of Tokugawa policy as anti-trade is misleading. Japan subsequently became a major exporter of gold later in the seventeenth century, and also became the world's leading exporter of copper (mainly to China, but to Europe as well).[12] At the same time, it is clear that the Tokugawa government in the eighteenth century effectively curtailed sugar and silk imports in efforts to spurt its domestic industries (Shimba and Hasegawa 2004).

A wayward Portuguese ship had inadvertently introduced European firearms to the Japanese in 1543. Adoption and improvements of guns in Japan was remarkable: "The number of guns produced in Japan in the latter part of the sixteenth century, according to one source, was 300,000. This exceeded the total number of guns in Europe at that time" (Sakae 2001, p. 48). Unthreatened by foreigners, the Shogun subsequently forbade domestic access to military technology; in other

[12] See Shimada (2006, p. 47) for comparison of Japanese and Swedish copper production. Silver mines also shifted to copper production.

words, Japanese took the unprecedented step of giving up the gun.[13] Pax Tokugawa generated relative prosperity through redirection of expanding resources from military to civilian projects:

> Whereas Europe knew only four years of peace during the seventeenth century, and China knew none, Tokugawa Japan knew only four years of war (and none at all after 1638). By avoiding war, the sink that drained the revenues of most other early modern states, the shogun managed to keep tax rates relatively low and yet still accumulate resources. (Parker 2013, p. 497)

Parker (2013, p. XXX) claims that global population decreased by perhaps one-third during the seventeenth-century Little Ice Age, yet Japan's population more than doubled and its urban population quintupled during the seventeenth century (Parker 2013, p. 484). The Japanese managed to expand agricultural production and kept living standards remarkably stable in the face of this fast population growth as a result of low taxes, heavy infrastructure investment, and the most literate population in the world (Parker 2013; Waswo 1986; Yasuba 1986). Equivalent to levels in Europe prior to the Industrial Revolution, a Japanese "Industrious Revolution" generated rising living standards through development of labour-intensive and resource-saving technology, according to Sugihara (2003, p. 115), in contrast to capital-intensive and resource-intensive technologies characteristic of European and American development. Sugihara (2019) updates this argument.

South Asia was highly integrated in the global economy in the early modern period. A lot of the silver mined in the Americas was sent to India. Lacking domestic silver mines, it is unknown what portion of India's imported silver was retained in medieval times because "statistical series on mint production, prices, wages and volume of trade is non-existent" (Haider 2007, p. 195). Significant quantities of European silver definitely entered the subcontinent, but there is little evidence that silver accumulated within India:

[13] See Perrin (1980) for a classic treatment of this topic. A Dutch envoy claimed that the Tokugawa castle itself, however, contained enough weapons to equip 100,000 soldiers, according to Parker (2013, p. 498).

> Bullion and copper coins dominated north Indian markets from the last quarter of the fourteenth century, and a point was reached…when precious metal coinage disappeared from the [Lodi] kingdom…[While there was] a sizeable flow of copper coins (*fils*) from Egypt… Gold disappeared entirely…except for the South, silver gave way to bullion, and currencies reserved for petty transactions, such as copper and cowries, began to compete for a large share of the market. (Haider 2007, pp. 89, 191–192)

If European silver merely passed through India, then where were the ultimate silver end-markets located? One answer seems clear: China.[14] Despite repeated claims of an India "silver famine" by historians, John F. Richards has insisted that market forces worked properly and that evidence "points to the inescapable conclusion that there was no shortage of precious metals in Delhi or in the territories controlled by the Lodis from 1451 to 1526" (Richards 1998, p. 150). Coexistence of vigorous Indian imports of silver alongside relatively modest holdings of silver within India makes sense, however, so long as Indian silver export volumes matched Indian silver import volumes. Unfortunately, estimation of quantities of silver that passed through India in transit to East and Southeast Asian end-markets cannot be assessed directly: "Most documents on which modern surveys are based are revenue registers of major entrepots, which do not cover currency exports because such transactions were often exempted from customs dues" (Haider 2007, p. 187). It is possible that quantities of silver held could be estimated through research of confiscation archives, probate inventories (or their equivalent), or other archival and archaeological records.[15] Extensive market relations are known to have stretched from the Mediterranean to East Asia, where premium silver prices are known to have existed:

> …the steady, incremental improvement of the efficiency, security, and capacity of the long-distance maritime trade running from the Mediterranean and East Africa to China and Japan… [rendered] India…the fulcrum of this medieval trade… in a burgeoning world maritime commerce. (Richards 1993, p. 296)

[14] For an insightful contrast between introduction of New World crops into China (where demographic impacts were huge) and India (where demographic impacts were muted), see Mazumdar (1999).

[15] See Cao and Flynn (2019) for an initial attempt to estimate silver holdings within China around 1750 CE.

Despite a paucity of documentary evidence concerning quantities of silver that remained within India (even in the seventeenth century), K.N. Chaudhuri nonetheless expressed certainty that silver flowed through India onward to East Asia:

> Since India's trade with Europe was only a part of her total foreign trade, the missing piece of the puzzle is the size of movements in the trade of other areas… There is ample evidence that American silver flowing into India was re-exported to China and South East Asia to be exchanged for the economic products of those regions. (Chaudhuri 1978, pp. 159–160)

There exists a large (and growing) literature on vast Indian textile exports to end-markets in Europe, Africa, and elsewhere, of course, but Indian *imports* from East and Southeast Asia do not seem to have received proportionate attention. The key role of India during the sixteenth-century birth of globalization deserves sustained attention in this regard.[16]

Interestingly, effects of global trade on economic development and living standards of the majority of people was probably limited. While volumes of intercontinental trade were large and there is much evidence of significant price convergence in goods traded between Europe and India (as discussed above), local living standards, as evidenced by estimates of real wages and GDP, were largely determined by developments in agriculture (De Zwart and Van Zanden 2018). India thus provides a good example for our thesis that effects of soft globalization may be larger than those of hard globalization. The most important impact of trade in this era was arguably political: increased revenues from trade earned by local potentates in coastal cities vis-à-vis tax incomes of the Mughal state at the centre of empire shook the delicate balance of power while the empire disintegrated in the eighteenth century (Roy 2013). The British stepped into the void from the late eighteenth century, expanding colonial rule from the north-eastern region of Bengal while dramatically increasing the impact of global contact.

[16] For a useful survey of Indian Ocean trade (including overland connections) in context of global history, see Parthasarathi and Riello (2014).

Europe

For Europe, the impact of globalization was largely positive. Acemoglu et al. (2005) showed that those European economies trading with the Americas, Africa and Asia grew faster than others. Growing trade strengthened interests of commercials classes in society, which consequently pushed for institutional and policy changes conducive to economic growth. Countries that had already checked royal power at the start of trade across the Atlantic (i.e. England and the Dutch Republic) experienced particularly flourishing economies. In absolutist countries like France and Spain, royal families and their entourages were the main beneficiaries of the rise in trade. This trend ties in neatly with evidence on parliamentary activity across Western Europe: in the Dutch Republic and England, parliaments became ever more active over the early modern period, whereas those in absolutist France and Spain stopped meeting almost entirely (Van Zanden et al. 2012). There is also an association between engaging in global trade and levels of urbanization (Acemoglu et al. 2005; Allen 2003; De Pleijt and Van Zanden 2016). Urbanization rates were higher in those areas most heavily engaged in global trade, such as England and the Low Countries. Cities like Amsterdam and London grew rapidly and growth of overseas trade in these cities meant more job opportunities; it increased demand for dockworkers and sailors, ship-owners, merchants and brokers, and many more. City growth also explains higher wages observed for England and the Low Countries, as division of labour was more sophisticated in larger towns (Allen 2001, 2003, 2009).[17] Recent research using a dynamic panel model confirmed that in Spain, Portugal, England and the Dutch Republic, intercontinental trade contributed to urbanization and real wage rates (Palma 2016). Large amounts of capital (partially from earnings in global trade) together with higher wages consequently provided crucial incentives for the Industrial Revolution in Britain in which relatively expensive labour was substituted with cheaper capital (as argued by Allen 2009).

One element that has been underestimated (or, rather, not taken into account) by those who dismiss early modern globalization, is the fact

[17] Although a topic we do not engage here, conversions of actual prices and wages into silver-content counterparts, common now while assessing relative living standards around the world, can be misleading and unnecessary, according to an insightful recent essay by Mayhew (2018).

that purchasing patterns across most parts of Europe changed substantially as a result of the newly emerging global economy. As a result of declining European prices for many goods previously considered luxuries, like coffee, sugar, and tea, purchase of these goods became attainable for large parts of the population. An eighteenth-century French observer noted that "Consumption [of coffee] has tripled in France; there is no bourgeois household where you are not offered coffee, no shopkeeper, no cook, no chambermaid who does not breakfast on coffee with milk in the morning. In public markets and in certain streets and alleys in the capital, women have set themselves up selling what they call *café au lait* to the populace" (cited in Hersh and Voth 2011, p. 13). For Britain, data on sheer quantities of coffee, tea, and, especially, sugar that entered the island in the seventeenth and eighteenth centuries, suggest widespread consumption of these goods: tea consumption grew from almost nothing to about 1.2 kilos per capita annually over the course of the eighteenth century, while sugar consumption increased from about 2 to about 15 kilos per capita in that same period (Hersh and Voth 2011). After-death inventories from a number of cities and towns across the early modern Low Counties showed that over 60% of the lower-middle-class population owned accumulated instruments specifically designed for coffee and/or tea consumption (McCants 2008). The possibility to purchase objects that were previously considered luxuries, at lower and lower prices, not only increased well-being in Europe (Hersh and Voth 2011), but also stimulated many European households to reallocate time from leisure to productive market employment in order to obtain such goods, thus giving rise to an "industrious revolution" in the early modern era (de Vries 2008; Allen and Weisdorf 2011). While connecting demand-side changes to import substitution on the production side, McCants concludes that:

> Although a paucity of source materials will continue to make it difficult for historians to quantify with precision the size and scope of the early modern demand for colonial groceries and Asian manufactures, we risk misunderstanding a critical moment in the globalizing process if we fail to recognize the power of that demand to radically transform European patterns of consumption as well as its processes of production. (McCants 2007, p. 462)

Products imported and sold in Europe also involved global connections that neither contemporary merchant sellers nor end-market purchasers

recognized at the time, as was true for the market for French hats in Habsburg Vienna (1650–1750). Research of last wills, probate inventories, letter patents and tax accounts, led Hyden-Hanscho (2016) to label this market "Invisible Globalization" because neither buyers nor sellers were aware that hat components originated in Canada (beaver, processed in Russia prior to re-export through France) or in South America (vicuñas via Lima or Buenos Aires), gum Arabic (from Arabia, Sudan, West and sub-Sahara Africa), and ostrich feathers (from the Levant). Hat quality also varied widely, while low-price segments included second-hand hats (often mended), demonstrating that import goods penetrated much deeper than is normally recognized.

Conclusion

We argue that evidence demonstrating deep impacts of early modern globalization cannot be neglected, including (but not limited to) widespread convergence of prices. While some world regions were less dramatically impacted than others, it is important to recognize that seemingly remote areas such as New Guinea underwent fundamental transformations that stemmed from ecological, epidemiological and demographic forces that should not be ignored. The overall picture is that early modern globalization led to radical ecological and demographic changes in Africa, the Americas, large swaths of Asia, Europe, as well as oceanic islands worldwide. Empires toppled across the Global South, while European industrialization emerged within context of complex global mechanisms that require further exploration. Many Europeans certainly enjoyed fruits of Early Globalization, but non-European merchant intermediaries reaped rewards as well, as did producers within and beyond European borders. From a strictly economic point of view, emphasis upon end-market demand-side forces throughout the globe deserve as much scrutiny as supply-side considerations; to cite just one example, end-market inventory demand to hold silver within China requires explanation on its own terms, as opposed to mere assumption that "precious metals" flowed to abstract "Asia" as a result of *European* trade deficits due, in turn, to dynamic *European* demand-side forces. In sum, effects of "soft" globalization were in many respects "harder" than those of "hard" globalization. Proper interpretation of nineteenth-century globalization patterns—indeed, into the twenty-first century—require acknowledgement of global forces that continue to evolve from sixteenth-century origins.

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