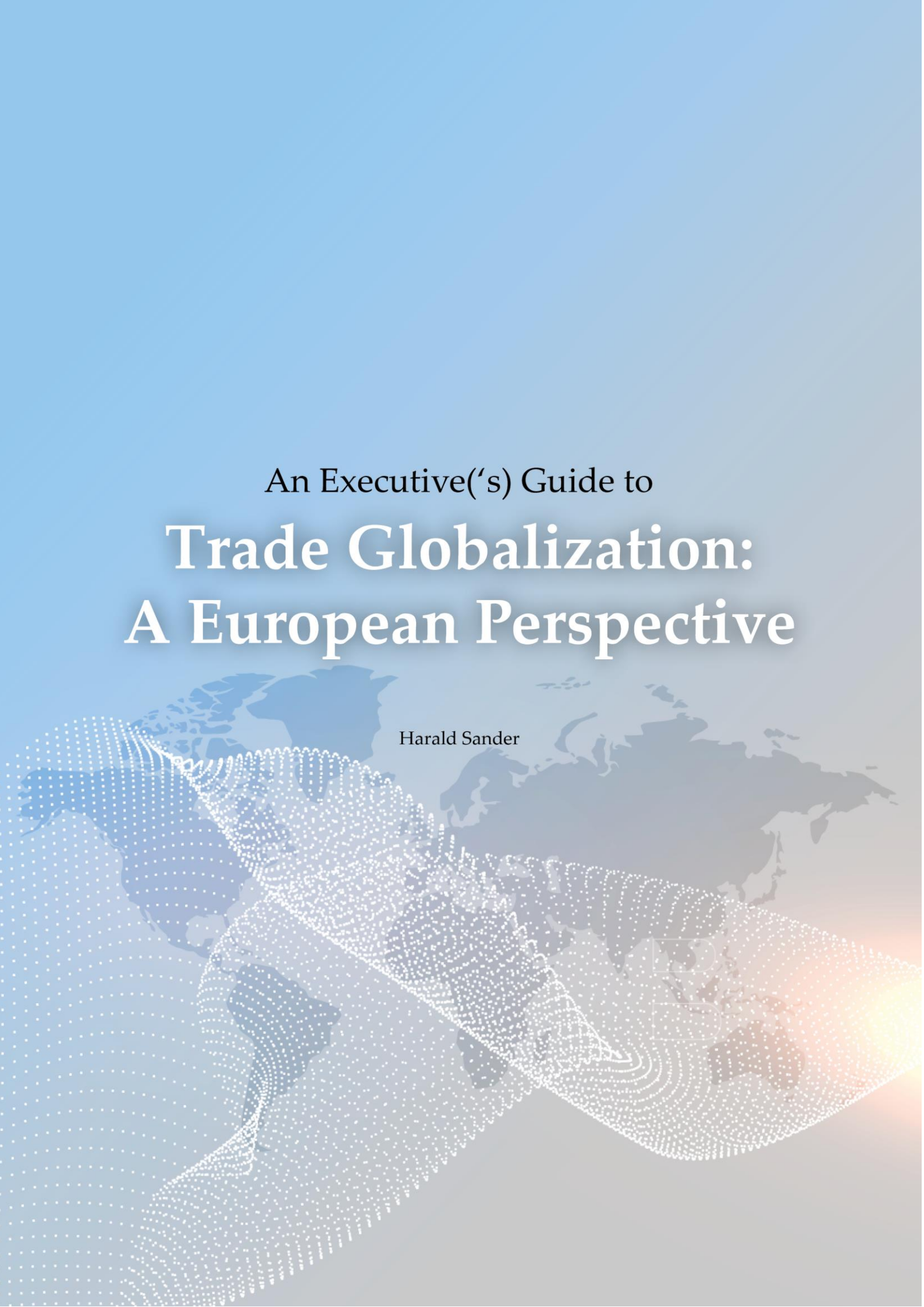


An Executive('s) Guide to

Trade Globalization: A European Perspective

Harald Sander

The background of the cover features a stylized world map. The map is composed of numerous small white dots that form the outlines of continents and oceans. The dots are arranged in a way that creates a sense of depth and movement, with some areas appearing more densely packed than others. The overall color scheme is a gradient of light blue, transitioning from a pale blue at the top to a slightly darker blue at the bottom. In the bottom right corner, there is a bright, glowing light flare that adds a dynamic and modern feel to the design.

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Preface

This short guide aims at increasing the readers' understanding of contemporary global trade issues. It is written for international participants of summer school courses on global and European trade, with a view on enabling rational and research-based discussions on global trade issues in an international learning setting.

In the view of most economists since Adam Smith, globalization of trade and investment has contributed enormously to increase "the wealth of the nation". However, there is also a "dark side" of globalization: structural change that requires often deep and painful adjustments for workers and companies that cannot keep pace with foreign competition, which sometime is also considered "unfair".

This guide reviews the most recent developments in global trade through the lens of contemporary trade theory and a European perspective. What does this mean?

The theoretical perspective is chosen to put the discussion on solid and rational feet. Too much of the current debate on globalization is driven by half-truths, lobbyism, and populist sentiments. However, this guide is not meant to be textbook, but a **workbook**. It complements standard textbooks by discussing the relevance of "our body of knowledge" for understanding the determinant and effects of global trade. In doing so, it relates to recent analyses of leading experts, including those written for wider audiences, and encourages the readers to study issues touched upon in the text more thoroughly. Hence, it provides a gateway to self-directed and research-based learning. It's ultimate task is to help participants of coursework to formulate and defend their position on global trade issues through their own research. It is therefore understood as an effort to educate students arguing responsibly and acting as "global citizens".

Why then a European perspective? First, the guide is written for participants of a summer school taking place at TH Köln in the heart of Europe with the aim of bringing together non-European and European students to study together contemporary issues in international economic relations. It is as such meant not only to transfer basic knowledge but also to enhance the intercultural dialogue through active forms of learning. This is why these courses have been supported by the EU's Erasmus+ program. Second, this is exactly what has been asked for in the [2015 Paris Declaration of the European Union education ministers](#): "Promoting citizenship and the common values of freedom, tolerance and non-discrimination through education". Third, Europe offers a distinct "deep" approach to economic integration, which – despite some recent setbacks like the "BREXIT" decision of the UK – offers a different way to deal with the dark sides of globalization. This is why the European approach is particularly worth being studied for non-Europeans – not least to learn from its successes and failures.

Having said this, I trust that this guide is also valuable for a broader range of courses, especially at the graduate and executive level. I encourage other educators to use it as a complement the usual context-dependent resources in education like textbooks etc. The guide is not carved in stone but a living document, which will be updated frequently with links to important new analyses and discussion contribution.

Comments and suggestion from all users – students, educators and all other readers are therefore highly appreciated.

Harald Sander

List of Content

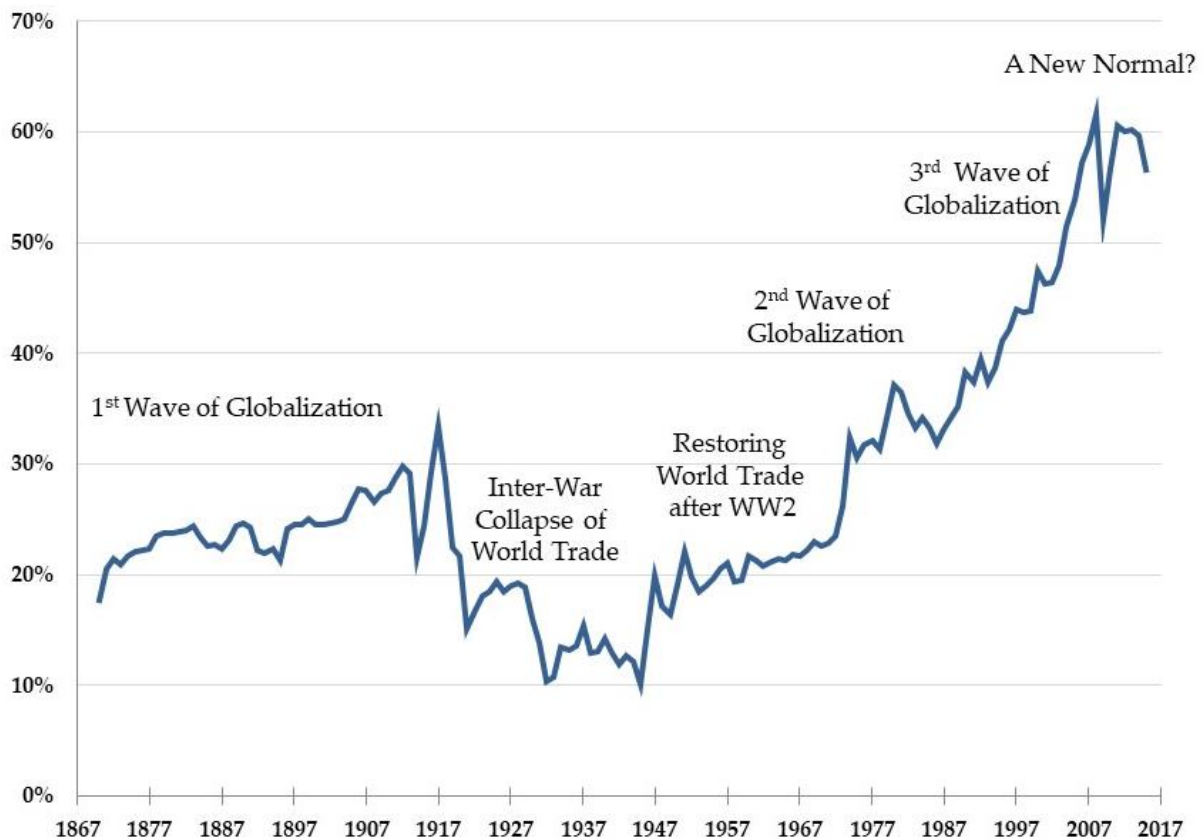
1. Introduction to Trade Globalization: Three Waves and a New Normal	1
2. Global Value Chains (GVC) in the World Economy	5
2.1 From Slicing-Up the Value Chain to Fragmentation in Global Trade	5
2.2 The Distribution of Value Added Shares in GVCs.....	6
2.3 The World is Not Flat – Global Localization	10
3. Contemporary Globalization Viewed Through the Lens of Trade Theory	14
3.1 The Origins of Trade Theory: Making the Case of Free Trade	14
3.2 Comparative Advantages and Globalization of Trade.....	16
3.2.1 David Ricardo’s Principle of Comparative Advantage: Old, Difficult, Still Relevant	16
3.2.2 Twentieth Century Versions of Comparative Advantage and the 2 nd Wave of Globalization ...	21
3.2.3 Fragmentation and the 3 rd Wave of Globalization: Comparative Advantages in Tasks	27
3.2.4 The Drivers of Comparative Advantage: Heterogeneous Firms	29
3.2.5 Challenging History: Comparative Advantages, Economies of Scale, and Industrial Policy.....	31
3.2.6 Summary on Comparative Advantages.....	34
3.3 Intra-Industry Trade with Equals: The Better Globalization?.....	36
3.4 Summary on Trade Theories.....	39
4. The Distributional Consequences of Trade: Gains, Pains, (In-) Equality	40
4.1 Gains.....	40
4.2 Pains.....	41
4.3 Equality.....	44
5. Managing Globalization?	46

References

1. Introduction to Trade Globalization: Three Waves and a New Normal

From the late 19th to the early 21st century the world has witnessed an unparalleled increase in economic interconnectedness and interdependence (see Figure 1). Arguably, the world underwent its first wave of globalization in the period from 1870-1917. It was largely influenced by a technology-driven process of industrialization. The introduction of the steam engine decreased transportation costs rapidly. Entrepreneurs realized the business opportunities and successfully lobbied for a liberal trading order in the political sphere. Hence, trade barriers fell quickly and trade started to flourish. The world trading order at that time had two salient features. On one hand, it was to a large degree a complementary exchange of raw materials and other primary goods from developing countries, mostly colonies, for manufactured goods from industrial countries. On the other hand, there was increasing trade between the latter countries in industrial goods. As long as economic growth and development raced at a high speed, inconveniences caused by international competition could easily be compensated in expanding export industries.

Figure 1: World trade as a share of world GDP (in %) 1870-2015



Note: Trade is measured as the sum of export and imports of goods and services.

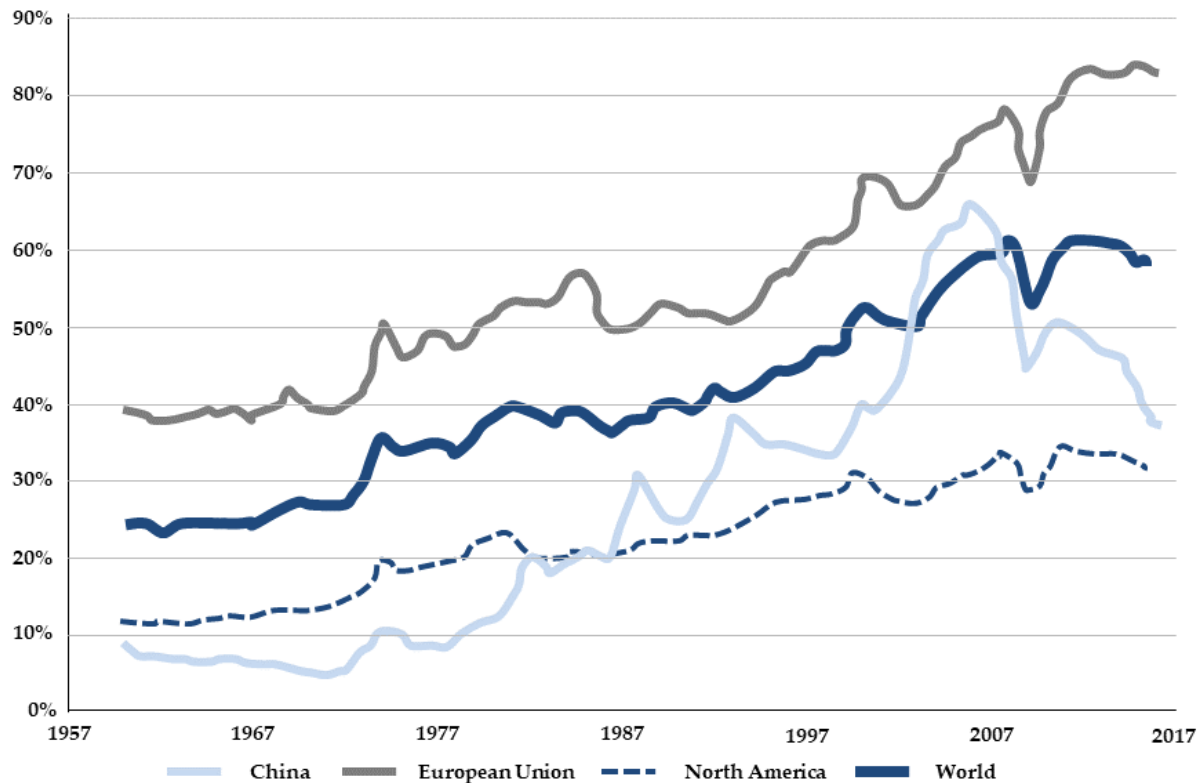
Sources: 1870-1969 data are from Ourworldindata.org based on Klasing and Milonis (2014) for 1870 - 1949 data and Penn World Tables (8.1) for 1950-1969. 1970-2015 data are retrieved by the author from Penn World Tables 9.0.

After World War I this changed. The Great Depression of 1929 caused a prolonged economic crisis, took away the growth option and job opportunities in export sectors to compensate the

losers of globalization. Hence, many countries became inward-looking, protectionist and finally nationalistic. Global trade collapsed in the inter-war period.

After World War II efforts were made to rebuild an open world economy, through the creation of a multilateral institutions, namely the General Agreement on Tariffs and Trade (GATT) to oversee global trade, and the so-called Bretton-Wood Institutions, the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (the World Bank). The "Golden Age" restored global trade, created wealth and prosperity for the baby boomers and their parents in the highly developed industrial countries. In the 1970s, a 2nd wave of globalization resulted in the emergence of developing countries as successful exporters of manufactured products. The former complementary division of labor gave way to a substitutive division of labor of the advanced countries vis-à-vis the so-called newly industrializing countries (NICs). These emerging economies, especially the Asian NICs – Taiwan, South Korea, Hong Kong and Singapore – made inroads in a few sectors like textiles and clothing, steel, ship-building and simple electronics. These NICs became super-traders, heavily competing with workers in the traditional industries in advanced countries.

From the 1990s onward, the process of economic integration dramatically accelerated, which became known as "globalization". Again, the main driving force was technology, this time in particular advances in information and communication technology. The advent of computerization and digitalization allowed the spread of production widely over the globe, not simply by relocating production of products, but by "slicing-up the value chain" and locating tasks in places where they can be performed most cost-effective. Designing smartphones in California and assembling them in China with parts coming from Japan, Taiwan, Germany, Korea and many other places became the blueprint for the new division of labor. Digital technologies enabled this 3rd wave of globalization and corporate strategies implemented it, supported by global political sentiments in favor of trade and investment liberalization.

Figure 2: Trade in goods and services as a share of GDP (in %) for selected regions 1960-2016

Data Source: World Bank (<http://data.worldbank.org>), Retrieved August 9, 2017.

If we look at the regional level (Figure 2), we can observe that trade integration shows its highest dynamics in Asia, and here in particular in China within the first decade of the 21st century. As indicated before and discussed in more detail in section 2, this is largely due to China's participation in global value chains. Another salient feature is high degree of trade integration and hence, openness in Europe. While part of this is due to the overall trend, Europe's openness is specific in three ways. First, European countries are relatively small and need to trade more as not all goods can be produced economically at home. Second, as Europe realized this, it understood that opening the markets within Europe is vital to developing efficient and competitive industries. After years of slowly opening-up its market throughout the 1980s, Europe embarked on creating a single market in 1992 by completely removing all obstacles to cross-border movements of goods, services, capital and labor. This helped a surge in cross-border trade especially within Europe but also with third countries as the single market helped to increase also the global competitiveness of European companies. Third, after the fall of the Berlin wall in 1990, trade with Central and Eastern European countries (CEECs) gradually increased, later pushed by integrating the CEECs into the European Union from 2004 onward. Most importantly, having these countries with often much lower labor costs now within the single market, facilitated the creation of regional production networks such as in the automobile industry, which created a massive intra-regional trade in intermediate goods. While also within North America regional production networks were created, the effect on overall openness is much lower as the countries are large and the only low cost producer in the regional value chain being Mexico.

Where do we stand now? Interestingly, trade today is no longer growing faster than production. The Great Financial Crisis (GFC) of 2008/9 resulted in a collapse of global trade. While trade has recovered soon after the GFC, trade globalization has, however, leveling off. [What is behind this](#)? Is it just a temporary flattening after the shockwaves created by the GFC, or are we witnessing a “new normal”?

Our implicit theoretical framework used in this narrative is that technology is the main driver of globalization, which is enabled by policy and implemented by corporate strategies. With respect to technology we can observe two simultaneous trends. First, rapid digitalization and advances in robotics makes labor costs less important for the decision where to locate production. Second, this factor is re-enforced by sharply falling costs of machines and other capital goods (just think about how much you pay for calculation power of your new smart phone as compared to the first Windows PC). Hence, for globally active companies re-shoring production from low-labor-cost countries to the home market is increasingly becoming attractive and global value chains are thus facing diminishing returns.

With respect to policies, two major trends can be observed. In countries like China, policy makers encourage local producers to move up the value-added chain and perform more of the higher value-added activity within the country rather than importing these goods. This is the core of the new “[Made in China 2025](#)” strategy of the Chinese government. In western countries, however, we can observe an increase of protectionist sentiments. While this has not yet led to a dramatic increase in protectionism, it has nevertheless slowed-down the appetite for more trade liberalization and free trade agreements like the “Transatlantic Trade and Investment Partnership (TTIP) or the Transpacific Partnership (TPP).

The following section will examine these issues in more detail:

- ▶ Section 2 will look in particular at the current representation of globalization, namely at its 3rd wave, the age of global value chains.
- ▶ Section 3 discusses a contemporary globalization through the lens of trade theory.
- ▶ Section 4 focuses current research on the bright and the dark side of globalization: gains, pains and (in-) equality.
- ▶ Section 5 introduces the current discussion on whether and how to “manage” globalization.

The guide does not offer ready-made answers but links to the major lines of the debates, including the European approach to globalization. The hope is that it will assist the readers to find their own take on current globalization as a “global citizen” by engaging on their own international team research projects. The guide gives suggestions for such projects of “digging deeper”.

A DIGGING-DEEPER RESEARCH PROJECT

Study in more detail the underlying factors of the recent slowdown in trade globalization and prepare for a classroom discussion on the topic.

Good starting points for further research are a VoxEU book edited by [B. Hoekman \(The global trade slowdown: A new normal?\)](#) and a technically more difficult working paper by [Timmer et al. from Groningen University](#).

2. Global Value Chains (GVC) in the World Economy

In this section we highlight the 3rd wave of globalization, which clearly has been driven by global value chains. We will first look closer at the slicing of global value chains and what it means to the geography of value creation. We will then have a look at the geography of trade – what is produced where – under the impact of global value chains.

2.1 From Slicing-Up the Value Chain to Fragmentation in Global Trade

Veteran customers of the Swedish furniture company IKEA have their good share of experience with table legs that did not fit when they tried to assemble the furniture at home. If they did fit, then more often than not a screw was missing or not functioning and you were in need of additional screws even though they were in ample supply. Today this is a story of the past. Unless you are extremely unlucky, all parts of your new furniture fit and you can assemble them with screws supplied in the exact number needed. Veteran workers in car factories likewise may remember the days when car parts were produced within the factory for a simple reason: if one part did not fit when the car was in the assembling line it could be brought back to the corner of the factory where it was produced and it could immediately be “fixed”.

With computers designing the goods (Computer-aided Design – CAD), computer-numerical controlled production (CNC) and computer-aided manufacturing (CAM) software, these are issues of the past. When parts of product can be designed and produced in a way that they fit perfectly when assembled, the value chain can be sliced-up or “unbundled”. Production no longer needs to take place in a single factory.

These new possibilities for slicing-up the value chain will be used, when it becomes economically profitable to do so. This can of course be done within a country or even within a narrowly defined region. In effect, outsourcing domestically can often be observed. However, given the much bigger differences between production costs and the much greater variety of specialized skills on a global scale, the globalization of value chains can offer much more efficient opportunities than pure domestic ones. This also depends on one more thing: reasonable information and communication costs. This is exactly what happened from the 1990s onwards: increasing possibilities for slicing-up the value chains coupled with drastically falling information and communication cost. Two products can perfectly illustrate this: the Barbie doll and the iPhone.

Back in the 1990s, the Barbie doll was the archetype example of fragmented production (see e.g. [Feenstra 1998](#)). The plastic and hair were obtained from Taiwan and Japan, the U.S. provided the mold and decorative paintings, while China supplied the cloth. Assembling took place in low-cost locations in Indonesia, Malaysia, and China. The doll was sold for \$10 in the United States. The export value of a Barbie was just \$2 when the product left Hong Kong, the remaining \$8 cover transportation, marketing, wholesaling and retailing in the United States and a \$ 1 profit for Mattel. Even more striking, of the \$2 for the export value, only about 35 cents cover the assembling cost in China, while 65 cents cover the cost of materials, and the remainder the transportation, overhead and profits earned in Hong Kong.

A similar cost structure can be reported for Apple's iPhone 3G, as revealed by Table 1, reproduced from [Yuqing Xing \(2011\)](#), based on data provided by [Rassweiler \(2009\)](#).

Table 1: Apple iPhone 3G's major components and cost drivers

Manufacturer	Component	Cost
Toshiba (Japan)	Flash Memory	\$ 24.00
	Display Module	\$ 19.25
	Touch Screen	\$ 16.00
Samsung (Korea)	Application Processor	\$ 14.46
	SDRAM-Mobile DDR	\$ 8.50
Infineon (Germany)	Baseband	\$ 13.00
	Camera Module	\$ 9.55
	RF Transceiver	\$ 2.80
	GPS Receiver	\$ 2.25
	Power IC RF Function	\$ 1.25
Broadcom (USA)	Bluetooth/FM/WLAN	\$ 5.95
Numonyx (USA)	Memory MCP	\$ 3.65
Murata (Japan)	FEM	\$ 1.35
Dialog Semiconductor (Germany)	Power IC Application Processor Function	\$ 1.30
Cirrus Logic (USA)	Audio Codec	\$ 1.15
Rest of Bill of Materials		\$ 48.00
Total Bill of Materials		\$ 172.46
Manufacturing costs		\$ 6.50
Grand Total		\$ 178.96

Source: Yuqing Xing, How the iPhones widens the US trade deficit with China, VoxEU.org, 10 April 2011.

The first striking issue is again the low share of assembling cost. The reported \$6.50 makes a mere 3.6% of the total manufacturing costs of \$178.96, and a meager 1.3% of the sales price of \$500. The second observation is that many of the inputs are actually originating in region, suggesting the existence of a regional production network. We will discuss these two issues in the next two sections in more detail.

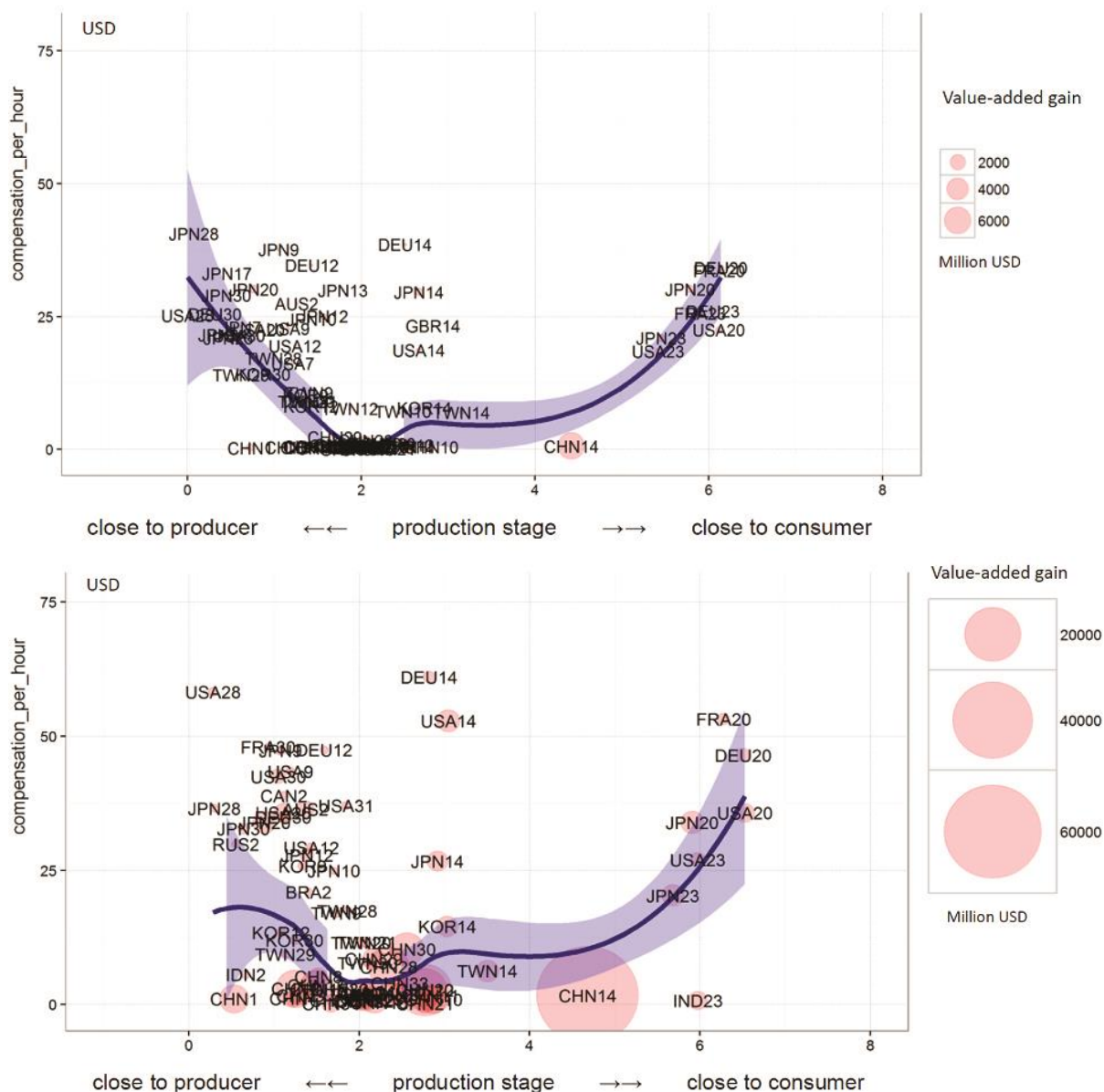
2.2 The Distribution of Value Added Shares in GVCs

What is striking in many GVCs is the low value added accruing for the actual production costs, which is often less than 20% of the total value added and much less for assembling, as could be seen from the iPhone. These observations have been visualized and analyzed in so-called smile curves. They hold that pre-production activities like research and development and product design as well as post-production activities like marketing

and retailing are contributing a higher share to the value than the actual production process.

To illustrate this further, have a look at the estimated smile curve for China's export of electrical and optical equipment in 1995 and 2009 (Figure 3), respectively, which is reproduced from the [Global Value Chain Development Report 2017](#).

Figure 3: Smile curve for China's exports of electrical and optical equipment 1995 and 2009



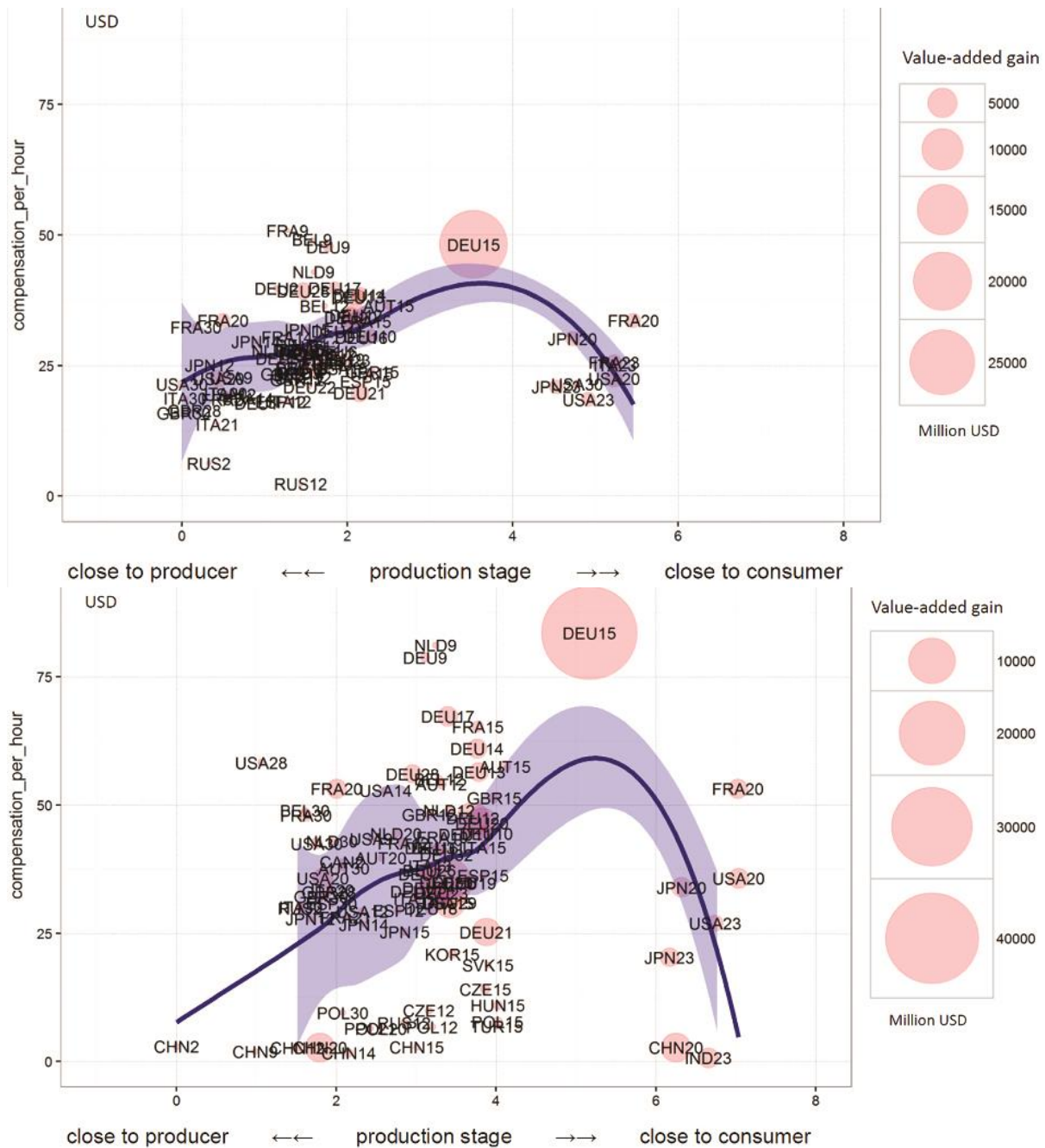
Source: [Global Value Chain Development Report 2017](#), International Bank for Reconstruction and Development/The World Bank 2017, Washington DC: 4.

The smile curves show again the low level of value added around the production stage. This is not uniform, though for all activities and the shape of the curve is changing over time as well, becoming a bit flatter. Nevertheless, the curves demonstrate that in industries like electronics, manufacturing often has been relocated to low wage countries, thus giving room for worries in rich countries that manufacturing is being hollowed out, leaving the semi-skilled workers directly competing with the workforces in developing countries. Conversely, developing countries are worried about concentrating only on low-value added activities, a situation to which the [“Made in China 2025”](#) strategy of the Chinese government wants to react to.

However, whether the global value chain “smiles” depends on the industry. Counterexamples can be found in value-added activities in the German auto industry, where the curve “frowns”

(see Figure 4). The authors of chapter 2 of the Global Value Chain Development Report 2017 give the following explanation (p. 56):

Figure 4: Smile curve for Germany’s automobile exports production, 1995 and 2009



Source: [Global Value Chain Development Report 2017](#), International Bank for Reconstruction and Development/The World Bank 2017, Washington DC: 57.

“To some extent, this may reflect the successful transition of the German auto industry from traditional mass producer to mass customizer and to individual design based on digital technology and artificial intelligence. The mass customized and individual design manufacturing stage accounts for a relatively large portion of the total value gain, while the traditional high-end design and sales functions account for only a small portion of total value gain and mostly in foreign countries. This is contrary to intuitions from the

smile curve, in which traditional manufacturing stands at the low end of the GVC, such as China's ICT exports. But it could also reflect the ongoing structural change in global GVCs, such as the emergence of the customer to manufacturing business model in several industries. The most important changes between 1995 and 2009 were the increasing number and variation of foreign participants and the increasing length of the curve. In 1995 developed European countries, the United States, and Japan dominated foreign participants, while in 2009 more countries and industries were involved, especially in Eastern Europe, China, and the Republic of Korea. This clearly reflects the increasing diversity and complexity of international fragmentation in Germany's auto exports. In addition, given the increase in labor compensation and absolute value-added gain in Germany's auto industry and the relatively low labor compensation of upstream participants from China, the slope of the entire curve became much steeper."

In the light of this explanation one should, however, note that these developments have not benefited workers in the German car industry. To the contrary, according to a [recent study](#) medium and low-skilled workers have lost share in their contribution to the total value added between 1995 and 2008, leading to a lowering of the German share of value added from 79 to 66 percent. A clear winner is foreign value added, and here in particular foreign capital (see Table 2).

Table 2: Shares in value added of the global value chain of German cars (percent of final output value), 1995 and 2008

German value added	79%	66%
High-skilled labor	16%	17%
Medium-skilled labor	34%	25%
Low-skilled labor	7%	4%
Capital	21%	20%
Foreign value added	21%	34%
High-skilled labor	3%	6%
Medium-skilled labor	6%	9%
Low-skilled labor	4%	4%
Capital	8%	15%

Source: [Timmer, M., et al. 2014](#). "Slicing Up Global Value Chains." *Journal of Economic Perspectives*, 28(2): 104.

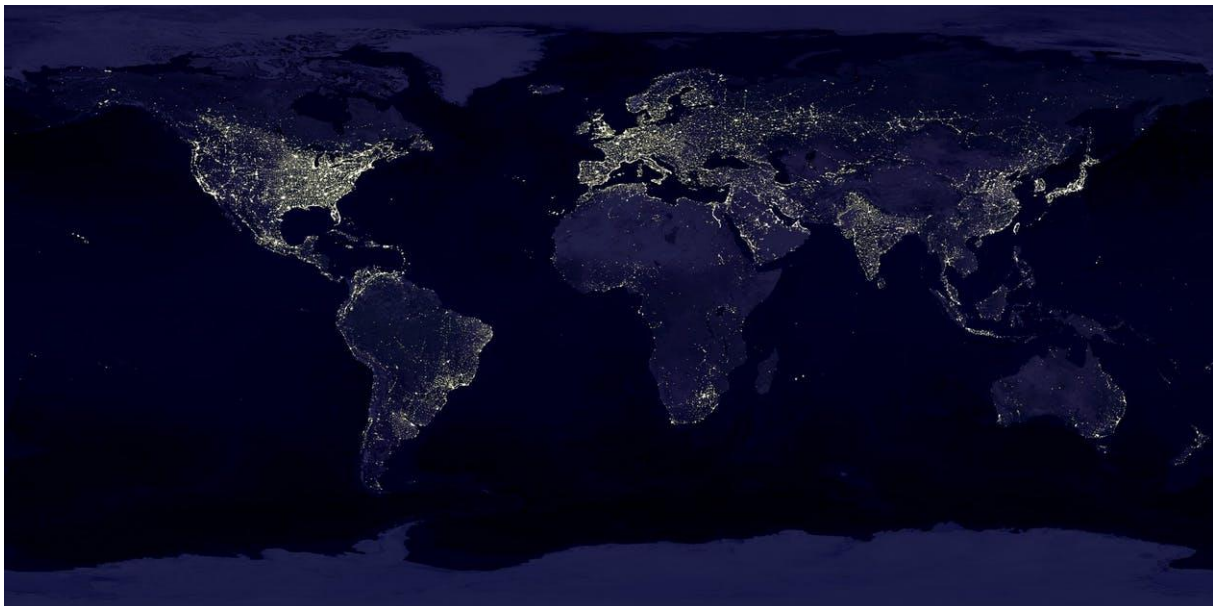
In sum, global value chains show very complex effects on the value-added creation and, hence, the distribution of income, both across and within countries. These effects are not carved in stone but change over time, differ widely across industries, and are difficult to predict.

2.3 The World is Not Flat – Global Localization

Our look at the global value chains for the Barbie doll and the iPhone already revealed a strong regional concentration of value chain networks. While sometimes popular books on globalization make the point that “[the world is flat](#)”, this view has been [criticized in the academic literature](#). A flat earth suggests two things: first, economic activity spreads more or less equally over the globe; and second, economic interconnectedness links all countries equally.

On the first issue, scholars of economic geography usually respond with showing us a map of the “world at night”, created from satellite photos (see Figure 5). Emitted light can then be taken as an indicator of economic activity. Such maps show indeed that the earth is not flat in terms of economic activity but that there are economic hotspots in the major regions of the world.

Figure 5: The geography of global economic activity



A more sophisticated approach has been undertaken by the [G-Econ Project](#) at Yale University in 2009. The researchers build a global data set on economic activity for 27,500 terrestrial grid cells. This gives a much more precise picture of the geography of global economic activities, which can be viewed as a [rotating globe on the project’s website](#).

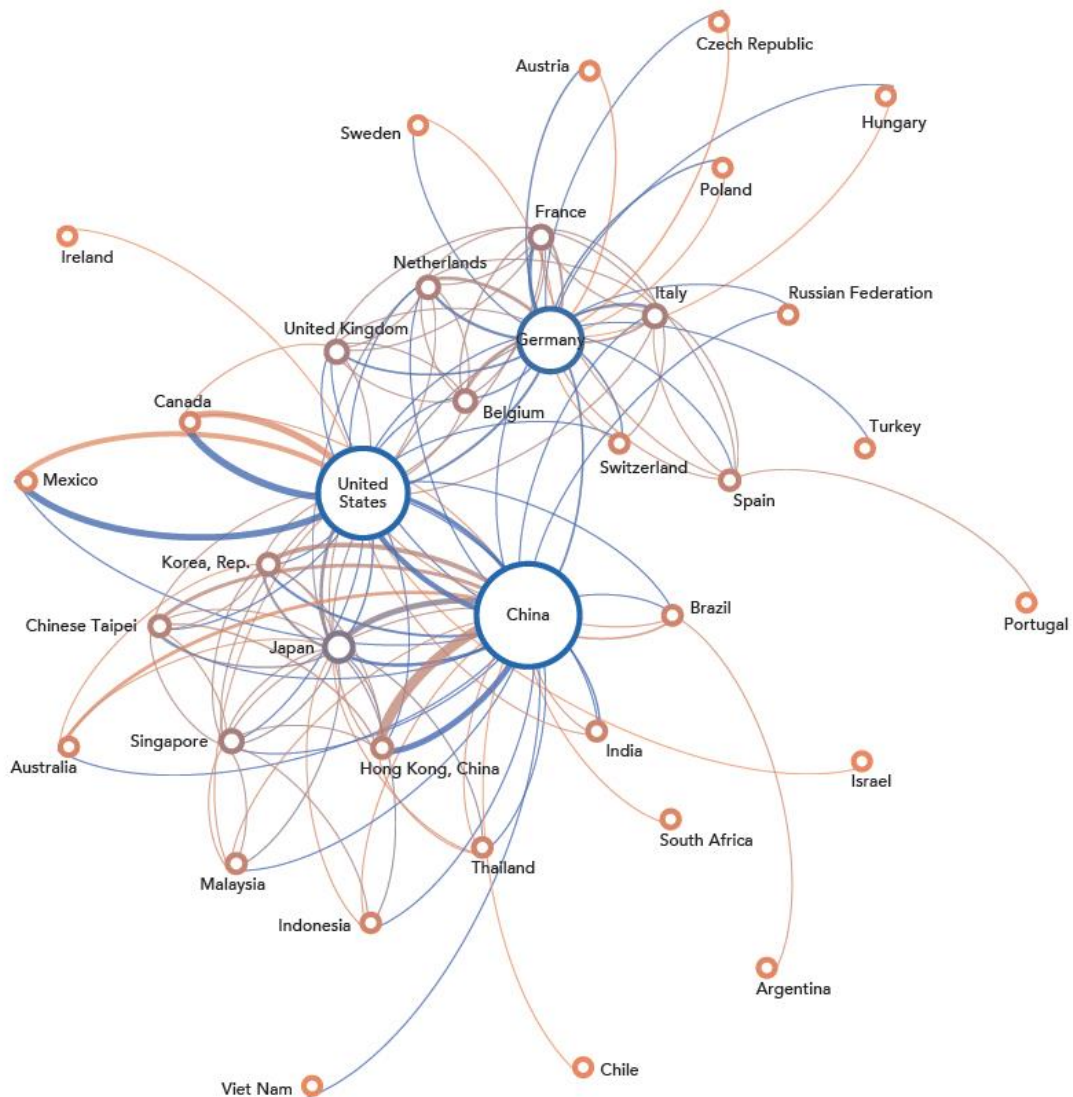
A second way of investigating the flatness of the earth is looking at the interconnectedness itself, e.g. by looking directly at international trade patterns. This is best done by estimating so-called gravity equations. The gravity model is the most successful empirical mean of explaining trade flows between all pairs of countries. It conjectures that trade between two countries is proportional to the product of the economic size of the countries – measured by the GDP - and inversely related to the geographical distance. Other explanatory variables are often added to capture effects of common borders, a common language, cultural differences, trade agreements, a common currency etc. The most striking result of these estimates is that almost all of the numerous studies estimating gravity equations report sizeable distance effects, which, moreover, have increased in recent times.

What does that mean? In a flat world with shrinking transportation and communication costs one would actually expect that the distance between two trading partners to become less important. However, the “distance effect” is quite sizeable: typically bilateral trade shrinks more than 10% when the distance between two countries increases by 10%. In other words, trade shrinks rapidly with distance. But, interestingly this effect has become much stronger since the 1990s despite falling trading costs. A plausible explanation for this *distance paradox* is that value chains are often regionally concentrated.

As in the case of the electronics industry, suppliers of intermediate inputs are often also located in the region, in this case, in East Asia. The value chains will therefore create a lot of intra-regional trade within relatively short distances. Only when the final product is delivered to the consumer market trade becomes truly global. A similar pattern can be observed in the European car industry, where especially the German car industry has developed large regional production networks, in particular involving Central and Eastern European countries.

The interconnectedness between global and regional value chain networks is depicted in Figure 6 and shows three major regional production networks with the USA, China, and Germany as the major hubs in each regional production network.

Figure 6: Hubs in global value chain networks



Source: [Global Value Chain Development Report 2017](#), International Bank for Reconstruction and Development/The World Bank 2017, Washington DC: 7.

In sum, our discussion shows that GVCs have not simply created a flat earth of a true globalization that affects all places of the globe, but a regional or even local concentration of global activities, in other words, a global localization or “glocalization”.

DIGGING-DEEPER RESEARCH PROJECTS

1. In the light of the above discussion, how would you assess the future development of the global value chain for the car industry in general, and for the smile/frown curve for the German car industry, in particular. Consider two different scenarios:

Scenario 1: The automobile industry will continue to be dominated by internal combustion engines, including the Diesel engine.

Scenario 2: There will be a rapid transition to electric cars.

In preparation for the discussion read the Executive Summary as well as Chapter 2 of the Global Value Chain Development Report 2017.

2. Research on existing regional production networks in the automobile industry

a) in Europe

b) in North America

Who are the major players in terms of companies and countries?

3. Contemporary Globalization Viewed Through the Lens of Trade Theory

In this section I will review how the theory of international trade can contribute to increase our understanding of the contemporary state and development of trade globalization. As I assume no prior knowledge of trade theory, both the old trade theory as well as newer approaches will be discussed. Especially, the theory of comparative advantage has developed very fast in recent years to take into account new phenomena of the modern world economy. This section will therefore present an executive, and hopefully accessible, introduction to international trade theory. It is however, not intended to substitute for a classic textbook. Rather, it is meant as a complement that should help the reader link theoretical advances to the rapid changes in the trading environment.

3.1 The Origins of Trade Theory: Making the Case of Free Trade

Making the case for free trade is deeply ingrained in an economist's DNA. The advocacy of free trade and the birth of the science of economics go hand-in-hand. But why this insistence of economists on the advantageousness of free trade? Two reasons can be given. On the one hand, it is indeed based on a deep insight that economists developed, especially David Ricardo's *principle of comparative advantage*, which dates back to 1817. In fact, the principle still goes a long way explaining modern trade, especially when adjusting it to new realities. On the other hand, the insight was instrumental for revealing the wrong-headed anti-business stance of European monarchies. Until the 18th century, Europe was largely ruled by monarchies, sometimes in fragmented small states, especially in Germany, where the ruling aristocrats raised income through border taxes, the simplest way to collect money (and still today in many developing countries with weak income tax systems). Large Kingdoms, like France subscribed to the ideology of *mercantilism*, which argues to restrict imports and promote exports. The idea behind this is to "earn" and accumulate gold and silver for the monarchy. Consequently, in the mercantilist ideology imports are regarded as bad and exports as good; and the higher the export surplus, the better for the country, read: the ruling monarchs. Conversely, other countries running an export surplus are seen as "bad", especially when they have a bilateral surplus vis-à-vis your country. In contrast, in the United Kingdom, where industrialization started first, businessmen, looking for opportunities in foreign markets, opposed this logic. They understood that importing raw materials without additional tariffs is beneficial in two important ways: first, it allows the consumption of foreign, often exotic goods, such as spices and tea at low costs and, second, such goods are forming the base for producing processed goods, which could be sold both nationally and internationally.

Adam Smith, the Adam and the smith of economics, praised the virtues of the division of labor in his "[Inquiry into the Nature and Causes of the Wealth of Nations](#)" with the famous example of the pin factory:

"To take an example, therefore, from a very trifling manufacture ... the trade of the pin-maker; a workman not educated to this business ..., nor acquainted with the use of the machinery employed in it ..., could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on, not only the whole work is a peculiar trade, but it is divided into a number of branches, of which the greater part are likewise peculiar trades. One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations; to put it on, is a peculiar business, to whiten the pins is another; it is even a trade by itself to put them into the paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which, in some manufactories, are all performed by distinct hands, though in others the same man will sometimes perform two or three of them. I have seen a small manufactory of this kind where ten men only were employed, and where some of them consequently performed two or three distinct operations. But though they were very poor, and therefore but indifferently accommodated with the necessary machinery, they could, when they exerted themselves, make among them about twelve pounds of pins in a day."

But it took the wit of David Ricardo to demonstrate that specialization across borders and subsequent trading is beneficial to both trading partners, even if one country is superior in producing everything. Both ideas became powerful in promoting free trade. Late industrializers in continental Europe, however, joined the idea only reluctantly, claiming that an adjustment period is needed to develop their relatively backward own industries behind "infant-industry-tariff" walls. But finally, the idea of mutually beneficial free trade became widely accepted.

3.2 Comparative Advantages and Globalization of Trade

The insights from the principle of comparative advantage are indeed very powerful ones. David Ricardo developed the idea at the level of goods: If Portugal is relatively better in producing wine and England relatively better in producing cloth then both are better off when each of them specializes according to its comparative advantage and then start to trade wine for cloth. The surprising insight of Ricardo is that specialization and subsequent trade is also mutually beneficial if one country is absolutely better in producing both goods. This is something business people find hard to believe. Hence, we need to dig a little bit deeper to understand Ricardo's difficult but even today still relevant idea.

3.2.1 David Ricardo's Principle of Comparative Advantage: Old, Difficult, Still Relevant

An old idea: The 200 year-old principle of comparative advantage

The two key assumptions of [Ricardo's 200 years old idea](#) is that countries are constrained in their production possibilities and that the countries are different in terms of their productivity in producing the goods. Hence, they must choose what to produce. If then both countries concentrate on what they can do relatively best, both countries can produce more than otherwise. In other words, the world is obtaining efficiency gains – a bigger cake, so to speak.

A simple numerical example (Table 3) can illustrate this. Assume that Portugal is more productive in producing both, wine and cloth: For producing a bottle of wine Portugal needs 1 day to produce a bottle of wine, England 6. But also in clothing industry Portugal's "unit labor requirements" for producing a piece of cloth (ac), are lower than in England. Hence, Portugal is 6-times better in wine ($6/1$) and 1.5-times ($3/2$) more productive in producing cloth. England is then said to have a *comparative* advantage in producing cloth, as its absolute disadvantage vis-à-vis Portugal is lower in the clothing industry. Conversely, Portugal has a comparative advantage in producing wine.

Invoke now the constraints on production possibilities and the Ricardo proposition follows immediately. In our example, we equip Portugal with 100 working days and England with 300 working days. If then each country while still in autarky uses 50 percent of its labor days on producing each good, respectively, Portugal will produce 50 bottles of wine and 25 pieces of cloth, while the numbers for England will produce 25 and 50 respectively, hence resulting in a "world" production of 75 units for each good. Now assume complete specialization according to comparative advantages. This would allow producing 100 units of each good. We obtain efficiency gains of 25 bottles of wine and 25 pieces of cloth. It should be noted, that efficiency gains can always be obtained regardless which numbers are chosen for labor endowment or consumption pattern.¹ In other words, the principle is "always true" as a matter of the model logic. Yet, as once quipped by Nobel laureate Paul Samuelson, it is not trivial.

¹ For a general exposition of the validity of principle of comparative advantage allowing for incomplete specialization the reader should consult any standard textbook on trade.

Table 3: A simple illustration of the principle of comparative advantage

	Wine	Cloth	Labor	Allocation of Labor			
			Availability	Autarky		Specialization	
	Unit labor requirements: a_w	Unit labor requirements: a_c	Number of working days	50% of working days on wine	50 % of working days on cloth	Portugal producing only wine	England producing only cloth
Portugal	1	2	100	50 wine	25 cloth	100 wine	0 cloth
England	6	3	300	25 wine	50 cloth	0 wine	100 cloth
“World”				75 wine	75 cloth	100 wine	100 cloth

The efficiency gains accrue, because limited resources are now spent by both countries on what they can do relatively better by taking into account *opportunity costs*: For each piece of cloth additionally produced by Portugal it would forgo two bottles of wine. England, by contrast, would only lose half a bottle of wine.

How much of the enlarged cake will go to whom depends on the actual prices, i.e. how much wine Portugal has to pay for a piece of cloth after starting to trade and vice versa. These so-called terms-of-trade depend on supply and demand factors. And the less wine Portugal has to pay for cloth, the more efficiency gains go to Portugal and the less to England. If Portugal would have to pay two bottles of wine for a piece of cloth, as they had to in autarky, all efficiency gains would go to England. Conversely, if the price would be only half a bottle (the autarky price in England) all gains would go to Portugal. Anything between these two extremes would distribute the efficiency gains between both countries. However, as the terms-of-trade determine who gets how much of the additional cake they are zero-sum gains – the more Portugal gets, the less England gets, and vice versa. Efficiency gains are however, clearly positive sum gains.

Simple as the argument looks at first glance, comparative advantage is often misunderstood as it does not seem to fit with the normal business experience. If a company is better in everything than its competitors it will expand and eventually even take over the competing firm. Conversely, if a company is worse in everything it will go bankrupt and eventually disappear. This is, of course, not what happens to countries. If a country is superior in producing everything it is still limited by its resources. Hence, even if the whole world wants all your products you cannot deliver fully and thus your prices (and wages) would increase and eventually also the value of your currency. By contrast, a country worse, i.e. less productive, in producing everything will see its prices and wages decreasing and the value of its currency deteriorating. In other words, wage, price and exchange rate movements turn comparative advantages into *competitive* (price) advantages.

Consequently, the more productive countries are, the higher are their wages relative to the wages of the less productive countries. Of course, in reality we have to account for capital and thus capital income. Nevertheless, after doing so we can observe in reality that productivity and income levels of countries are strongly correlated: relatively poor countries are countries with a relatively low level of productivity.

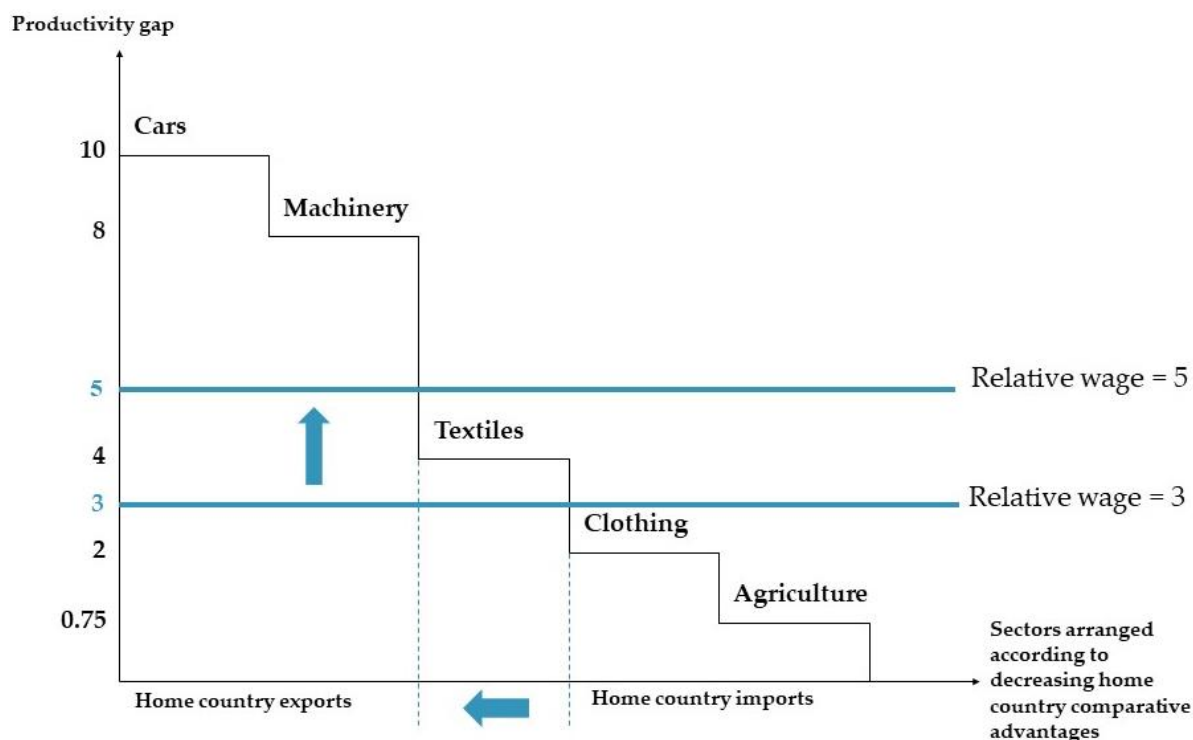
The idea of Ricardo is therefore that countries should specialize on goods where their productivity is somewhat above their average productivity. Because the latter determines – at least partly – the relative wage, industries with comparative advantages will be able to be price competitive. To illustrate this, consider your average productivity and hence your wage is only 20% of the corresponding numbers of your competitor, but the productivity in your best industry is 50% of the foreign industry. This means, that when they need one day for producing wine you need two days. But you may have to pay \$2 for the labor per day and they \$10. Therefore, you can offer the wine for \$4 and they for \$10. Hence, you are price competitive despite being worse at everything.

A difficult idea: Employing a Ricardian model with many goods

If you want to formalize all conditions that turn the old idea of David Ricardo into a theoretically coherent story, one in which you can clearly identify all hidden assumptions and evaluate what happens if these assumptions are violated, then [it gets indeed very difficult](#). Such a model has been developed by [Dornbusch, Fischer and Samuelson \(1977\)](#) and has become an important “workhorse” of trade economists. We do not go into the details here, but show a stripped-down graphical version to capture some of the most important insights.

The model extends the basic Ricardo approach by allowing for many goods (in effect, the paper works with a “continuum of goods”). For simplicity, you can think of five industries in which both countries work with different labor requirements and hence productivities. In our example below, the home country’s car industry is 10-times more productive, the machinery industry 8-times, the textile industry 4-times, and so forth. In Figure 7 we arrange the sectors according to the decreasing home country’s productivity advantage. The size of these sectors may differ and thus also their potential for exporting. It is then the relative demand and supply in all industries and in both countries, which will finally determine the wages at home and abroad as well as the exchange rate. In other words, the model invokes a balance of payments constraint that requires exports to be equal to imports, in order to determine the relative wage. For our purposes, we skip this difficult step and simply ask what will happen at different relative wage levels. For example, if the home wage is three times the foreign wage, all industries with a productivity advantage of less than a factor 3 will become import sectors, here clothing and agriculture, while the others will become export sectors. If the relative wage increases to the factor 5 we will additionally “lose” the textile industry.

Figure 7: Determining the structure of trade in a Ricardian model with many goods



A relevant idea: Insights from a Ricardian comparative advantage perspective

Even this simplified presentation of a difficult model allows us to draw a number of important insights for today's trade issues:

- ▶ First, whether or not an industry will be competitive is partly beyond the companies' control and depends on the productivities in other sectors and countries, even when they are completely unrelated to "your industry". Two highly relevant examples can illustrate this *interdependence*:
 - ▷ Wage dynamics can be caused by exogenous factors, e.g. demographic development at home and abroad. For example, relatively faster population growth abroad will lead to relatively higher wages at home and may lead to a loss of the industry with the smallest advantage. As a consequence, the home country will produce a smaller range of goods. However, after the work force has reallocated to the expanding remaining export sectors, the relative higher wage will lead to welfare gains because this allows buying more foreign goods. Conversely, the foreign workers will suffer from a welfare loss as the terms-of-trade turned against them and reduced the purchasing power of their wages for buying foreign goods.
 - ▷ Technology advancements have similar though not identical effects as population developments. If technology improvements happen abroad, this will again lead to more production and a rising relative wage at home as well as to the loss of the industry with the smallest advantage. Through the rising purchasing power of the

wage, home workers benefit from higher productivity abroad. This time, however, these positive spillover effects are not coming at the net expense of the foreign workers as their effective wage (the availability of goods at home after the technology boost) will increase more than what is lost through spillovers via the terms of trade. To illustrate, just think of China making serious efforts to increase productivity. The West's relative wage might increase, a loss of some marginal industries may happen, but the west is able to buy more Chinese goods at lower prices. Meanwhile, despite some term-of-trade losses, China will be better off too.

- ▶ Second, wage and exchange rate development caused by relative demand shifts, e.g. a higher demand for the goods produced by our best industries, can lead to a loss of our least-best industry. A case in point is the Chinese shoe industry. With a booming electronics industry, Chinese wages increase relative to neighbors' wages. This may lead to a migration of the shoe industry even though the neighbors are less productive. Another example could be a booming German machinery and car industry, which can have negative side effects on industries, which were only marginally competitive previously.
- ▶ Third, capital movements and exchange rate developments are not being determined in our stripped-down model, but we can have a look what happens when these factors change exogenously.
 - ▷ Many observers have indicated that Korea had often arranged for a slight under-evaluation of its currency in the 1970s. Likewise, China has until recently also been accused of keeping its currency value artificially low. While popular arguments often highlight the subsequently occurring trade surplus, the more interesting insight here is that an under-evaluation can help to turn a not fully competitive industry into an export sector. It can therefore be considered as a type of industrial policy (see also section 3.2.5), sometimes dubbed as "*exchange rate protectionism*".
 - ▷ In the 1980s, the market-oriented reforms by the British Prime Minister Margaret Thatcher, coupled with high interest rates, led to a huge inflow of capital into the UK, and the British Pound appreciated dramatically. Our model predicts a loss of export industries. In fact, the UK lost a lot of its industrial export industry in that period in favor of the most productive British industry: finance. In a scholarly article sub-titled "[The competitive consequences of Mrs. Thatcher](#)", Paul Krugman employed the Ricardian model with many goods to analyze the case. However, he extended the model by "learning effects", suggesting that once an industry with a high learning potential is lost, the competitors may catch up and it might not be possible to win this industry back even if the exchange rate returns to its previous level
- ▶ Fourth, in the Eurozone, the group of countries that have adopted the Euro as a single currency, an exchange rate does not exist anymore. Hence, all adjustments in case of trade deficits or surpluses fall on wages and prices. This became particularly relevant in the Eurozone crisis. Before the crisis, southern member countries were swamped with capital inflows, which fueled the booming economies further, and finally led to an increase in the prices and wages relative to the northern member countries. The loss

of marginally competitive industries is the predicted consequence in our model. However, regaining competitive advantages is not easy since the exchange rate as a buffer is missing. All adjustments then fall on the wages (and prices), which are often downward rigid. Alternatively, wage and price increases abroad can be helpful, but have not been welcomed by the northern countries. Finally, increases in productivity would help, but this takes time and cannot easily be ordered by some authority.

In sum, taking Ricardo seriously, this model can offer plenty of insight into the modern trade environment. It is clear, however, that the basic version has its limitations. Notably, it focuses only on labor as a production factor, only on goods and not on tasks and GVCs, and it takes the economy as a black box and thus gives no role for companies and corporate strategies. Further, it ignores economies of scale, an important feature of production in manufacturing. In the following, we will discuss these issues in more detail.

3.2.2 Twentieth Century Versions of Comparative Advantage and the 2nd Wave of Globalization

Trading on the base of comparative advantages relies on the existence of differences between the trading countries. Being different, not only in terms of productivity as in the original Ricardo model, but also in terms of production factor availabilities, labor costs, know-how, etc. allows for producing things relatively cheaper in another country.

Factor abundance, factor proportion and some unpleasant consequences

In the early 20th century [Eli Heckscher \(1919\)](#) and [Bertil Ohlin \(1934\)](#) shifted the focus of comparative advantage theory away from productivity to factor endowments and, consequently, factor prices. Under the condition that productivities are similar across industries and countries, the so-called factor proportion theory predicts that relatively labor-rich countries will have relatively lower wages and thus a comparative advantage in producing labor-intensive goods. Conversely, relatively capital-rich countries are expected to have relatively higher wages and thus a comparative advantage in producing capital-intensive goods. For a correct interpretation one should however note (as always when dealing with comparative advantages) the word “relative”. Hence, it is not the absolute amount of labor and capital that matters, but the *factor proportions* of capital to labor and the relation of wages to capital income.

The basic assumption of an at least relative equality of productivity is indeed not too far-fetched for some standardized manufacturing industries like clothing or electronics – such goods are therefore often labeled as “*Heckscher-Ohlin Goods*”. It is then predicted that e.g. relatively labor-rich countries will have a comparative advantage in producing labor-intensive goods like clothing because of the relative wage advantage, while capital-rich (advanced) countries will specialize in producing goods that require a high proportion of capital. As such, the theory seems to offer a good explanation for the 2nd wave of globalization, the rise of emerging economies as a producer and exporter of standardized, labor-intensive manufactures.

Unfortunately, the theory predicts some unpleasant consequences of trade in Heckscher-Ohlin goods. Starting trading along these lines with labor-rich economies will lead to a shrinking of labor-intensive manufacturing in capital-rich countries. While the capital-intensive industries will expand and become exporters and generate overall trade benefits, this comes at the expense of workers, as the shrinking labor-intensive industry will displace more workers than the expanding capital-intensive industries will hire at given factor prices.

Theoretically this observation has led to formulate the *factor price equalization theorem*, aka *Samuelson-Stolper theorem*. While commentators and critics of “globalization” often refer to it, it is wise to summarize some insights from standard trade textbooks before proceeding and blaming all ills of the advanced countries on trading with developing countries:

- ▶ First, technology and, hence, productivity differences prevail in the real world. Most empirical studies show that technology matters most in explaining wage and per-capita income differentials.
- ▶ Second, the theorem is about equalization of the wage-profit relation and not absolute wage or profit equalization. Consequently, it is not about absolute factor-price equalization, or – to put it more colloquial – about working for Chinese wages.
- ▶ Third, relative factor-price equalization requires total goods price equalization. But there are still transportation and other trade costs as well as tariffs and non-tariff barriers to trade.
- ▶ Fourth, not all advanced countries are affected alike. The prediction of the factor price equalization theorem assumes that the labor-intensive goods are still produced in a country when trade with the labor-rich country starts. China’s return to the global marketplace in the 1990s, and especially after its entry into the World Trade Organization (WTO) in 2001, is a case in point, notably for Europe. Instead of affecting all European countries alike, it mostly affected those who were still specialized in labor-intensive goods where China has comparative advantages, namely the less-developed countries at the European periphery with, e.g. a large textile and clothing sector, which, by contrast more advanced countries had already largely outsourced.
- ▶ Fifth, the Heckscher-Ohlin theory has not performed well when confronted with reality. Wassily Leontief already found in [1953](#) that the supposedly capital-rich USA exchanged labor-intensive exports for capital-intensive imports. This *Leontief paradox* has led to a re-formulation of the original Heckscher-Ohlin model into a *neo factor proportion theory*, which differentiates labor according to different skill levels and hypothesizes that human capital-rich countries will have a comparative advantage in human capital-intensive goods while low-skilled labor-rich countries will specialize on industries using less qualified labor more intensively.

We can take away two major insights from these theories: First, the relative endowment with production factors matters for the specialization pattern, and second, trade may hurt low-skilled workers and benefit high-skilled workers in rich countries. Conversely, trade may have the potential to lift low-skilled workers out of poverty in poor labor-rich countries. We will look more closely at these issues in Chapter 4.

Dynamics of comparative advantages

While the neo-factor-proportion theorem help us to understand the “global shifts” in international trade during the second wave of globalization, it misses out on some points, which played an important role. For starters, both the factor requirements by products as well as the factor endowments in countries can change over time.

Let us start with the factor requirements of products. While it is probably straightforward to characterize the clothing industry as labor-intensive², many modern industries have emerged by product innovations, such as the electronics industry. Take the example of the electronic calculator. When developed in the 1970s it required a lot of engineering and human capital. Hence, from the point-of-view of a factor proportion theory the comparative advantage is in countries, which are considered to be human capital-rich, i.e. with a relatively high proportion of engineers in the work force, like the USA (see Figure 8). However, over time the product matures. Mass production requires large factories and thus a lot of physical capital. The comparative advantage is now in capital-rich countries, mainly in Europe and Japan, where the demand for these goods was rising rapidly. Production shifted accordingly. Today, electronic calculators are relatively standardized products using standardized integrated circuits (chips), simple displays and a lot of plastic. This makes the products now a largely labor-intensive goods that are best suited for production in low-skilled labor-rich countries, conditioned on complementary investments in assembling factories from international companies, often headquartered in capital-rich countries.

Figure 8: An illustration of Vernon’s product cycle theory of international trade and investment

	Innovation Phase	Maturing Phase	Standardization Phase
Major Factor Requirements of Product	Human Capital	Physical Capital	Labor and Physical Capital
Relative Factor Endowment of Countries	Human-capital-rich economies	Capital-rich economies	Labor-rich economies, (foreign) investment in physical capital often needed
Examples	Calculators & PC in the 1980s-90s USA	Calculators & PC in the 1980s-90s Europe	Calculators & PC in the 1980s-90s South-East Asia

This, in essence, is the “[Product Cycle Theory of International Trade and Investment](#)” proposed by Raymond Vernon in 1966 as a theory of “dynamic comparative advantage”. Products that go through these phases, especially high tech products like personal computers and mobile phones, can be expected to follow such a pattern. For countries this implies that their comparative advantage in such products is indeed temporary.

In a way, the resources needed to produce products, which are at a time in high demand and booming, and the factor endowment of countries can make a good “fit” in certain times and facilitate rapid economic development. Cases in point are capital-rich Western Europe,

² However, factor-intensity reversals remain a theoretical possibility.

catching up rapidly with the USA, and China's fast economic growth in the last two decades, based on its focus on labor-intensive manufacturing. However, as the experience of Western Europe shows, there is no guarantee that the old "fit" is appropriate in new times.

The relative factor endowment of countries can, will and eventually has to change over time to fit with new requirements. Development, industrialization, education and knowledge transfer are all things that matter. They have already turned China today into a very different place than 20 years ago and it will not be too surprising if China moves away from comparative advantages in standardized, low-skilled labor-intensive manufacturing and assembling, and moves up the ladder towards the earlier stages of the product cycle. Especially in China this will not only be the consequence of market process, but also of deliberate policies, ranging from the one-child policy already impacting the demography today, intensive investments in education and acquiring technology, and not least industrial policies for promoting higher-value-added activities by means of the current "Made-in-China 2025" strategy of the Chinese government.

But one should also be aware that international trade and investment is about relative development. In other words, the development of your trading partner matters as well. If they invest more in human capital development than your country, the pattern of comparative advantage may take an unexpected turn. A case in point is Austria, [as argued by Dalia Marin](#):

"At first, Austria benefited from the European Union's eastern enlargement. International trade soared, Austrian firms invested heavily in the region, and Austrian banks opened subsidiaries there, financing these countries' modernization. All of this was good for business, and the Austrian economy grew rapidly. But a hidden dynamic ultimately turned the tables on this success. Central and Eastern European countries had low per capita income, but were rich in skills. Austria, far wealthier, was not. In 1998, 16% of Central and Eastern Europeans (including Russia and Ukraine) had academic degrees, compared to just 7% of Austrians. So, when Austrian firms invested in Eastern Europe, they did not just relocate low-skilled manufacturing jobs; they also offshored the parts of the value chain that required specialized skills and produced valuable research."

Comparative advantage and the role of institutions

So far we have focused on hard economic facts: measurable productivities, factor proportions and intensities, as well as factor prices. Of course, all these things do not fall from heaven but are man made – or at least man-influenced. In a much-discussed book, Acemoglu and Robinson (2012) argue that it is man-made (good) political and economic institutions that underlie economic success.

In a similar vein, a new literature on institution and comparative advantages is emerging that suggests that institutional quality matters for comparative advantages too (for an overview, see Nunn & Trefler 2014). In particular it is hypothesized that institutions become more important for creating comparative advantages, the more the product requires good institutions to be produced. To give an example, compare the production of potatoes to the development and marketing of a new pharmaceutical product. The former clearly can happen

with some food safety regulations and a few rules for self-marketing the potatoes at the local market. The latter, however, needs many more complex drug safety regulation, rules for patent rights, possibilities to enforce contracts within and across borders, and many more. Hence, a country with a low institutional quality is less expected to produce “good-institution-intensive goods”.

This is also where Europe comes in: it exports good institutions to its member countries, something that should not only help national comparative advantages, but also regional or European comparative advantages in “good-institution-intensive goods”. Especially, research-based activities are highly sensitive to good institutions, protection of property rights, the rule of law, etc. If such institutions are important in helping comparative advantages to emerge, and recent research supports this, then EU membership may have had an important impact on these developments as all EU member countries have to adopt the whole body of law and regulation of the Union, the so-called “*acquis communautaire*”.

But institutions may not only need to be “good”, but – as discussed before – need to have the right “fit” at a time. As argued convincingly by Barry Eichengreen (2007, 3-4), an important reason why Western Europe was able to catch-up rapidly after 1945 relates to

“...the fact that Europe possessed a set of institutions singularly well suited to the task at hand. Catch-up was facilitated by solidaristic trade unions, cohesive employers associations, and growth-minded governments working together to mobilize savings, finance investments, and stabilize wages at levels consistent with full employment. ... In a nutshell, then, opportunities for catch –up and convergence were realized of the conformance, or more colloquially, the ‘fit’ between the structure of the Western European economy and the economic and technological imperatives of the day.”

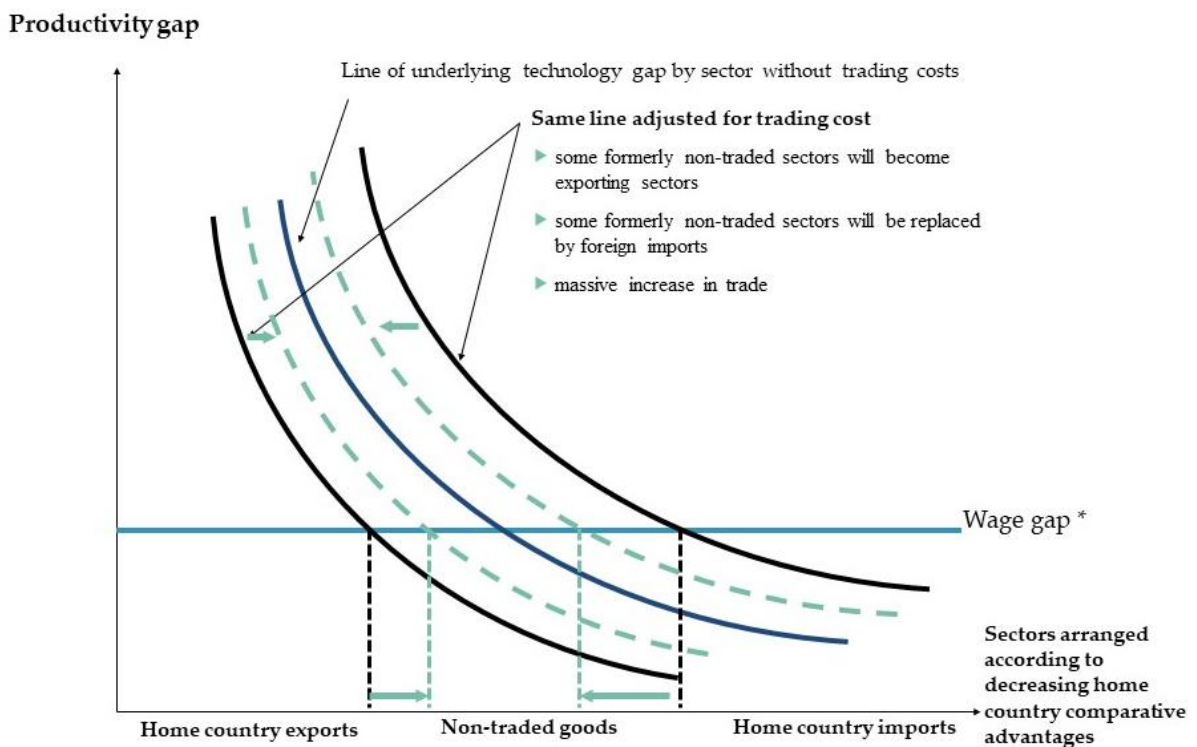
From this point of view, it is also evident that Europe today needs different institutions than during the catch-up growth phase – an issue which is frequently addressed at European summits and resulting in more or less successful strategies, like the [Europe 2020 Strategy](#).

Likewise, this is also relevant for emerging economies like China that want to move up the ladder towards more knowledge-intensive production. To be successful in these ambitions will ultimately require providing the right “fit” of institutions to make such industries flourish.

Summing up: The 2nd wave of globalization visualized

The emergence of emerging economies as exporters of low labor-cost manufactures can be largely attributed to the fall in trade costs, especially transportation cost, driven by the containerization of the shipping industry, lower-cost air transportation, and road-infrastructure improvements. Moreover, the trend towards trade liberalization was extremely supportive. Figure 9 illustrates this process. The outer lines show that taking into account trading costs, fewer goods will be imported and exported than in a frictionless world. Thus, in a very simple sense a reduction of trading costs allows for competition from abroad, especially in areas where the differences in comparative advantages are the lowest. This is where exports and imports are expected to be boosted. But can we expect the world to be like this in the 21st century as well?

Figure 9: How falling trading costs increase trade in goods in a comparative advantage world



3.2.3 Fragmentation and the 3rd Wave of Globalization: Comparative Advantages in Tasks

In this section I argue that the globalization of sliced-up value chains makes the principle of comparative advantage even more relevant than before. Tasks, like those in Adam Smith's pin factory, are now allocated across borders in countries where they can be performed more efficiently. As such, the principle goes some way in explaining modern value chain trade between "different countries" as discussed before. As [Timmer et al. \(2014\)](#) note: "In essence, international fragmentation expands the opportunities of countries to specialize according to comparative advantage and hence to gain from trade. As such, it is on average welfare improving, but not necessarily for all workers and owners of capital."

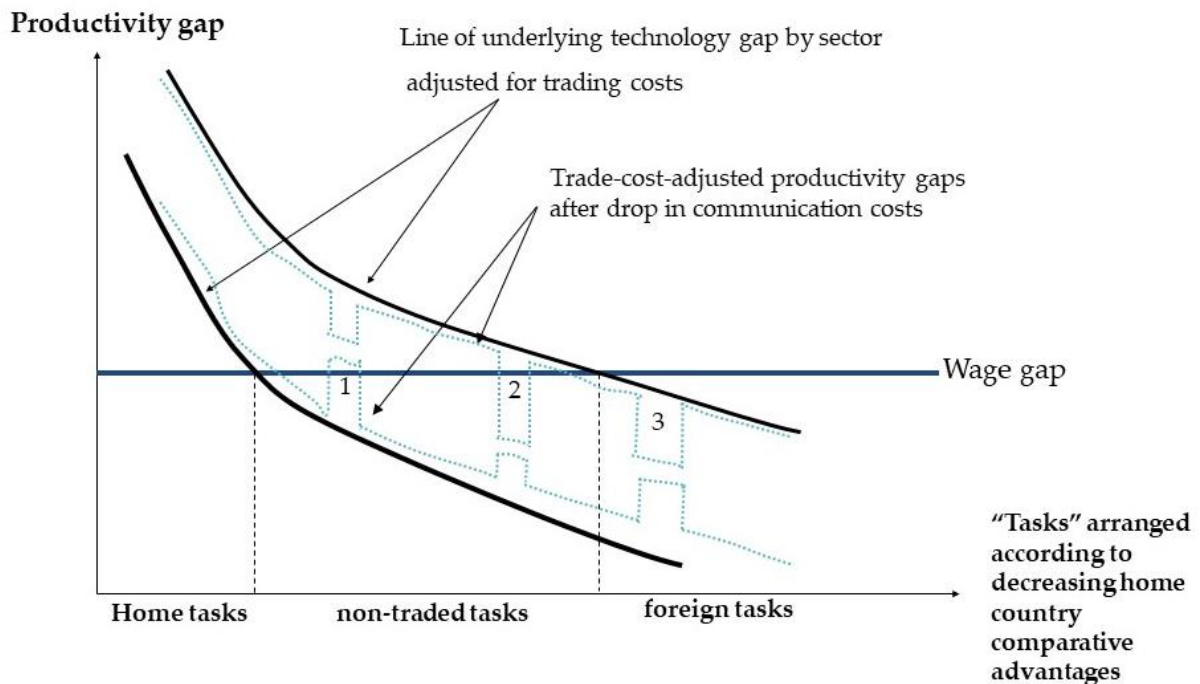
While this sounds familiar after our brief review of 19th and 20th century trade theories, is there something fundamentally different of which we should take note? Fragmentation means "unbundling": Adam Smith's pin factory writ global. Fragmentation can be viewed as specialization along comparative advantages at the task level, which has the potential to produce high efficiency gains. It can be expected to lead to increases in labor productivity. According to the Global Trade Watch report on "[Trade Developments in 2016](#)", a 10% increase in global value chain participation increases average labor productivity by 1.7%.

But this invokes two major differences from Wine to Cloth-Trade:

1. Global competition is not anymore between home and foreign factories as institutions that bundle capital and labor but between global workforces competing for different tasks. Hence, the individual worker is much more exposed to global competition and left on his/her own.
2. Advances in technology, especially in communication technologies and technological abilities to slice up the value chain allow for fragmentation of the production process of a wide range of products. Such disruptions are less predictable in both occurrence and direction than the impact of trade cost reductions in the 20th century.

Figure 10 illustrates the issue: A fall in trading costs can result in changes in the international division of labor that are very difficult to predict: the home country may gain a comparative advantage (1), lose it (2) or may not be affected at all (3).

Figure 10: How falling trading costs increase trade in tasks in a comparative advantage world



Source: Graph is based figure 7, p.26 in: [Richard Baldwin, The great unbundling\(s\), September 2006](#)

According to Richard Baldwin (2006), the consequences are much more severe than previously seen, in particular because of:

- ▶ an increased unpredictability of changes at sector and skill-group level, and
- ▶ the suddenness as a major characteristic of changes

While on the positive side wage increase for the remaining work force in sectors that engage in outsourcing is possible if productivity increase overcompensates the effect of job losses, the dark side is particularly severe. It requires much more flexibility and adjustment at individual worker level than the previous waves of globalization. As we will discuss in section 4, this has important effects on income distribution and equality both within and across societies.

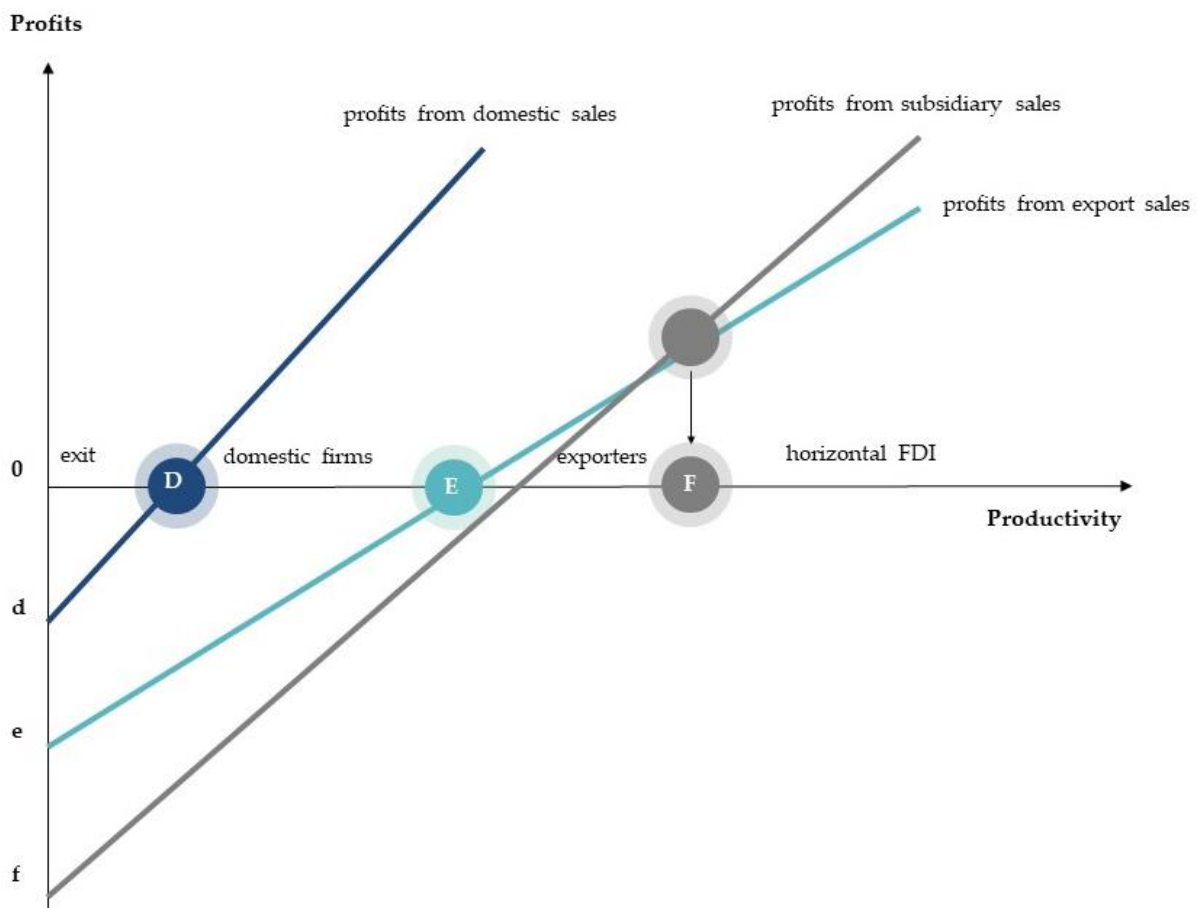
3.2.4 The Drivers of Comparative Advantage: Heterogeneous Firms

In the 2000s, researchers increasingly focused on identifying the drivers of comparative advantages of nations. The main message from this ongoing research program is that firms are the main drivers of comparative advantages.

The classical Ricardo model has highlighted productivity differences across countries at the industry level. However, also companies within one industry operate with different levels of productivity. The argument is then that only the most productive firms will be able to compete on the global market.

Figure 11 illustrates this. On the horizontal axis, companies are ordered according to their level of productivity. The vertical axis measures the profit obtained from domestic sales, exports and sales from subsidiaries created by a foreign direct investment (FDI) abroad, respectively.

Figure 11: Productivity level and internationalization of firms



Source: The figure is based on figure 6.2 in: Helpman 2011: 139.

Consider “profits from domestic sales” first. With a zero-productivity the company would produce and sell nothing and make a loss (d) equal to its cost. The more productive the firm the lower the loss. At point D the productivity is sufficient to break even. Higher productivity allows making profits. Compare this now with profit from exports. Selling abroad requires upfront investments like market research, setting up distribution channels, preparing staff for dealing with foreign operations, etc. With higher fixed cost, the loss of a potential exporting company at zero-productivity (e) would exceed the losses of a purely domestic company.

Moreover, as exporting cause trade costs, e.g. from transportation, insurance, etc. the profit curve for the exporting company is flatter than the one for the domestic company. Consequently, only companies with a productivity level of E or higher will engage in exports. Setting up subsidiaries abroad though FDI involves even higher fixed costs (f) than selling to foreign markets. Variable costs, however, may be lower because of lower trade costs due to the proximity to the market. Horizontal FDI is more profitable than exports when the companies' productivity level exceeds Point F.

While the general message from this “new, new” trade theory is that the deeper the companies' involvement is in international business the more productive it should be, the devil is in the detail, especially when it comes to global value chains. Nevertheless, some predictions and insight are possible.

Let us therefore carefully differentiate between outsourcing versus integration on the one hand, and offshoring versus onshoring on the other hand. The distinction between outsourcing and integration brings us back to Adam Smith's pin factory. Taking it for granted that pins are best being produced by a division of labor, the question is whether this should take place within the factory (integration) or by outsourcing, i.e. by slicing-up the value chain. Business strategy scholars call this the “make or buy” decision. Onshoring versus offshoring then only relate to whether this takes place within the country or cross-border. Essentially this leads to 2*2 matrix as shown in Table 4:

Table 4: Outsourcing and internationalization strategies

	Outsourcing		Integration	
Onshoring	1	0.91	2	0.34
Offshoring	3	0.66	4	0.28

The black numbers in the matrix represent the prediction of the pecking order of the [Antràs/Helpman \(2004\)](#) model under the conditions that manufacturing costs abroad are lower and fixed costs of a complex integration strategy are higher than simple outsourcing, i.e. buying intermediate goods needed for the production from the market. In this case, the least productive firms will produce at home, sourcing most inputs from the domestic market (1), while only the most productive ones will pursue a complex global integration strategy, creating a lot of intra-firm trade (4). The blue numbers illustrate these strategies with the share of large Spanish companies (over 200 employees) following these strategies based on a study by [Kohler and Smolka \(2009\)](#). It shows that 91% of these firms outsourced at home while only 28% pursued complex global strategies.

Of course, the predictions will vary depending on the applicability of the assumptions. For example, if the fixed cost of integration are considered to be lower than those of outsourcing, the pecking order will reverse, making intra-firm more attractive for less productive firms. An example could be difficulties finding a reliable and cheap supplier of key inputs, e.g. because the supplier has high market power.

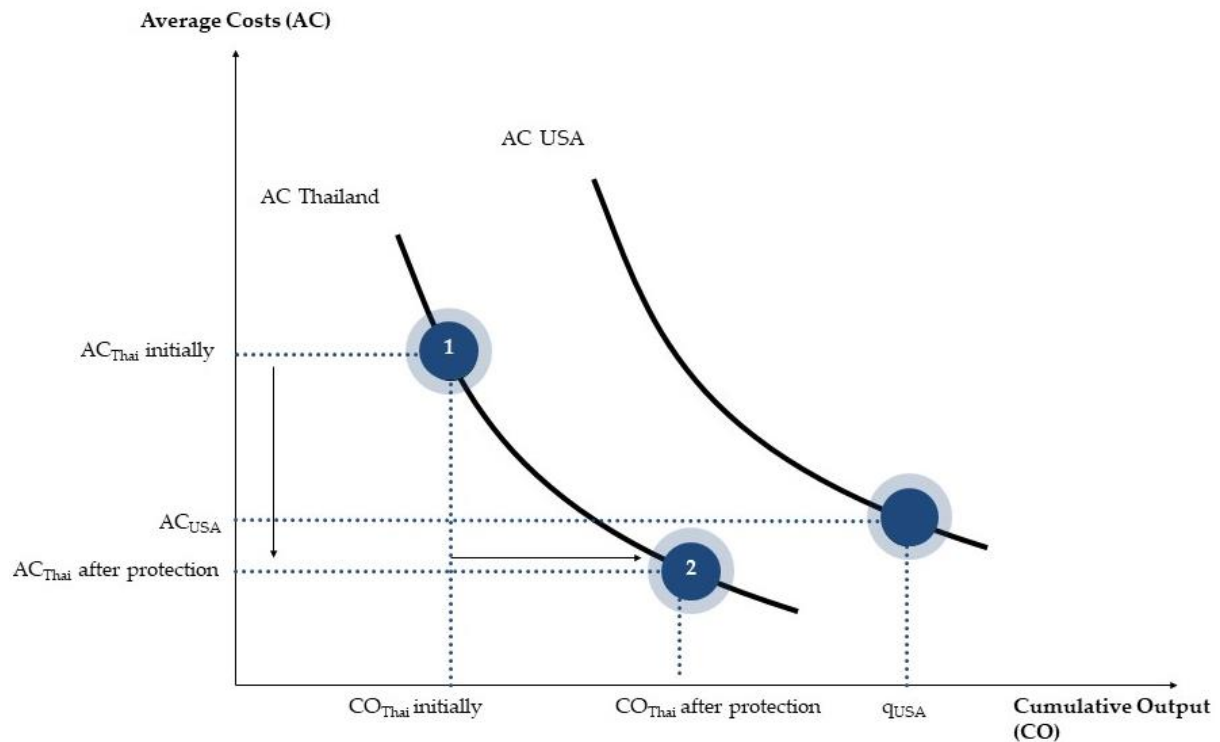
In any case, the new ideas about the heterogeneity of firms help us understand the process of globalization and especially the rise (and potential demise) of global value chains. However, it also points to the need of detailed studies at the national and company level to prepare all stakeholders for potential disruption from technology.

3.2.5 Challenging History: Comparative Advantages, Economies of Scale, and Industrial Policy

Up to now we have taken the distribution of comparative advantages for granted (or just allowed for an adjustment process as development proceeds). But when going back to the 18th century we already noticed that industrial latecomers like Germany were concerned about the lead of England in many industries. Yet, they were still convinced that given a little bit of time and protection they will be able to catch up: the idea of “infant industry protection” was born and promoted by the German economist Friedrich List. In the 20th century, the idea became prominent among development economists and has led to a wide adoption of “import substitution strategies (IS)” in developing countries. In the 1980s, the strategy came under attack for producing an IS-Syndrome of protected uncompetitive industries, which impose a high toll on customers, not least on those who need the protected product (quite often steel), and economies, by rendering other industries uncompetitive. While Latin American economies were typically identified as those suffering from the syndrome, East Asian countries had meanwhile experienced an economic miracle. The famous World Bank “[Miracle Study](#)”, published in 1993 attributed most of the success to market-oriented reform in the spirit of the “[Washington Consensus](#)” of good economic policies. However, today many observers will concede that it might have been ignited by an East Asian style of “import substitute first, then export” strategy. Therefore two questions stand out: first, what are the intellectual underpinnings of infant industry protection strategy and, second, why have these strategies worked in some cases and not in others?

The modern arguments for infant industry protection relate to learning effects and so-called externalities. Consider learning first. In Figure 12, the upper-right curve depicts the average costs of the USA in producing a good – say microchips – depending on their experience in producing the chips, measured by the cumulated previous output. The learning curve is falling, suggesting that with more experience average costs are lower. If historically the USA was first in producing microchips its production costs will be as low as AC_{USA} . Now consider that Thailand has an underlying comparative advantage, meaning that at any level of experience Thailand will have lower average costs. However, as a latecomer it has no or little experience and hence higher costs. At AC_{Thai} the USA is relatively cheaper and will outcompete Thailand. The infant-industry argument then holds that history should not govern the future. If Thailand manages to learn through experience it will be able to produce cheaper than the USA. Some kind of industrial policy would then bring Thailand’s underlying comparative advantage to fore, which otherwise would stay with the U.S. as carved in stone.

Figure 12: The learning curve and the infant industry argument



A similar argument could also be applied to so-called external economies through industrial clusters: Firms may experience lower costs when located in an industry cluster like Silicon Valley because of much easier access to specialized suppliers, human capital, and nearby customers. The larger the size of the industry (cluster), the lower the average costs will be. If then a country is a latecomer in developing a certain cluster, it may never be able to compete with the incumbent. Again, some form of support may help to overcome this issue and shift the comparative advantages from the incumbent to the newcomer.

An earlier version of this argument related to economies of scale within the company, i.e. the ability to spread fixed costs over a larger scale of production, thus lowering the average costs. Infant industry protection would, in this case, aim at making domestic companies large enough to realize an underlying comparative advantage. Today, however, the argument is somewhat discredited and largely vanished from textbooks. The main reason is that in a largely open trade environment, it is in most cases possible to target directly a global market. Hence, a too small local market to obtain economies of scale is not the major limiting factor.

This brings us to the second question: Why have these strategies often worked in East Asia but not in other countries? The answer is twofold. First, for the strategy to work, the countries must indeed have an underlying comparative advantage, i.e. the AC curve should be below the one of the incumbents. Picking winner, however, is not easy and more often than not governments have picked losers – industries in which the countries will not be able to obtain a cost advantage in reasonable time. This must, however, not be a major argument against the strategy for two reasons: First, it can serve a reminder that the selection of targeted industries needs to be done very carefully. Second, and more importantly, even if a mistake is made one should be ready to correct mistakes early on. Clear performance criteria conditioned on

becoming successful exporters, as well as sunset clauses for terminating support has been essential to the success of many East Asian NICs in the 1990s.

How then supporting emerging industries? After World War II until the mid-1990s often simple trade policies like quotas and tariffs were used for protection. With the creation of the World Trade Organization in 1995 and the implementation of the new world trade rules, developing countries also had to abolish import quotas and were no longer allowed to introduce new tariffs. Hence, other forms of industrial policy support, like government subsidies, became more prominent. Nevertheless, the scope for infant-industry protection is much more limited today than it was earlier. Moreover, when a country is really successful with nurturing new industries, which in turn lead to a switching of comparative advantages, countries might be confronted with anti-dumping allegation from those who lose the market. The European (and American) [solar panel industry is a case in point](#). By supporting its solar industry, China has gained tremendous global market shares. As a consequence, the European Union has threatened to start anti-dumping investigations against China.

Which way then to go from here? Broadly speaking, four major roads may be of relevance for latecomer catching-up:

1. A major channel of technology transfer and learning today is FDI. Attracting FDI and making sure that learning effects take place is a modern alternative to infant industry protection. However, the devil is often in the details. Investors care about protecting their core technology while receiving countries have an interest to learn as much as possible.
2. A debate in favor of a “*new industrial policy*” (NIP) has been re-ignited by contributions of Dani Rodrik from Harvard and others, which take into account the lessons from East Asia and the imperatives of the current multilateral trading system. The interested reader can find their [detailed arguments and recommendations here](#).
3. The importance of global value chains suggests that the “infant industry” argument might be replaced by an “*infant task*” argument, i.e. countries might today better aim at developing advantages at the task level. Note that this idea is not in contrast to the NIP.
4. A very different approach is suggested by Stiglitz and Greenwald (2014). Instead of recommending promoting certain industries, these authors promote an “*infant economy argument*”. They argue that the major problem of developing countries is the almost non-existence of a manufacturing sector. Manufacturing, as opposed to services or agriculture, offers the highest possibilities of learning. This is typically measured by the so-called increase in “total factor mobility” (TFP). It measures production increases that occur without increasing input factors, such as working hours and capital. Against this background, they argue for overall protection or support of the manufacturing sector in developing countries. The advantage of such a broad approach would be that the argument that governments are not good at picking winners would not apply. Of course, the concept has been discussed critically. For details the reader is directed to [the book, which also contains commentaries by leading economists](#).

3.2.6 Summary on Comparative Advantages

Comparative Advantages is a still powerful concept to understand the trade between *countries that are different* in many aspects: productivity, factor endowment, skills, institutions etc.

Over time, the concept has gained in relevance as increasingly comparative advantages accrue now not simply at the level of the product but at the level of tasks. This extends Adam Smith's pin factory in two directions: outside the border of the company (outsourcing) and outside national borders (offshoring). Corporate strategies play a key role configuring and re-configuring the global division of labor.

Comparative advantage theory has, however, an important implication for all individual actors. Their fate is not entirely in their own control: New successful emerging industries at home may give rise to wages and the exchange rate, render old industries uncompetitive without them making "own" mistakes. Productivity increases abroad are as important for a domestic industry as their own productivity as it will change their relative position. Global financial market developments can easily disrupt asset and exchange rate markets, with often long-lasting consequences for the competitiveness of a company and an industry.

Given the relevance of comparative advantage theory today, it should not be discredited as "carving the advantages in stone". In fact, the theory can well serve as a base for a constructive dialogue on how to bring underlying but hidden comparative advantage in industrial latecomer countries to the fore.

But most importantly, while trading based on comparative advantages can lead to significant efficiency and productivity gains, thus contributing to the "wealth of the nations", it also creates winners and losers of globalization. While this problem can, in principle, be addressed by compensating the losers from the gains of trade, this is often not common practice. However, not addressing these issues carefully will ultimately undermine the case for open trade.

DIGGING-DEEPER RESEARCH PROJECTS

1. Discuss in the light of the heterogeneous firm approach the potential impact on GVCs emanating from
 - (a) a reduction in the cost of integration, e.g. through better management information systems
 - (b) a reduction of the relative role of manufacturing costs, especially labor costs, caused by the second machine age (industry 4.0) developments.
 - (c) both.

2. What is the [Europe 2020 strategy](#) and can it help to improve the “fit” of the European economy with the “economic and technological imperatives of the day”. Study also the related literature and prepare for a classroom discussion.

3. In a study called “[The Happy Few: The Internationalization of European Firms](#)” published in 2007, Mayer and Ottaviano apply the company-heterogeneity based approach to the international performance of European companies. They confirm that in line with the theory “the relative export performance of countries at the macro level is positively correlated with the relative productivity at the micro level.” In other words, European export champions tend to be those with the highest productivity.

The detailed findings also confirm that the aggregate European exports are driven by a few top exporters that export a large fraction of their turnover to many locations. As predicted by the theory, the authors confirm that truly multinational firms have also been found to perform better than exporters, and exporters perform better than non-exporters. Moreover, the happy few „are different from other firms. They are bigger, generate higher value added, pay higher wages, employ more capital per worker and more skilled workers and have higher productivity“.

Task: Read the study with a view on discussing the following proposals of the authors:

Proposal 1: Promote intra-industry competition.

Proposal 2: Increase the number of exporters and multinationals.

Proposal 3: Do not waste time helping the incumbent superstars.

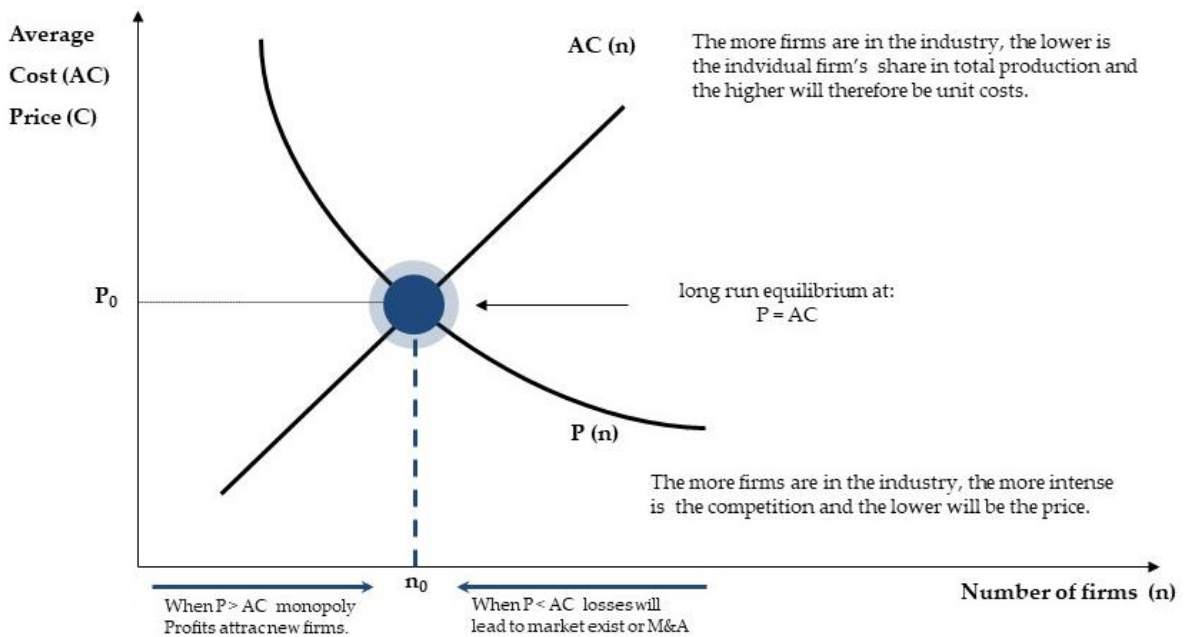
Proposal 4: Nurture the superstars of the future.

3.3 Intra-Industry Trade with Equals: The Better Globalization?

Not all trade is because nations are sufficiently different. What if countries are rather similar in all aspects that contribute to comparative advantages – and are thus not able to produce goods at lower prices than the home country? After all, many European countries are very much alike in terms of per-capita income, productivity levels, wages, education, human capital endowment, etc. Yet, intra-European trade dominates the trade of most European countries. However, much of this trade is not based on comparative advantages but largely features *intra-industry trade*. For example, Germany exports cars to French consumers who like German cars, while some German aficionados may buy French cars. Intra-industry trade allows offering more variety to both countries while the car producers can take advantage of a larger scale of production. This is the point of the so-called “new trade theory”, which only emerged in the 1980s to explain the hitherto unexplained phenomenon of intra-industry trade, which then constituted about 60% of world trade.

The argument is fairly simple in principle but difficult to implement consistently into economic theory. For convenience, a simplified graphical version of Paul Krugman’s model is presented in Figure 13. Consider a certain domestic industry, say cars, in which a given number of firms produce and sell cars. These cars are all of one class, e.g. economy size, but differentiated in detail. This is a market form known to economists as “monopolistic competition”: there are enough suppliers to guarantee price competition but each firm has some room to set prices based on the special features of the product. It is therefore assumed that the price will be lower when more firms are in the industry. Hence, the price curve is downward sloping. On the cost side, the model assumes that manufacturing is experiencing economies of scale due to high fixed costs. In this case, the average cost curve is upward sloping: With only one supplier the cost per car would be lowest. The more firms are present in the market the lower is their market share and thus the scale of production and the cost per car. In a purely domestic market the price would settle at P_0 and the number of firms at n_0 . If there were fewer firms, the price would exceed the cost and the monopoly profit would attract new entrants in the market. Conversely, if there were more firms they would make losses. Some would have to exit the market, others might rather opt for mergers and acquisitions (M&A) to cut cost and restrict the competition.

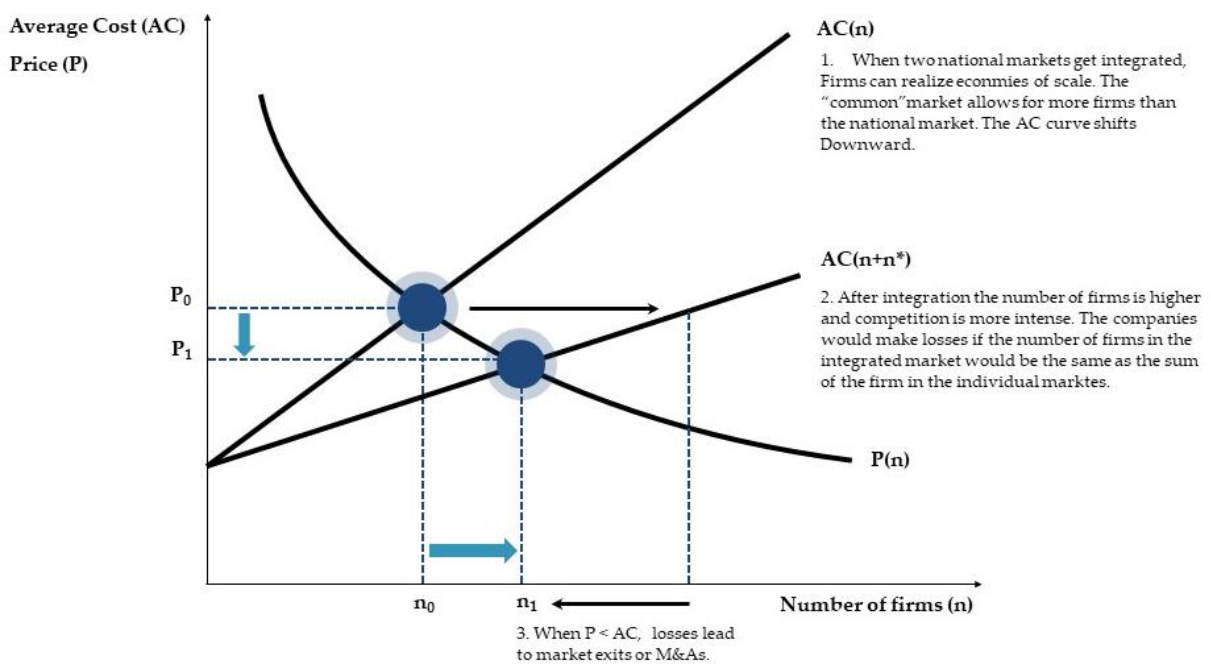
Figure 13: The model of monopolistic competition in the Krugman version



Source: Based on Krugman, Obstfeld & Melitz 2015: 203.

What does that all of this have to do with trade? Assume that a foreign country also has a car industry (for simplicity with the same market size, the same number of firms, the same prices and costs). What happens when we integrate these hitherto completely separated markets. Figure 14 illustrates the case: If we integrate the markets, this doubles the number of firms that can supply at the same cost as before. However, the new entrants will put pressure on the price. To avoid losses firms will either exit or go for M&A until they can recover their costs at P_1 with n_1 companies remaining in the market.

Figure 14: Integrating two markets in the Krugman model



Source: Based on Krugman, Obstfeld & Melitz 2015: 206.

The overall result from integrating the two markets brings therefore several benefits:

- ▶ lower prices for the consumer
- ▶ more variety for the consumer
- ▶ lower costs and prices allow for a bigger domestic market
- ▶ lower costs and prices increase the competitiveness vis-à-vis third countries
- ▶ both countries can keep a competitive car industry.

From this list it is immediately visible that intra-industry trade among similar countries is much less controversial than trade along comparative advantage.

It can be argued that the idea of the [European Union's Single Market](#) Project, is indeed an interesting application of this theory. In the 1980s Europe was considered to suffer from "Eurosclerosis", a lack of international competitiveness of its major industries especially against Japan, whose automobile and electronics companies made inroads into the European Market. The EU Commission under Jacques Delors therefore launched the "Europe 1992" initiative to create a European Single Market and abolish all remaining tariffs on cross-border trade. Additionally, free movement of services, labor and capital has been envisaged.

The idea of a single market for goods and services weighed heavily on the insights of the new trade theory and is considered to be an effective answer to the challenges faced. In particular, the single market was expected to realize higher economies of scale, creating internationally competitive industries and providing the European consumer with more variety at lower prices. In preparation for the single market decision the EU commission prepared a report on "The Cost of Non-Europe" which was based on a larger number of industry studies. Interestingly, many of these studies directly or indirectly related to the insights of the New Trade Theory.

DIGGING-DEEPER RESEARCH PROJECT

Review the arguments for the [European single market](#) for goods and services, research current evaluations of the state of the single market and prepare for a classroom discussion on how to improve the workings of the single markets in the future.

3.4 Summary on Trade Theories

Modern trade theories help us understand the causes and effects of trade globalization. A broad distinction can be made between theories that are based on comparative advantage, assuming trade-relevant country differences, and those dealing with trade between rather similar countries.

Specializing according to comparative advantage can be in goods, services and more recently at the level of tasks. Country differences in productivity, factor availabilities and institutions influence the pattern of specialization. Advances in technology are, however, the main driver of trade and investment globalization. By bringing down trade costs via lower transportation (earlier) and information and communication (especially since the 1990s) costs, technological advancements have pushed globalization forward. However, it has been shown that it is corporate strategies that implement globalization and that successful firms are regularly the source of national comparative advantages. That said, the role of politics and policies should not be downplayed. A nationalist turn such as in the inter-war period has shown that globalization can indeed be terminated – at that time with disastrous consequences. After World War II, trade liberalization became the major enabler of globalization and a third major driving force next to technology and corporate strategies. At the time of writing it is unclear whether this remains as protectionist sentiments appear to be rising on a global scale.

While trade according to comparative advantage is considered to boost global productivity, it is also evident that these gains come with pains as the adjustment requirements are high.

In a certain way, the European experience of opening-up for trade of rather similar nations in terms of economic development, finally culminating in the EU's single market project, has shown that trade openness can be mutually beneficial and yet less painful than trade along comparative advantage lines. The idea of the European project is to decrease the country differences rather than to exploit them and still gain from trade with equals. Can Europe offer a better way for dealing with globalization?

In the remainder, I will discuss in more detail the gains and pains from trade and the prospects for a better “managed globalization”.

4. The Distributional Consequences of Trade: Gains, Pains, (In-) Equality

Most economists will agree that open trade and openness to cross-border investments will be beneficial not only because it allows a more efficient allocation of resources, but also because it plays a key role in the diffusion of knowledge and new technologies across borders. The experiences of countries that turn their back to the rest of the world, like North Korea today or China after World War II, clearly shows this. Our review of trade theory, however, also has revealed the pains that may come with opening up – in particular those emanating from structural change and impacting on particularly vulnerable groups. Moreover, recent research has shown that economic inequality has been rising especially within countries. Is too much openness responsible for this? This section reviews what we know about the links between trade and gains, pains, and equality.

4.1 Gains

In public debates the gains from trade as advocated by trade theory are often not well understood. In fact, they are **not** about obtaining revenues from exporting – as wrongly assumed by the mercantilists. Rather, gains from trade emanate from access to goods, which are supplied at a lower price from a foreign source. Just look again at the simple Ricardo model: buying goods from the most efficient source expands the consumption possibilities. This is exactly what trade economists mean with gains from trade. But how large are these gains and to whom do they accrue?

The size of the gains naturally depends on the degree and type of trade liberalization: lowering tariffs, removing import quotas and many other measures. Hence, results of studies differ depending on the actual liberalization efforts. In most cases, they find non-negligible though not dramatically high positive effects somewhere around or even below 1% of GDP. For example, [a study of the potential benefit of the proposed Transatlantic Trade and Investment Partnership \(T-TIP\)](#) between Europe and the USA estimates an average increase of real per-capita income in Europe of 0.27% resulting from tariff reductions. The authors explain that these low numbers are due to the already very low level of tariffs between the USA and the EU. In an extended scenario they calculate income gains close to 5%, but they include a number of additional and indirect positive effects from a “deep liberalization” such as more investment induced by a more stable economic environment. These effects cannot be attributed to gains from trade as understood in trade models.

A more ambitious attempt to measure the gains from trade would be to compare – like in the simple Ricardo model – the autarky case with the open trade case. Helpman (2011, 52-56) reviews studies on two cases: For the case of the U.S. trade embargo of 1807-1809, a lower bound of a loss of 4.9% of GDP is found plausible. The second case relates to Japan’s policy of near autarky between 1639 and 1859. According to some research Japan’s terms-of-trade increased after opening up 3.5-fold, leading to some 65% increase of real income. This study has been criticized, though, and alternative estimates suggest gains in the range of 5.4% to 9.1%.

A second issue is to whom gains of trade accrue within a country. Or to put it the other way around: who would suffer from an increase in tariffs? This depends very much on the country's pattern of specialization vis-à-vis its trading partner and the consumption pattern of the population. For example, in a [recent study](#) it was found that gains from trade are typically biased towards the poor, because their consumption pattern concentrates more on goods that are traded, while the rich spend a higher proportion of their income more on domestic services.

In sum, the gains are sizeable enough to motivate trade liberalization. However, it appears that secondary effects on investment, access to technology and productivity are more important. Just recall the earlier mentioned results of Global Trade Watch report on "[Trade Developments in 2016](#)", which estimates that a 10% increase in global value chain participation increases average labor productivity by 1.7%.

4.2 Pains

Even the basic versions of the comparative advantage models reveal the pains that come with opening up trade: (1) opening-up leads to structural change, creating winners and losers, declining and expanding industries; (2) adjustment is often slow as it takes time for displaced workers to find jobs in the expanding sectors; and (3) often certain groups of workers are more seriously affected than others – in rich countries especially low-skilled workers may be hit hard.

Regarding the first point, we have just discussed the net benefits from trade. But how big are they in relation to the structural change required to obtain the benefits? Harvard economist Dani Rodrik, an outspoken free trade skeptic, argues that the redistribution following a tariff reduction can easily dwarf the net gains:

"For example, in an economy like the United States, where average tariffs are below 5 percent, a move to complete free trade would reshuffle more than \$50 of income among different groups for each dollar of efficiency or 'net gain' created!...It's as if we give \$51 to Adam, only to leave David \$50 poorer." (Rodrik 2011: 57).

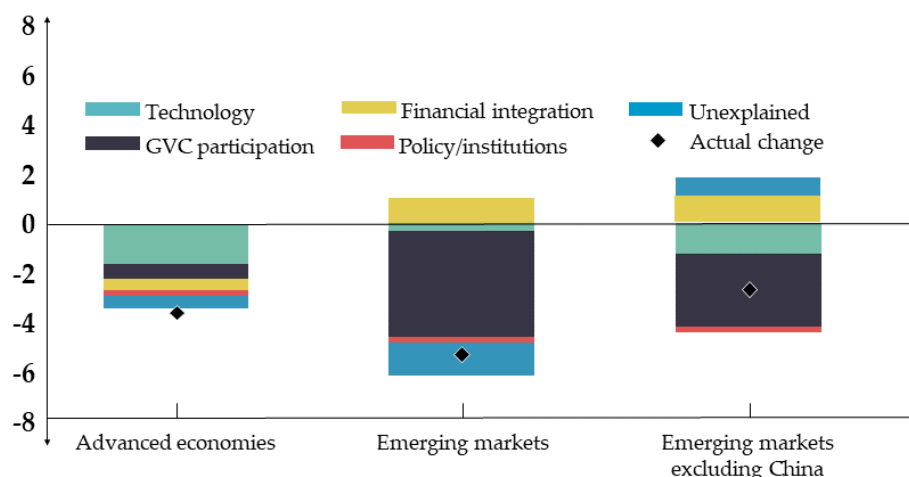
This result depends critically on the low level of initial tariffs. With higher initial average tariffs of, say, 40 percent, the ratio of redistribution to net gains would not be 50 but "only" 6. Nevertheless, trade liberalization requires large structural changes. A lesson from this is whether this change can simply be left to market forces or whether the (consequences of) liberalization and globalization should be managed closely – an issue we raise in the last section.

This point is reinforced by looking at the underlying reasons for the sluggishness of the structural change. Many people have specialized skills in certain industries, which they cannot easily take to another industry without experiencing income losses. For these people the income losses are not transitory (as often claimed by economists) but permanent. An additional point has attracted attention recently: as housing prices are soaring in booming cities where quite often the successful export industries are being located, even finding a similarly paid job in the expanding industry can lead to a loss in purchasing power.

The discussion of the factor-proportion theory has already pointed to low-skilled workers in advanced countries as potential losers from global trade. But the previously made point on people with specialized skills already indicates an eventually wider group of losers. In fact, it could even be that low skilled may suffer less than specialized, middle-skilled people. Moreover, global value chain trade can have less obvious redistribution effects than predicted by the factor-proportion theory. The recent study by [Timmer et al. \(2014\)](#) on factor share developments in GVCs confirms what the same authors have found in the German car industry (see section 2.2): the share of value added going to capital has increased between 1995 to 2008 from 40.9% to 47.4%. Labor lost accordingly, but the loss is concentrated on low-skilled labor, a fall from 16.6% to 12.8% and – most surprisingly – on medium-skilled workers, a decrease from 28.7% to 24.4%. Only high-skilled labor gained moderately, increasing its share from 13.8% to 15.4%.

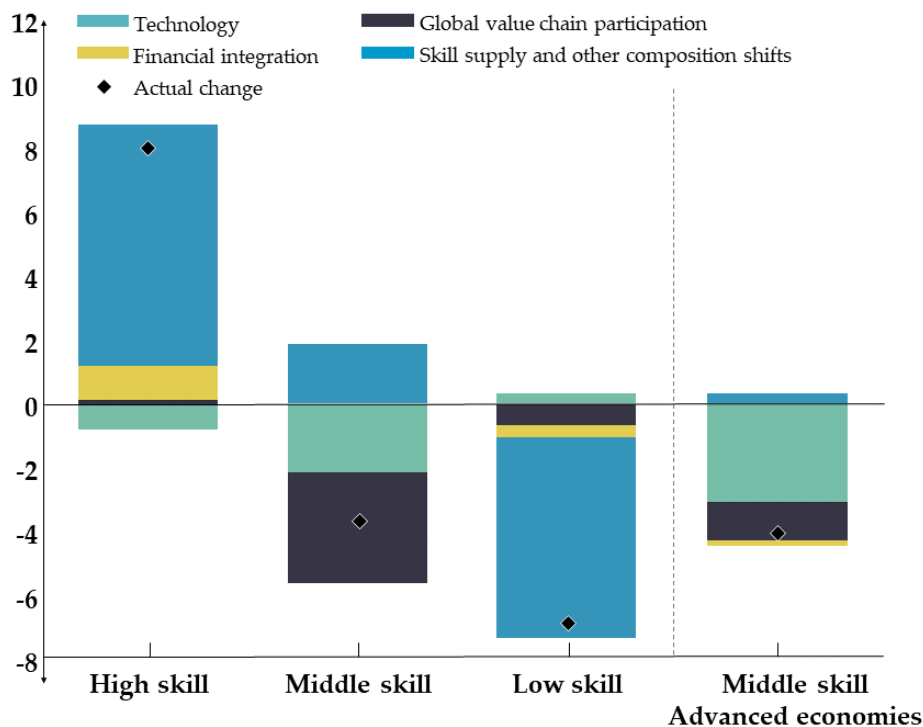
These results are surprising in two aspects: the loss of income shares for medium-skilled labor; and the loss for low-skilled workers – not only in general but also in emerging economies. According to the factor-proportion theory one would expect rising wages for the low skilled in emerging economies, and hence a larger income share. A possible explanation is a shift in manufacturing technologies against low-skilled labor. Digitalization in the 2nd machine age may have already taken its toll on the demand for low skilled labor. In a similar vein, the argument can be made that also medium-skilled labor may be negatively affected by technological advancements.

In a study, published in the IMF World Economic Outlook of April 2017, an attempt has been made to investigate the causes of the widespread fall of labor shares in income and to identify the causes for it. Consider first Figure 15. The authors first identify the causes of the overall fall of the income share of labor from 1993-2014. In advanced countries, this fall is close to 4 percentage points of which about the half is attributed to technological advancement. GVC participation played a much smaller role along with financial integration. By contrast, in emerging markets, participation in GVCs account for the lion share in the almost 6 percentage point reduction of the labor share, while technology as such played a minor role. One should, however, note that we are talking here about income shares and not absolute income. As income has been growing rapidly in several emerging countries, in particular China, labor incomes are also rising – yet not as much as overall income. On the other hand, given slow growth and even phases of shrinking income in the aftermath of the financial crisis of 2008/09 in advanced economies, falling share of labor is directly impacting the standard of living of workers.

Figure 15: Contributions to aggregate labor share changes in major country groups, 1993-2014

Source: Figure 3.11. from IMF World Economic Outlook April 2017: 136.

In a second step, the study has decomposed the impact according to skill levels (Figure 16). It confirms that there are strong redistribution effects across the skill groups: high skilled gain and low skilled lose more than medium skilled. But whereas these changes can only attributed to a small amount to technology or GVC participation in the case of high and low skilled, this is not the case for medium-skilled workers. They lost a large part of their income share due to technological advances and GVC participation. However, in advanced countries, technology was an even more important factor in “hollowing out the middle class”.

Figure 16: Contributions to aggregate labor share change by skill, 1995-2009.

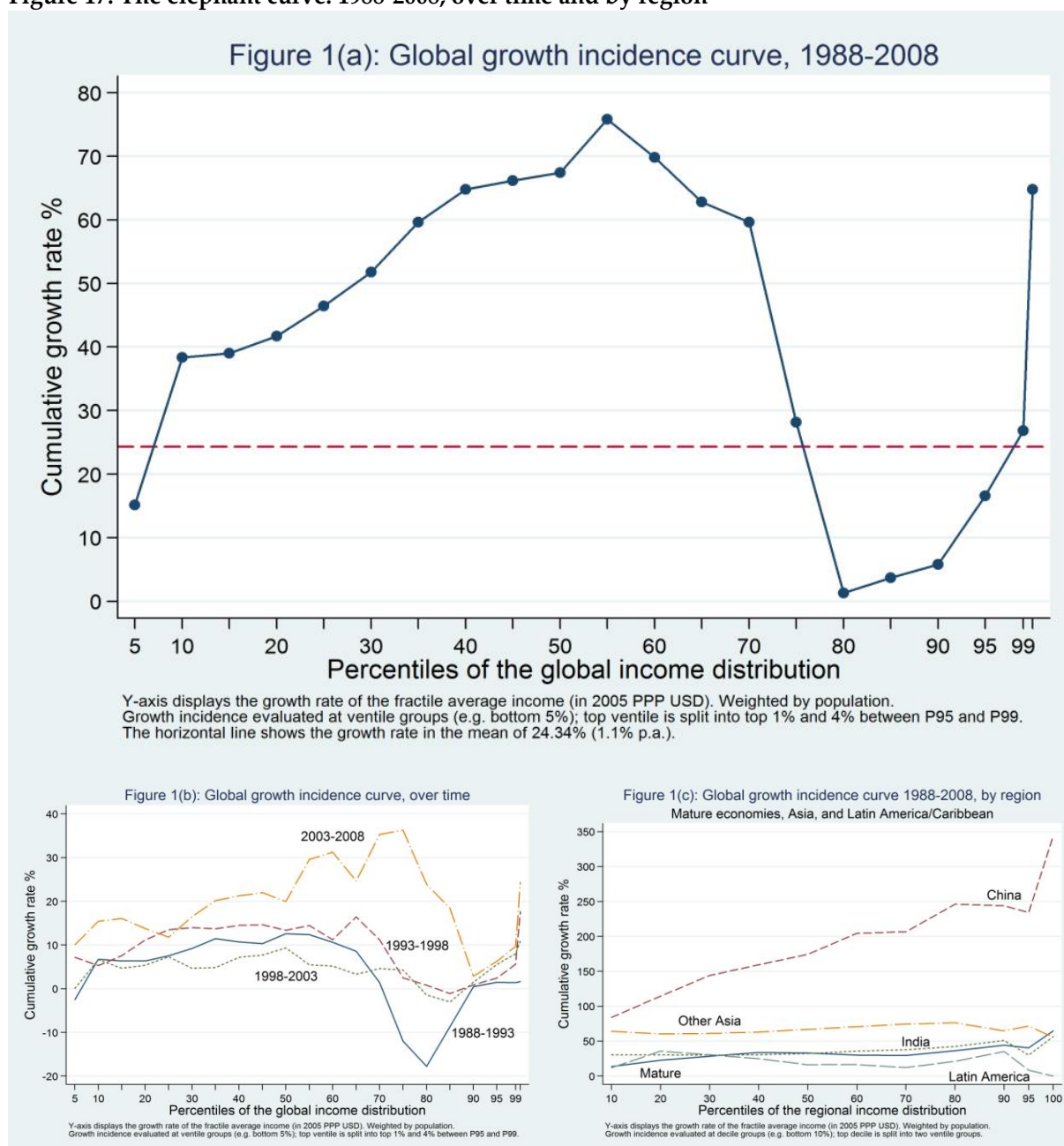
Source: Figure 3.14. from IMF World Economic Outlook April 2017: 139.

In sum, the trade and in particular GVC participation has non-negligible effects on labor and capital income and thus on the social fabric, especially in the low-growth, post-financial-crisis environment in advanced countries.

4.3 Equality

The global distribution of income has undergone drastic changes from the late 1980s onward. This is illustrated in Figure 17, which contains three graphs reproduced from Lakner & Milanovic (2013). The first graph, numbered 1(a), became widely known as the “Elephant Curve” and is subject to a heated debate on global inequality and globalization. It shows the growth of per-capita income by percentiles of the global income distribution from the poorest 5% on the left to the richest 1% on the right. Over the 1988-2008 period per-capita income grew on average by about 24% (or 1.1% p.a.). While the poorest 5% were clearly not fully benefitting from this growth, the middle-income strata in emerging economies did, thus lifting many people out of poverty.

Figure 17: The elephant curve: 1988-2008, over time and by region



Source: Reproduced from [Lakner, Christoph and Branko Milanovic, Global income distribution: from the fall of the Berlin Wall to the great recession](#). The World Bank, Policy Research Working Paper 6719, December 2013, Washington DC: 31.

The major concern is the income distribution in the rich countries at the upper 20% percentile – the “trunk of the elephant”. The almost stagnating income for the 80 - 90 percentile group and the underperformance of almost everyone except the upper 1% is often seen as evidence for the decline of the rich-countries’ middle class while a very small elite is experiencing exorbitant income growth. Given that all this occurred at the same time when globalization soared, the link between the loss of well-paid (manufacturing) jobs in the rich countries due to competition from emerging economies is readily made. However, correlation is not yet causality. Already the Figures 1(b) and 1(c) provided by the authors give some indications that the link between globalization and inequality is more complex than some assume.

Figure 1(b) shows that the most severe and even absolute income drop for the “middle class” happened in 1988-1993, which basically reflects the collapse of the former socialist countries, whereas the rise in incomes in the emerging economies largely happened in the 2003-2008 period, and here especially in China as Figure 1(c) reveals. Nevertheless, the latter period also shows the largest losses for the rich countries “middle class” after 1993. Hence, as the IMF research discussed above has shown, participation in GVCs bears some, but not the sole responsibility for these developments, especially with respect to “medium-skilled” workers in the rich countries.

DIGGING-DEEPER RESEARCH PROJECTS

1. Read the above-mentioned [T-TIP study](#), summarize the major points and prepare for a classroom discussion on the desirability of TTIP from the point of view of the EU.
2. Discuss the potential distributional impact of increasing U.S. tariffs on imports from Mexico.
3. Is the Elephant Curve a good guiding post for judging the impact of globalization on equality?

The [Elephant Curve](#) has steered up a large debate on the impact of global value chains on the rising inequality in advanced economy. Its’ validity has been [contested](#) by [re-examining](#) the data, sorting out “special countries”, and adjusting it for population growth effect. [Pro and cons](#) have been [exchanged](#) amongst experts. When it comes to causality, other factors like technology, financial market integration and skill/education effects are also possible and [alternative and eventually more relevant determinants of rising inequality](#). And last but not least, [policies may matter](#) as they can eventually influence how to deal with winners (taxation?) and losers (compensation, re-education) of globalization.

Study the linked materials, formulate your position on the debate question and prepare yourself for a classroom debate.

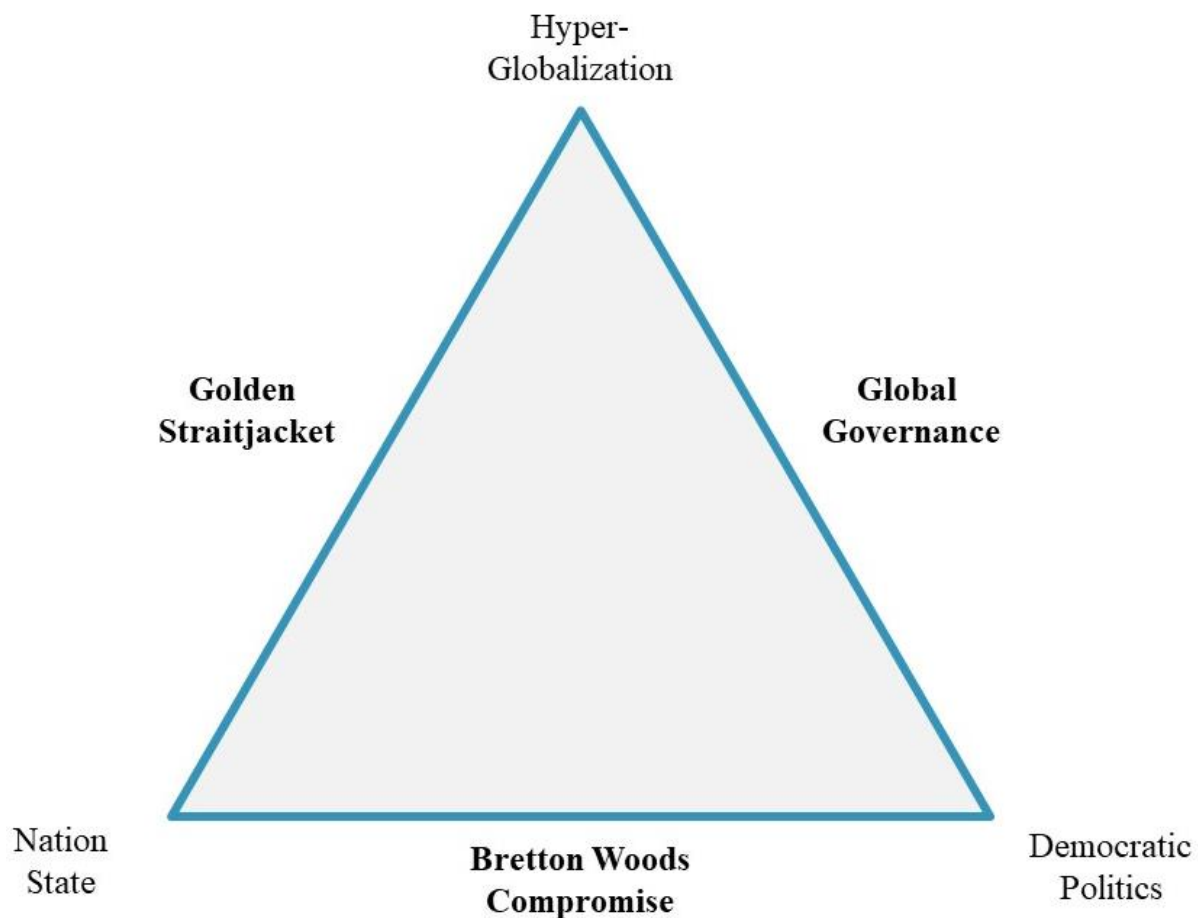
5. Managing Globalization?

Trade globalization, especially in its recent representation as trade in GVCs, has complex distributional consequences, both across and within countries. While particularly in Asia, and here especially in China poverty fell dramatically and globalization became a success for reducing global poverty, the distribution of the gains to the workers in the industrial world became increasingly biased towards the highly skilled. Moreover, as capital shares increased, global corporation gained tremendously. While the classical argument of economists that the losers of globalization can be compensated from overall gains of trade remains largely true - but unfortunately only as a theoretical option. In practice, global corporations were quick in using the tax-avoidance possibilities that a globalized world of investment offers, and winners of globalization successfully voted and lobbied for tax reductions rather than redistribution to bring the disfavored back into rewarding work.

Does an increasingly globalized world not need global governance? Is it sufficient and possible to compensate losers of globalization? Or do we need to de-globalize? Do we need to manage trade through more international cooperation? Is a revival of the nation state desirable and possible? Is the European approach a way to achieve a better globalization? And if not, could the European approach to globalization be improved to capitalize better on the advantages of a regional organization? In this concluding section some prominent economists and policy makers will be given the word. The readers are encouraged to formulate their own position and defend it in discussion.

How much global governance is needed? Dani Rodrik from Harvard University [argues](#) that there is a “Globalization Paradox” that forces policy makers to make choices between hyperglobalization, national decision-making and democratic politics (see Figure 18). The basic argument is that excessive globalization needs either democratically legitimized global governance or national decision making that may run into problems with their electorates imposing policies and adjustments that are compatible with unregulated globalization. Rodrik finds it unlikely that nations will surrender sufficient parts of their sovereignty to supranational, democratically legitimized institutions. On the other hand, falling back on the nation state may not be compatible with democratic politics as we used to know them in the western world. Of course, the recent rise of populism may already give an idea of the working of the globalization paradox in practice.

Figure 18: Rodrik's Globalization Paradox: Pick 2, only 2



Source: based on Rodrik 2011: 201.

What are then the alternatives? Scaling back trade and a return to protectionism or “managed globalization”? Before going to this issue, reconsider the “pains” and distributional consequences of globalization discussed in the last section.

To some extent the research shows that the impact of globalization is comparable to the impact of technology: a decline in the relative and sometime even the absolute position of medium and low skilled workers in the rich countries. In its economic effects both developments are often indistinguishable: it does not make much difference whether your job will be taken over by a robot or workers abroad. In both cases this involves job and temporary or even permanent income losses. Nation states can respond to this by compensating the losers through a more or less generous welfare and re-training system to buy the loyalty of the losers. But as Rodrik has [pointed out](#) recently this is only one part of the story:

“Some suggest trade is problematic because it redistributes income. The basis for that claim is true, but trivial. Pretty much everything else that happens in a market economy somehow redistributes income. Technology and market competition are the sources of endless churns in an economy. Moreover, plenty of other things, including skill-biased innovation and minimum-wage laws, have vastly greater effects on income distribution than trade. So it makes very little sense to set international trade apart and decouple it from other domains or approaches for dealing with inequality in labor markets at large

(progressive tax systems, active labor market policies, employment-friendly macro policies, etc.)."

While compensation and welfare policies are clearly important to deal with the consequences of structural changes for whatever reason they happen, Rodrik finds these measures not sufficient to deal with the challenges of globalization.

"That brings us to a different social and political objection to trade — that trade violates norms embodied in our institutional arrangements. The suggestion here is that trade may undercut the social bargains struck within a nation and embedded in its laws and regulations.

...Trade is not merely a market relationship, but an intervention into domestic institutions and an instrument for reconfiguring them to the detriment of certain groups. It would be entirely legitimate to respond to such an injury by directly curtailing the trade flows that have the alleged effect. After all, this is no different from keeping out imports that violate, say, domestic health and safety regulations, which most countries already do."

The issue Rodrik is dwelling on is fairness of trade. If a country is producing cheaper due to a lower wage level, this should not be a problem as long the low wages are a consequence of a lower productivity as we have seen in section 3.2. If, however, foreign competitors undercut wages by means of abusing workers' rights (political wage suppression, forced labor, etc.) or by violating international environmental protection agreements, Rodrik finds it justified to treat "social dumping" similar to general "price dumping". The idea is basically to protect the national social compacts.

This brings us to two serious issues: First, should fairness concerns mainly "enforced" through national trade policies or should they be embedded in "new" regional and global trade agreements? The now abandoned "Trans Pacific Partnership" (TPP) agreement has attempted to bring labor rights and environmental protection under the umbrella of a multilateral trade agreement. Rodrik has argued against imposing standards abroad and in favor of protecting standard at home.

Second, are deep regional integration schemes like the European Union, that explicitly deal with harmonizing standards across the EU not better equipped to deal with these issues? Benoît Cœuré, Member of the Executive Board of the European Central Bank (ECB) responds to Rodrik's Globalization Paradox in a recent [speech](#) as [follows](#):

... the European experience shows that these trade-offs are manageable. A variant of globalisation could be based on a parsimonious framework of international rules which leaves room for manoeuvre for national governments. In fact, the principle of subsidiarity which is firmly anchored in the Treaty on European Union can be interpreted as a regional attempt to solve Rodrik's "political trilemma". It aims to ensure that decisions are taken as closely as possible to the citizen and that action at European level is only taken if the objectives cannot be properly achieved at national, regional or local level.

Moreover, in a speech at the 2017 Economic Policy Symposium of the Federal Reserve Bank of Kansas City, Jackson Hole, ECB president Mario Draghi, argues: “People are concerned about whether openness is *fair*, whether it is *safe* and whether it is *equitable*.” His first argument is that the European integration process goes some way to address these issues:

*“In each case, multilateral cooperation, leading to regulatory convergence, is a precondition for addressing the underlying causes of these concerns. To demonstrate this, let me draw on our experience of managing openness within the European Union. As regards **fairness**, the point is obvious: regulatory convergence provides the strongest assurance that the playing field is level right across the European market. This is why, as borders have opened within Europe, common supranational powers of legislation and enforcement have strengthened in parallel. Similarly, what has permitted the Single Market to survive various financial and consumer protection crises is its ability to restore **safety** by adapting market-wide regulation and enforcement. When it comes to the effects of openness on **equity**, it is admittedly less obvious how multilateral cooperation represents a solution to the fears being expressed. As I said, such fears typically have to be addressed by national distributional policies. But there is also an important international dimension, in particular related to tax avoidance.”*

But unlike Rodrik he also sees an important role for increased multilateral cooperation in all three aspects:

“Clearly, the European model involves several unique features. In particular, it depends on a relatively advanced political structure that helps reconcile multilateral cooperation with democratic control, which is difficult to replicate elsewhere. ... So what lessons can we draw for the global economy from our experience? The most salient is that, at a time when disaffection with openness is growing, multilateral institutions become more, not less important. They provide the best platform to address concerns about openness without sacrificing open markets. So organisations like the WTO, which make sure that trade is governed by rules and is subject to fair arbitration, remain vital to ensuring that global trade is perceived as fair and safe – while at the same time avoiding protectionism in disguise. And bodies that foster global cooperation, such as the G20, remain just as necessary to reconcile openness with equity. The OECD/G20 initiative to combat tax base erosion and profit-shifting is just one example of such cooperation. ... Yet openness to trade is under threat, and this means that policies aimed at answering this backlash are a vital part of the policy mix for dynamic growth. Some of those policies can be implemented domestically, but some can only be effectively enacted through multilateral cooperation. Multilateral cooperation is crucial in responding to concerns about fairness, safety and also equity. By encouraging regulatory convergence, it helps protect people from the unwelcome consequences of openness. And protection ensures that we do not lapse into protectionism over time. The European experience provides some insights into the opportunities and challenges involved. It also shows the importance of ensuring that, at all times, openness remains under democratic control. Multilateral institutions are necessarily staffed by experts. But

it is essential that they always remain accountable to elected representatives who set the parameters and have the final say."

In sum, there seems to be an emerging consensus that globalization needs to some extent be managed under democratically legitimized control. Without this, a backlash against openness like in inter-war period may happen again. But how much responsibility in what areas can and should be given back to the nation state and which tasks should be handled on a multilateral level?

Here, the devil is in the detail. Theoretically, the case for international cooperation is clear: when negative spillover effects from one country to another (remember the great financial crisis) or positive effects from cooperating (e.g. the European single market) exceed the cost of giving up sovereignty one should opt for cooperation. But political sentiments often militate against it. For example, while trade policy in Europe is in the responsibility of the European Commission, dealing with the consequences of globalization, i.e. the compensation of losers is still the task of nation states.

Moreover, making international agreements and institutions accountable to the electorates still remains a difficult field. The European discussions about the secrecy of the T-TIP negotiations as well as the accountability of major EU institutions to a true European parliament just illustrate how much needs to be done if we opt to take the multilateral path.

In this guide I will not conclude which way is the preferable one to go. Rather, I encourage engaging with the material to formulate one's own stance and to defend it the classroom and beyond.

DIGGING-DEEPER RESEARCH PROJECT:

Read the above-linked materials carefully and research further the sources quoted by the various authors. Prepare then for a role-play panel discussion, taking the following roles:

1. Advocate of national protectionist policies
2. Advocate of national trade policies against unfair trade practices
3. Advocate of a multilateral trade agreement with fair trade regulations
4. Advocate of exporting the European approach to other areas
5. Advocate reasonable multilateral rules
6. Advocate of global governance

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