Reading:
Richard Baldwin (2017): The Great Convergence: Information Technology and the New Globalization[1]

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I. Overview

Richard Baldwin (2016): *The Great Convergence: Information Technology and the New Globalization* (Cambridge: Belknap Press: 067466048X) <http://amzn.to/2lR9qBC>

The grand theory of history presented by Baldwin here has four beats:

1. A Black Death that sets off the commercial revolution and the rise of the west.
2. An industrial era fall in the price of shipping that generates industrial concentration, rapid productivity growth in the global north, and the Great Divergence.
3. An end of the twentieth century fall in the price of communication that creates (a) the near end of world dire poverty, and (b) a very real but very spotty Great Convergence.
4. A continued barrier making high-intensity face-to-face communication that keeps the Great Convergence spotty and keeps the world from being anything like "flat".

Five Orienting Questions:

1. G7, I6, R11, A7, GVCs—what are all these acronyms? What is their structure in the argument?

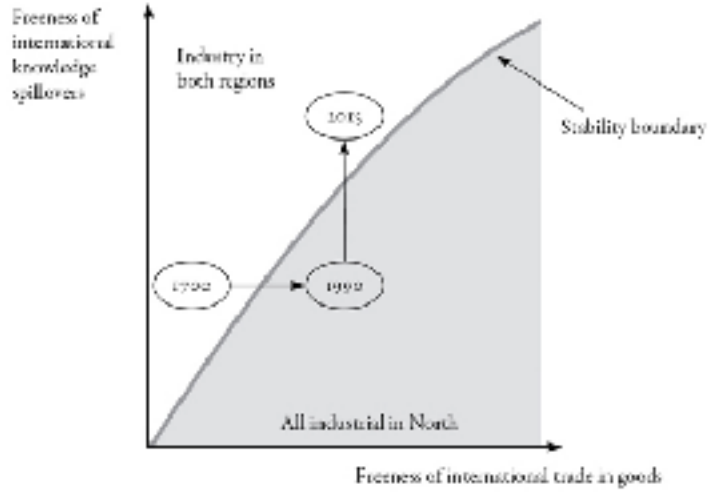


FIGURE 5 Stabilizing and destabilizing integration: first and second unfoldings

The diagram shows how the freeness of trade and the freeness of knowledge spillovers combine to determine whether industry is clustered all in one region—either the North region or in the South region—or, by contrast, dispersed evenly across the two regions.

Making trade freer encourages the full agglomeration of industry in one region. This is called the "spatial paradox" since it seems paradoxical that activity should cluster more to distance matters less, but this is what happens. The logic of this was discussed in the text, but it is obvious in everyday life. For instance, when transportation gets easier inside a nation, economic activity tends to cluster in cities. Changes that free up trade without freeing up knowledge spillovers correspond to moves in the diagram like the one shown by the arrow connecting the illustrative dates 1992 and 1992.

Making knowledge spillovers freer works to disperse in the opposite direction. If all the industry is in the North (as it is at point 1992 in the diagram), most of the knowledge is also in the North. Consequently, making knowledge spillovers freer (shown by the vertical arrow connecting 1992 and 2015) encourages industry to disperse. Such dispersion can be thought of as a form of arbitrage between the North that has lots of knowledge and high wages, and the South that has little knowledge and low wages. If the arbitrage gets cheap enough, that is, if the freeness of knowledge spillovers rises sufficiently, the situation will flip from all industry in the North to industry being evenly distributed between North and South.

The upward sloping stability curve is one way of summarizing the opposing effects of the two forms of freeness. Freer knowledge spillovers favor dispersion of industry while freer trade favors its concentration, so if the two freenesses rose in just the right combination, industry would stay dispersed. The exact-right combination is what defines the stability boundary. As such, combinations to the right of the stability boundary (the shaded area) correspond to outcomes where all industry is in the North and happy to stay there. The unshaded area in the northwest part

2. Baldwin believes that in this new age those pieces of

intellectual property which enable value capture are "owned" by corporations in the sense that they are fully "excludable"—or nearly fully enough for it to make a huge difference. Is he right?

3. The "Great Convergence" Baldwin sees is the I6—China, Korea, India, Indonesia, Thailand, and Poland—raising their share of global manufacturing production. But earlier we had the EA5—Japan, Singapore, Hong Kong, Korea, Taiwan—raising their share. And earlier we had southern Europe joining the global north. And still earlier we had the collapse of the southern cone of South America. And earlier we had the rise of the U.S. to industrial preeminence. To what degree is the most recent process an extraordinary shift, and to what degree is it business-as-usual as countries join and leave the global north?
4. Suppose China and India had been small population countries rather than large population countries: would Baldwin still have written this book? To what extent is this book a result of the fact that the two largest population countries in the world just happened to be the ones that saw the biggest improvements in governance in the past generation?
5. In Baldwin's estimation, the truisms of industrial policy has overturned as the world has shifted from the frown curve—value-added that the market recognizes is created by being the fabricator—to the smile curve—value-added that the market recognizes is created by

owning (a) raw materials, (b) design, (c) branded distribution, and (d) ancillary post-manufacturing services. The smile curve was durable: it lasted for almost two centuries. Is there any reason to think that the frown curve is equally durable, or even a quarter as durable?

TABLE 1.1
GDP per Person around the World, 1820–1989 (1990 U.S. dollars)

	1820	1870	1900	1913	1929	1940	1950	1970	1989
USSR	751	1027	1218	1488	1520	2144	2834	5569	7078
W. Europe	1292	2110	3092	3704	4267	4901	5123	11080	16925
offshoots	1205	2440	4022	5237	6379	6813	9255	14372	21226
Mediterranean Periphery	1100	1436	1853	2263	2727	2866	2867	8275	13403
Northern Periphery	1000	1561	2221	2652	3139	3921	5244	10814	15866
Eastern Europe	748	1041	1548	1684	1967	1997	2145	5338	5916
Latin America	—	—	2148	2439	3025	3923	6683	6710	6566
Southern Cone									
Latin America rest	723	725	899	1095	1332	1483	1883	3329	4886
China	523	523	652	658	779	778	614	1092	2649
Japan	704	741	1135	1334	1917	2765	1873	9448	17757
Taiwan & S Korea	—	—	828	909	1174	1548	888	2360	5827
S.E. Asia	—	—	792	977	1397	1183	941	1411	2644
South Asia	531	558	625	661	664	646	589	852	1237
Middle East	—	—	—	759	719	963	1038	1725	2919
Black Africa	—			410	527	559	537	810	749

Source: Compared from Maddison (1995).

- "When transportation involved wind power by sea and animal power by land... production [was] a hostage of consumption since people were tied to the land…. Three costs of distance... the cost of moving goods, the cost of moving ideas, and the cost of moving people.... Three constraints that limit the separation of production and consumption. Shipping costs fell radically a century and

a half before communication costs did. And face-to-face interactions remain very costly even today…"

II. Richard Baldwin on the Rise of the West

Baldwin's asides on the Black Death and "the rise of the west" are a diversion, but are not without interest in directing us to Findlay and O'Rourke's argument. It is an argument that seems along the lines of Robert Brenner. The Black Death in the context of west European feudalism strengthened the bargaining power of and freed the peasantry, raised their living standards, and the high-productivity sophisticated-(for its time)-post-Medieval value chain set off the commercial revolution. Brenner pointed out that in eastern Europe things went very differently: Black Death-created labor scarcity in the context of commercial revolution demand from points west motivated the creation of the "second serfdom". And what is Findlay and O'Rourke's argument about Islam, exactly?

- "The seven ancient civilizations (China, India / Pakistan, Iraq, Iran, Turkey, Italy / Greece, and Egypt)…"

- "The boost in trade that Pax Mongolica enabled had the unintended effect of globalizing the bubonic plague. While the disease had caused havoc several times in

history, the waves of epidemics from 1350 onward were truly transformative. Moving East to West along the Silk Road, the Black Death... wiped out between a quarter and half of all Europeans in just three years.... The effect on the Islamic World was at least as severe. The impact on China and India, by contrast, seems to have been less marked.... The Black Death... a watershed event.... The massive population losses transformed European societies in ways that triggered progress, but had the opposite effect on the Islamic world.... Findlay and... O'Rourke provide an engaging discussion of how... Western Europe had been stagnating in an equilibrium dominated by rural nobles, while Islamic civilization was flourishing via its urban centers. Since the disease hit cities harder, the shock may have shifted Europe from a bad equilibrium to a good one, while having the opposite impact on the Islamic world.... Broadberry ascribes the divergent impacts to differences in the type of agriculture, the age of first marriage of females, the flexibility of labor supply, and the nature of state institutions…"

III. Richard Baldwin on the Great Divergence

Baldwin's theory about how the world became (a) so rich (compared to the past) and (b) so unequal relies on two

mechanisms: the very steep fall in goods shipping costs, and spillovers from manufacturing production. Globalization took a forward leap. And the manufacturing specialization that low goods transport costs incentivized created very powerful virtuous and vicious circles. These arguments also strongly suggest that free trade was the wrong policy for countries that had a chance of developing

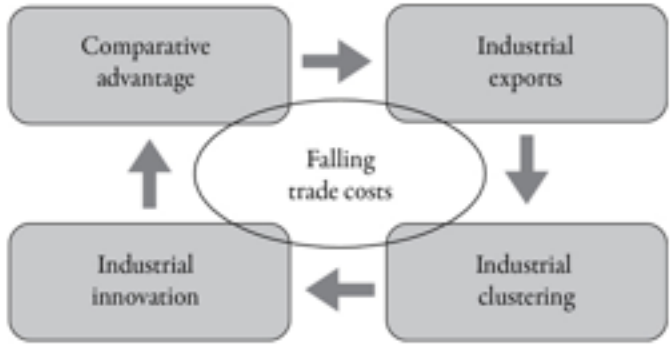


FIGURE 39: Dynamic comparative advantage: trade, comparative advantage, innovation, and growth are all entwined.

Globalization's first acceleration (that is, the first unbundling) turned the world's league tables on their head. The previously poor and backward nations in the European peninsula of the Eurasian landmass came to dominate the global economy.

The static version of Ricardo's conceptualization cannot explain this story, but it has been extended to include agglomeration and growth effects that can. The details are in the next chapter, but the basic ideas are simple to explain with the diagram—starting with the diagram's southeast box ("industrial clustering").

The clustering—that is to say, agglomeration—of industry in a nation promotes new thinking and new inventions (shown in southwest box, "Industrial innovation"). The innovation then strengthens the nation's competitiveness in the sector (shown in northwest box, "Comparative advantage"). The next step—according to the principle of comparative advantage—is that the heightened comparative advantage leads to more exports and more production. The crank comes around full circle when this extra production generates additional industrial clustering.

a competence in their communities of manufacturing engineering excellence.

A. Globalization's Forward Leap

- "Globalization took a leap forward in the early 1800s, when steam power and global peace lowered the costs of moving goods…. [From 1820] falling trade costs fueled a cycle of trade, industrialization, and growth that produced one of history's most dramatic reversals of fortune…"

- O'Rourke and Jeff Williamson argue that the best way to define economic globalization is as the integration of markets across space... start[ing] the clock on modern globalization around the year 1820…

- "Relaxing the shipping constraint did not make the world flat since the communication and face-to-face constraints were still in evidence.... Even as production moved away from consumption, manufacturing gathered into factories and industrial districts—not to economize on trade costs, but rather to save on communication and face-to-face costs. This microclustering spurred innovation in industrializing nations, and the innovations stayed local due to the high cost of moving ideas. The result was that know-how-per-worker rose much faster in the North than it did in the South. Ultimately, this is what created the

great North-South income divide known as the Great Divergence…"

- "Five top-line facts that marked globalization's first unbundling: (1) The North industrialized while the South deindustrialized. (2) Trade boomed. (3) Growth took off worldwide but sooner and faster in the North than in the South. (4) The Great Divergence happened. (5) Urbanization accelerated, especially in the North. All these stylize facts can be easily understood as implications of globalization's first unbundling…"

TABLE 1

British steamship capacity in tonnages, 1825 to 1860.

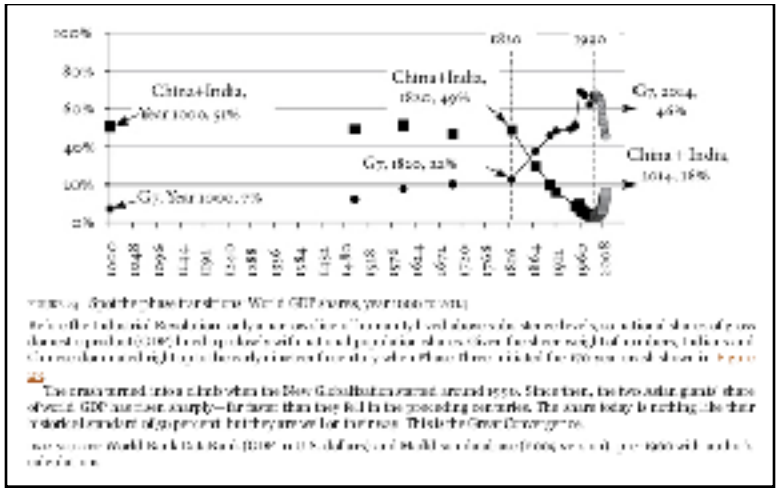
	Iron Steamships	Wooden Steamships	Total
1825	0	4,013	4,013
1830	0	3,908	3,908
1835	3,275	22,192	25,467
1840	20,872	30,337	51,209
1845	33,699	8,268	41,967
1850	70,441	52,248	122,689
1855	478,685	34,414	513,099
1860	389,066	12,174	401,240

Steamships revolutionized ocean travel but the revolution took decades. Using British data to track the developments,

B. Virtuous and Vicious Circles

- "Knowledge creation makes it easier to create knowledge.... As the G7 economies were gaining industry and the A7 [China, India / Pakistan, Iraq, Iran, Turkey, Italy / Greece, and Egypt] economies losing industry, G7 innovation became easier while A7 innovation became harder. Northern industrialization, in other words, advanced Northern growth, while the Southern deindustrialization held back Southern growth.... Given how continuous growth is driven by knowledge spillovers, and how knowledge spillovers were localized by the high cost of moving ideas, the region that got the industry also saw its growth takeoff sooner…"

- "Middle-income Britishers could... afford to dine on bread baked with U.S. wheat while sipping tea brewed from Chinese leaves and sweetened with Jamaican sugar —all set on a tablecloth made of Indian cotton.... O'Rourke and... Williamson date the start of this process to 1820... this separation of production and consumption [is] globalization's first unbundling.... Markets expanded globally but industry clustered locally... in the North. This Northern industrialization fostered Northern innovation, and since ideas were so costly to move, Northern innovations stayed in the North. The result was that modern, innovation-fueled growth took off sooner



and faster in the North. In just a few decades, the resulting growth differences compounded into the colossal, North-South income asymmetries that define the planet's economic landscape even today. In short, the Great Divergence was produced by the combination of low trade costs and high communication costs…"

IV. Richard Baldwin on the Great Convergence

The innovative parts of the book begin here, with Baldwin's theory that ICT enables the spatial separation of fabrication on the one hand from design and engineering—and branding—on the other.

The argument proceeds in many stages. I count six:

A. The "Great Convergence" itself
B. The fact that the "Great Convergence" is really not a convergence—rather, it is a *concentrated* shift of manufacturing to six low wage economies, the I6: China, Korea, India, Indonesia, Thailand, and Poland.
C. The commodity price boom created by growth in the I6 then pulls other resource rich economies up as possessing natural resources becomes, once again, a source of added wealth. Hence the growth in global GDP shares of the R11—the Rising Eleven: China, Korea, India, Indonesia, Poland, Brazil, Nigeria, Australia, Mexico, Venezuela, and Turkey.
D. Then comes Baldwin's assertion that the important knowledge—how to use low-wage labor as part of a high-productivity global manufacturing value chain—is "owned" by firms headquartered in the G7. I find myself skeptical. I think it is *brought* by high-productivity firms headquartered in the G-7. But does it remain *owned* by them?
E. This new globalization has very large and very different winners and losers than the old globalization did.
F. And this new globalization calls for industrial policies based on nurturing innovative pre- and post-fabrication service-delivering cities.

Does this argument hold together? How much of this argument holds together?

FIGURE 4: The ICT revolution triggered the second unbundling—the geographic separation of G7 factories.

For many decades, fragmentation of manufacturing would have been cost-saving for G7 firms given the very large wage differentials between, say, the United States and Mexico, or Japan and China. The problem was that it made no sense to ship production stages overseas when coordination had to be done by phone, faxes, or

A. The Great Convergence Itself

- "The upward spiral was checked from the mid-1980s and reversed around 1990. For the last couple of decades, the G7 share has been torqueing downward at a mighty pace. Today it is back to the level that it first attained at the very beginning of the nineteen century. This shocking share shift suggests that the nature of globalization changed radically around 1990. Accompanying Figure 1's "shocking share shift" was a changeover in manufacturing. Today's rich nations—which had seen

their share of world manufacturing slip slowly since 1970 —witnessed an accelerated decline from 1990…"

- "Globalization made a second leap in the late twentieth century when ICT radically lowered the cost of moving ideas…. While the steam revolution took decades to transform globalization, the ICT revolution took years…"

- "From 1990, the trend flipped; a century's worth of rich nations' rise has been reversed in just two decades. Their share is now back to where it was in 1914. This trend, which might be called the 'Great Convergence', is surely the dominant economic fact of the last two or three decades. It is the origin of much of the anti-globalization sentiment in rich nations, and much of the new assertiveness of 'emerging markets'…"

- "Radically better communications made it possible to coordinate complex activities at distance. Once this sort of offshoring was feasible, the North-South wage gap... made... profitable... the offshoring of production stages to low-wage nations.... Rich-nation firms sent their marketing, managerial, and technical know-how along with the production stages that had been moved offshore.... The second unbundling... the "global value chain revolution"—redrew the international boundaries of knowledge... industrial competitiveness... now increasingly defined by the outlines of international

production networks rather than the boundaries of nations.... Because this high-tech, low-wage combination turned out to be a world beater, the easier movement of ideas sparked massive North-to-South flows of know-how. It is exactly these new knowledge flows that make the New Globalization so different from the Old Globalization…"

- "Industrialization became easier for nations joining global value chains.... The 'big push' could be made in small steps.... The know-how necessary to set up single stages is much easier for developing nations to absorb than the know-how that is necessary to set up a whole sector.... [And] global value chains make the sales-scale conundrum evaporate since the multinational firms setting up the offshore facilities have already attained global competitiveness…"

- "G7 firms own this know-how, so the new North-to-South knowledge movements should not be thought of as some enormous 'Kumbaya moment'.... The New Globalization only boosted the manufacturing fortunes of the 'teams' that the G7 coach decided to 'train'….

- "Seven essential outcomes from Phase Four. (1) The North deindustrialized while a small number of developing nations industrialized. (2) The rapid industrializers saw their growth soar. (3) Commodity

prices experienced a super-cycle that initiated growth takeoffs in commodity exporting nations. (4) The Great Convergence occurred. (5) The nature of North-South trade changed to involve much more back-and-forth trade. (6) Most developing nations embraced trade

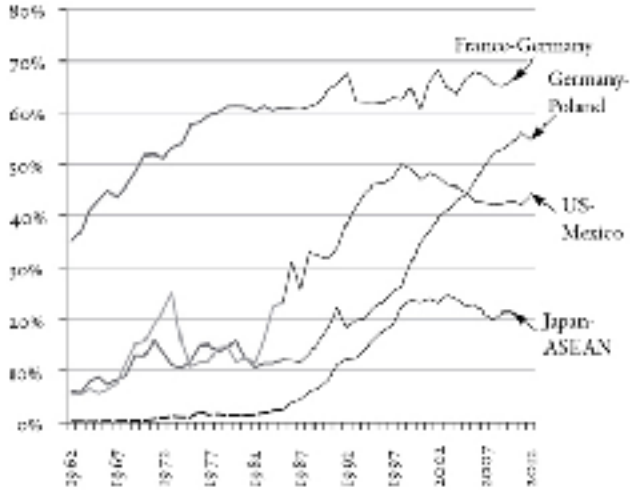


FIGURE 25: North-South back-and-forth trade boomed starting around 1985.

It may seem strange that nations export a lot of the same sorts of goods that they import, but this has long been common among rich nations. The phenomenon is much easier to understand when thinking of it as indicative of factories that are spread across international borders. For example, Airbus planes are assembled in France, but the parts are made all over Europe. Some parts, for example, are made in France, exported to the Germany for further processing, and then re-exported to France for assembly into the final goods, say an A320.

Until the second unbundling got going in the late 1980s and early 1990s, most of this two-way trade happened among rich nations. The case of France and Germany, which is displayed in the chart, shows that in the 1970s over 70 percent of all French-German trade was of this intra-industry type. When factories started crossing North-South borders as part of the New Globalization (namely, globalization's second unbundling), the North-South trade flows started to resemble the North-North trade flows.

liberalization. (7)The impacts were very geographically specific…"

B. The Concentration of the Great Convergence

- "Curiously, the G7's share loss showed up as share gains in very few nations. Only six developing nations (called the I6 [China, Korea, India, Indonesia, Thailand, and Poland] in the chart, short for the Industrializing Six) saw their share of world manufacturing rise by more than three-tenths of one percentage point since 1990. The curiosity lies in the fact that the effect is so concentrated.... Note that China is a real standout. Its share of world manufacturing (not shown separately) rose from about 3 percent to almost a fifth…."

- "Why should the impact of globalization be so narrow geographically when cheap transportation and communication are so broadly available? Answering this question requires a broader view of globalization…"

- "Why was the training so curiously concentrated?... Since it is still expensive to move people—and international production networks still need people to move among facilities—offshoring firms tend to cluster production in a few locations... near the G7 industrial powerhouses…"

- “Changes are so geographically specific since the third constraint on globalization—the high cost of moving people—is still binding. The manufacturing revolution only happened in developing nations that high-tech firms decided to invite into their production networks. To economize on face-to-face costs, these firms concentrated offshoring in a few nearby nations. India is a special case; it has joined global value chains via services that are much less subject to the face-to-face constraint…”

C. Commodity Cycle Spillovers

- “The growth acceleration in the I6, however, produced... the commodity super-cycle and attendant growth takeoffs in commodity exporting nations.... By stimulating the demand for commodities, the I6’s rapid income expansion pushed up the prices of the full range of commodities—everything from wheat to powered milk to iron ore and oil.... The super-cycle stimulated Southern incomes more than Northern incomes. The fourth outcome, the Great Convergence, stemmed directly from the booming growth in the South. The large growth gaps between the G7 and the developing nations during the 1990s and 2000s compounded into the ‘shocking share shift’ that was discussed in the Introduction…”

- “About half of all humans live in the developing nations that are rapidly industrializing, so their rapid income

growth created a booming demand for raw materials... the "commodity super-cycle," which subsequently sparked growth takeoffs in many commodity-exporting nations that [had been] untouched by the emergence of global value chains…"

- "The Group of Seven's share of global GDP declined from two-thirds in 1990 to under one-half today.... Who were the GDP share winners?... Very few nations... only eleven.... These Rising Eleven [R11]… China, India, Brazil, Indonesia, Nigeria, Korea, Australia, Mexico, Venezuela, Poland, and Turkey... accounted for fourteen of the seventeen percentage points lost by the G7.... China alone accounted for about seven percentage points, as the bottom panel of Figure 27 shows. Adding in... India and Brazil brings the gain by the top three share-gaining nations to ten percentage points of world GDP…"

- "There is a good deal of overlap between the... Industrializing Six and the Rising Eleven... [with] all of the rapid industrializers are among the R11 risers, except Thailand…"

D. How Excludable Is the Knowledge, Anyway?

- "Knowledge is not like labor or most other factors of production.... Knowledge... [is] 'nonrival'.... The most obvious ramification of the second unbundling is that owners of the rich nation's know-how will gain... leverage the value of the knowledge against both nations' labor forces... an unusually high reward to large, technology-driven firms based in rich nations, especially those engaged in offshoring…"

- "The new international movement of knowledge is very carefully controlled by the firms that own it. They make great efforts to see that it stays inside the contours of their global value chains. As a consequence, the New Globalization is transforming only the developing economies that are on the receiving end of the know-how…. When the second unbundling redrew the international boundaries of production... comparative advantage was denationalized.... The frontline of competition is better thought of as being between cross-national production networks—call them 'global value chains', or GVCs for short…"

- "Knowledge spillovers—which acted as an agglomeration force in the nineteenth century—started acting as a powerful dispersion force in the twenty-first century.... The argument gets subtle and focuses on wages

as a dispersion force. During the first unbundling, rapid industrialization pushed up wages in a way that slowed down the agglomeration. During the second unbundling, the wage-industrialization link was muted by particular features of global value chains. More exactly, G7 firms moved, and are still moving, specific pieces of know-how to specific production facilities in China and other emerging markets. They try very hard to prevent this knowledge from becoming generalized to other firms in the offshore destination…"

- The 'smile curve'…. More and more of the value is being added by services that are related to manufacturing; less and less is being added by simple manufacturing itself.... Much of value addition that used to happen in fabrication stages.. has been transferred to the pre- and post-fabrication stages that are dominated by service inputs.... The smile-deepening has caused anxiety among rapidly industrializing developing nations. They are now worrying that they are getting the 'bad' jobs—that is, jobs associated with low value added per worker—while the "good" jobs stay in the North. Apple is a perfect example of this good versus bad job concern...

E. Winners and Losers

- "Some 650 million developing-nation citizens have been lifted above abject poverty since the early 1990s, many of

them in nations that have participated heartedly in global value chains. Note that this part of the New Globalization's impact is due to international knowledge flows as well as the trade flows thus generated; this is thus one of things that is really new about the New Globalization…"

- "The New Globalization had very uneven effects across the global income distribution.... The entire middle of the global income distribution fared well. The really rich also did well (point on the far right of the chart). The groups that suffered were the people who were really poor in 1998 and those at the lower end of the income scale in rich nations…"

- "The middle of the [global] income distribution... either... were in one of the Industrializing Six... or... in emerging markets that experienced commodity-led income takeoffs. The global elite won since the global value chain revolution, and the ICT revolution more broadly, allowed them to sell their know-how to a wider audience…"

- "G7 firms moved, and are still moving, specific pieces of know-how to specific production facilities in China and other emerging markets. They try very hard to prevent this knowledge from becoming generalized to other firms in the offshore destination. The motives for this guarding

of technology had little to do with wages, but the consequence was a much weaker wage-industry link in the second unbundling as compared to the first.... Workers in the offshored factories got paid something that was tied to what might be called their 'next best option' wage.... The next-best-option wage did not rise quickly despite the rapid industrialization.... The dispersion forces that might have slowed down the shifting of industry from North to South were neutralized by the fact that know-how transfers were happening mostly inside global value chains…"

- "For Santiago de Querétaro, a colonial-era town in North-Central Mexico, the New Globalization has been a miracle-size blessing.... Santiago de Querétaro and the surrounding region have attracted activities ranging from data centers to aircraft manufacturing.... One key company... was... Canadian... Bombardier. The firm first moved technologically unsophisticated, labor-intensive stages to Querétaro... assembly of wire harnesses for aircraft were done in Querétaro, after which the subassemblies were shipped back to Quebec.... But increasingly sophisticated stages followed.... Bombardier's Querétaro facility now makes tails for business jets.... Bombardier Recreational Products... builds watercraft... makes sophisticated composite hulls.... The director of BRP Querétaro, Thomas Wieners: 'Normally you bring something that you completely

know how to do and you want to leverage some labor content. But we believe we've found a strong talent pool here.' A large measure of Querétaro's achievement comes down to the knowledge that Bombardier moved from Canada to Mexico. This was not easy. As Gallant notes, 'Bombardier was faced with the dilemma of how to transfer the know-how from French-speaking veterans to Spanish-speaking newbies'. To overcome the hurdles, the company invented a system of pictograms that Mexican operators could follow without knowing a word of French. This miracle for Querétaro's 'Spanish-speaking newbies' has been rather less happy for the 'French-speaking veterans' in Quebec. Bombardier can now make airplane tails using Mexican manufacturing engineers who get about $60 a day instead of Canadian aerospace engineers who get $35 an hour…"

- "Today, Dyson... a 'factoryless goods producer.' None of its workers are involved in fabrication. They are engaged in the full range of services necessary to produce the goods, but they don't actually make the goods. Now Dyson combines its technical, marketing, and management knowledge with low-wage Malaysian workers to keep its products competitive with those of other producers who are doing the same... James Dyson.... 'We are a much more flourishing company now because of what we did and it's doubtful if we could have survived in the long term if we had not done so.… We

employ 1,300 at Malmesbury [the U.K. site]—engineers, scientists, and people running the business. The decision to shift production to Malaysia was not good for Britain in one sense because we don't employ manual labor any more. But we are taking on more at higher pay rates and more value-added levels.' Dyson seems to have been right... plans to create 3,000 science and engineering jobs in the United Kingdom by 2020... main problem was a shortage of skills…"

F. New-Age Industrial Policy

- "Globalization makes life harder for governments.... The intrinsic difficulty is multiplied by the fact that many governments and analysts are using the Old Globalization's mental model to understand the New Globalization's effects.... They focused on the market-failure question.... Good policy was clear. The government should focus on forms of investment characterized by market failures... focused... on which policies would foster the greatest spillovers (the answer was usually R&D) or correct the biggest market failures (the answer was often infrastructure)…"

- "Wise governments... distinguish carefully between factors of production that are internationally mobile and those that are internationally immobile.... As Enrico Moretti points out in... *The New Geography of Jobs*, good

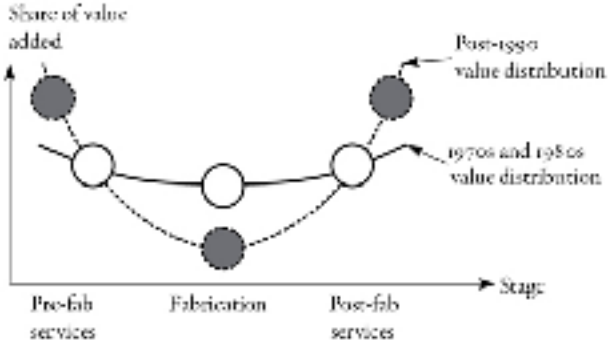


EXHIBIT 1.5 The smile curve: how the second unbundling shifted value along the value chain.

The smile curve is a handy way of illustrating some of the main changes that were produced by the New Globalization at the level of individual products. In the diagram, a typical value chain is characterized as being made up of just three *stages*: pre-fabrication activities (such as design, finance, and organizational services), fabrication activities (things done in factories), and post-fabrication activities (such as marketing, post-sales services, and the like).

The assertion behind the change illustrated is that the fabrication stages are losing value since they are being commoditized and shifted to low-cost locations in developing nations. Since the shares have to add to 100 percent, the drop in the fabrication stage's value-added shows up as rises in the value in the pre-fabrication and post-fabrication stages. In particular, the pre- and post-service jobs tend to go to (or stay in) cities in G7 nations.

The smile curve is also consistent with the trend called "servitization" of manufacturing since the total value being added in what looks like the manufacturing sector (the fabrication stage) is falling while the value being added in what look like service sectors is rising.

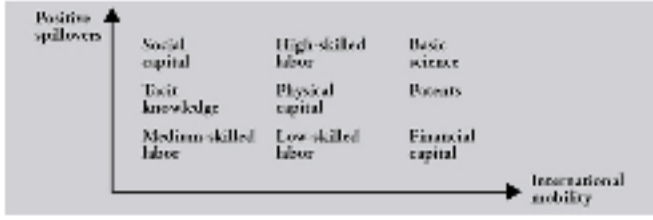
SOURCE: Baldwin, "Global Supply Chains: Why They Emerged, Why They Matter, and Where They Are Going," Centre for Economic Policy Research, Discussion Paper No. 9103, August 2012. Figure 15.

jobs created in G7 nations have a local multiplier effect, which good jobs created by G7 firms abroad do not…"

- "Stickiness arises from agglomeration.... A skills-cluster is more than the sum of its parts, which in turn means that the cluster can pay over-the-odds wages. Human capital has the extra attraction of being flexible. Skills that produce excellence are often transferable across sectors and stages, which allows workers to adapt to

changing demands. Human capital is also central in the input-output structure. Skill-intensive services are inputs into many different stages and products, so demand for such tasks is more stable…"

- "When companies like Uniqlo combine their advanced knowledge with low wages, the value added in fabrication plummets... mak[ing] it nigh on impossible for Japanese workers using Japanese technology to compete with Chinese workers using Japanese technology. It would be a fool's game to try to promote such jobs in Japan.... [The] good manufacturing-related jobs in Japan, but many of them are, and increasingly will be, service jobs.... "Sticky" jobs tend to be good jobs, and vice versa. As Moretti writes: "In innovation, a company's success depends on the entire ecosystem that surrounds it.… It is harder to delocalize innovation than traditional manufacturing.… You would have to move not just one company but an entire ecosystem." The same applies to many kinds of services. As the servicification of manufacturing advances, the competitiveness of a nation's manufactured exports will increasingly depend on the local availability of a broad range of excellent, reasonably priced services.... Excellent and diverse service sectors should be thought of as twenty-first-century industrial bases…"



Targets of policy: stickiness and spillover potential.

A standard feature of rich nations' competitiveness policy is the promotion of certain productive factors such as human capital, knowledge capital, and physical capital. The traditional justification is that the social reward is increasing the nation's stock of such factors exceeds the private reward (so the free market—left to its own devices—will produce too little of the factor). "Positive spillovers" is the jargon for situations where the social reward exceeds the private reward. In the world before the second unbundling, the extent of spillovers was perhaps the major economic factor considered by economic policy analysts.

In a world where the sources of comparative advantage can cross borders, the analysis should also think about the "stickiness" of productive factors when deciding which to promote. For example, if the United States gives a big tax break to foster new products and then most of the resulting value added ends up happening abroad, the spillovers that justified the subsidy may not benefit the U.S. tax payers who subsidized the knowledge creation.

Source: Modified from Baldwin and Evenett (2012), Figure 10.

- "Cities become skill-clusters—or 'brain hubs' as Enrico Moretti calls them. The link between the success of a city and human capital is a close one. One of the most persistent predictors of urban growth over the last century is the skill level of a city…"

- "G7 policymakers should... start thinking service inputs into manufactured exports... good (service) jobs... the service sector as the twenty-first-century industrial base... [via] well-functioning cities... 'China-proof' their good jobs…"

<https://kindle.amazon.com/work/great-convergence-richard-baldwin-ebook/B01MYM394C/B01MSWH9ED>

>[From] the basic Ricardian logic... [of the] assumption of national competencies... [add] national competencies... [as] both the outcome of and the cause of trade.... The nation with the greatest relative efficiency exports.... The nation shifts resources into this sector and production rises. The freer trade has the opposite effect on the same sector in other nations; more imports lead to less production. The result is that freer trade leads to the agglomeration of world production, sector by sector.... Clustering... improve[s] efficiency and thus[s] boost the nation's competency in industry.... Scale economies... the faster innovation that comes when many people puzzle over problems together.... An illustration of this unbeatable combination of agglomeration, innovation, and cheap transport can be seen in the Albert Bridge in Adelaide (Figure 40). Built in 1859, the entire structure was manufactured in England and shipped 22,000 kilometers—this being cheaper than manufacturing it locally. The hyperconcentration of industrial activity in the developed economies, however, came at a cost. Most stages of production had to be done with G7 high-cost labor—at least for the two-thirds of global manufacturing that took place in G7 nations in, say, the 1980s...