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The turn from just-in-time to just-in-case globalization in and after times of COVID-19

An essay on the risk re-appraisal of borders and buffers

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ABSTRACT

In this essay, we apply insights from International Economics and Economic Geography to examine how the current COVID-19 crisis may structurally change the international economy. Our key argument is that the current crisis will fundamentally change key economic actors' risk appetite, triggering a renewed risk assessment that will lead to the comeback of buffers and borders across industries. This partial return to regionalization will involve a form of de-globalization that transforms modern just-in-time management into its just-in-case counterpart, because resilience will be priced and discounted for by enterprises and governments alike. We discuss what such a structural change will imply for the International Business of international value chains.

1. Introduction: the immediate economic impact

The COVID-19 virus took the world by surprise. After it became clear that the virus is far more serious than 'just a flu', many countries went into lockdown in March 2020 in order to try to contain the spread of the virus. The economic impact of the lockdown has already been enormous by the time of writing this essay (late May 2020). The International Monetary Fund (IMF, 2020), for instance, predicts that despite massive government support the GDP in the advanced economies will contract by 6% in 2020, and that almost every country on the globe will face a severe economic recession. World trade volumes will contract by more than 10%, and the World Trade Organization (WTO) – in a worst-case scenario – is predicting a more than 30% decline in world trade, which is more than the Great Trade Collapse in the wake of the financial crisis in 2008–2009, as Fig. 1 illustrates.

These estimates about the impact of the corona crisis on the global economy depend in no small part on the (unknown) length of the lockdown: The longer it takes, the more pessimistic the – very uncertain – predictions are. Although it is still early days, the COVID-19 economic shock is already unprecedented in modern history (see Box 1 for other pandemics). With the very limited knowledge of today, the immediate or short-run economic impact can only be compared with the economic depression of the 1930s. Given the very large degree of uncertainty

surrounding the COVID-19 shock, both from a health and economic perspective, it is clear that a large part of the economic contraction will precisely be the direct result of the heightened uncertainty and its impact on production and spending plans (Baker, Bloom, Davis, & Terry, 2020). The IMF is, however, relatively optimistic about a world-wide economic recovery in 2021, but it also strongly emphasizes that this optimism crucially depends on the assumption of the pandemic fading away during 2020, and that the containment policies that many countries took will be scaled back by the end of 2020. Current government policies, such as income support, tax holidays, and rent support, aim at preventing people from becoming unemployed and companies from going bust. If the policies are successful and the pandemic is indeed fading, one can be relatively optimistic about the economic circumstances in 2021 in the sense that growth rates will bounce back, and will be positive.

However, all this is highly uncertain, as all this crucially depends upon finding an effective and scalable vaccine or medicine on relatively short notice. Although the world is investing in a rat race to do so, earlier virus vaccine and medicine routes have proven that such a speedy solution is anything but guaranteed. More often than not, after all, the vaccine discovery process takes a few years or even decades (e.g., a vaccine for hiv is still to be developed). This would imply that COVID-19 will circulate for much longer, causing further economic damage. In addition, being a new virus about which much is still

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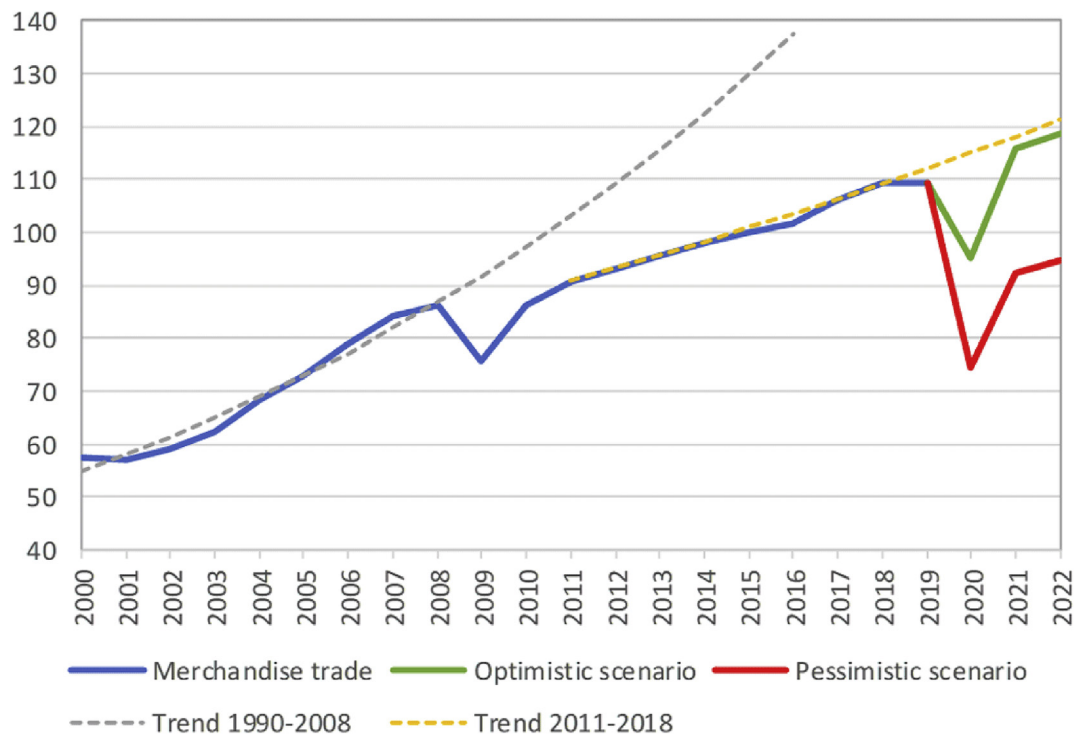


Fig. 1. World merchandise trade volume, 2000–2022 (index, 2015 = 100)

Source: WTO (2020), Press Release (https://www.wto.org/english/news_e/pres20_e/pr855_e.htm).

Box 1 Pandemics

Pandemics have occurred frequently in human history. The interaction of regional disease pools, through wars or commercial contacts, exposed inhabitants to unknown infectious diseases. Some of the most well-known pandemics are (type of disease, year, and estimated number of casualties between brackets):

Antonine Plague (small-pox, 165–180, 5M).

Plague of Justinian (Yersinia Pestis Bacteria, 541-2, 30–50M).

Black Death (Yersinia Pestis Bacteria, 1347–1351, 200M).

Great Plague of London (Yersinia Pestis Bacteria, 1665, 100.000).

Italian Plague (Yersinia Pestis Bacteria, 1629–1631, 1M).

Third Plague-China/India (Yersinia Pestis Bacteria, 1885, 12M).

Spanish Flu (H1N1 virus, 1918-19, 50–100M).

Asian flu (H2N2, 1957-58, 1.1M).

Avian flu (H1N1, 2009, 200.000).

Severe Acute Respiratory Syndrome (SARS-Corona, 2002-3, 774).

Middle East Respiratory Syndrome (MERS-Corona, 2015-present, 850).

Ebola Virus Disease (Ebola virus, 2014-16, 11.000).

COVID-19 (Corona, 2019-present, 300.000 and rising, see <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>).

Source: Scheidel (2017), chapter 11.

unknown, the virus may mutate into an even more aggressive and deadly variant. Another uncertainty relates to the response of societies to such prolonged virus circulation. Will they periodically return to a lockdown regime to limit the death toll and to avoid incinerating the health system? Alternatively, will the economic damage of lockdown policies be considered so disproportional that next outbreaks of COVID-19 will be met with (much) less strict responses? All these unanswered

questions indicate that the world must navigate through times full of fundamental uncertainty, which is quite different from calculable risk. From a large literature in Economics, we know that responses and consequences of such fundamental uncertainty will be very different from those associated with calculable risk (Keynes, 1936; Knight, 1921; van Witteloostuijn, 1990). In this essay, we will think through a few of these responses and consequences, emphasizing issues highly relevant

from an International Business (IB) perspective: the role of borders and buffers.

Our essay is structured as follows. In the next section, we will turn away from guessing the economic impact of COVID-19 in terms of GDP or employment for the world economy. It is certain that this impact will be very substantial. Once the dust has settled in terms of the negative economic impact, the question remains whether and how the COVID-19 shock will lead to structural changes in the economy. How will economic agents internalize the COVID-19 experience? Will the economy simply return to business-as-usual, or will pre-corona routine behavior be re-evaluated? In the next section, we will argue that, in general terms, COVID-19 will most likely have a long-lasting impact. In our view, it will lead to a structural and persistent overall increase in uncertainty awareness. More uncertainty awareness will play out along two dimensions: (1) many economic agents will maintain more buffers; and (2) national borders will become more important (or, one might argue, both will make a comeback). Economic agents will, rightly or wrongly, use buffers and borders to increase their resilience to shocks like COVID-19, and the most salient feature of modern globalization, international just-in-time production and delivery, will be adjusted, and transformed into just-in-case management. So, we will thus argue that globalization in times of corona will structurally change the prevailing view on the relevance of borders and buffers.

Hence, this essay outlines what COVID-19 might entail for globalization. We do so through the lens of (International and Spatial) Economics and (Economic) Geography, to identify issues we believe are highly relevant from the perspective of International Business (IB). We offer no new empirical evidence, nor do we develop novel theories; we just provide some food for thought as to how the world economy might change, and what this may imply for an IB research agenda. In doing so, we are very much aware of the fact that we have to focus the discussion, and hence highlight a limited number of topics. This implies that we have to skip altogether or only briefly refer to topics such as the implications of COVID-19 for global income inequality, the nature of work, hidden unemployment, changing management practices, the labor market, ecological sustainability, migration, foreign direct investment (FDI) or the impact on inner cities, to name just a few other issues, out of many. We will leave that to our fellow researchers (see, for example, [Baldwin and di Mauro, 2020](#)). One thing is certain: amidst all the fundamental uncertainty that inevitably surrounds the discussions on the economic impact of COVID-19, we can be certain that this is a crisis that will be with us for a long time to come, as will the virus itself.

2. Structural changes ahead? The return of borders and buffers

Given the fact that COVID-19 is an unprecedented shock to the world economy and that the shock is still unfolding, the question naturally arises whether the pandemic might have long-lasting effects on the way we are doing business internationally and the way organizations and economies as a whole are organized. Will COVID-19, besides triggering a severe negative global business cycle, lead to structural changes in the organization of the international economy? The virus has exposed vulnerabilities in the global economic system that were hidden to many, until recently. For instance, essential medical supplies were insufficiently available locally, which reveals that many countries have become dependent on long international supply chains, with a small disruption somewhere along a supply chain being felt everywhere. The Peterson Institute for International Economics ([PIIE, 2020](#)) notes that China, as one of the main suppliers of medical supplies, has redirected Chinese-made supplies from exports to domestic usage. As a consequence, global prices for medical supplies increased substantially, as did global shortages. Experiences like these might change future international relations. Governments are confronted with unpleasant international dependencies and vulnerabilities. Becoming too dependent on global supply chains might lead to a re-evaluation of global trade and risk assessments.

When it comes to structural changes to the international economy that might occur in the wake of the current COVID-19 crisis, our take is that the days of modern globalization as we have known it for the last 30 odd years are over. The world was already witnessing an increasing resentment against modern globalization, as is clear from Brexit and the Trumpian China-US trade war, but this resentment has now gained even more momentum. In this respect, *The Economist* notes that the “underlying anarchy of global governance is being exposed” (*The Economist*, March 14, 2020, “Has COVID killed Globalization?”). The most likely consequence is that the increase of international trade and FDI, the rise of global vertical specialization, fueled by technological change, and the dominance of emerging economies like China will be re-evaluated. We do not suggest or predict the end of globalization, as the benefits of the global division of labor are unambiguously positive, but merely that national governments, business firms and also end consumers will re-assess the current form and phase of globalization by applying a different risk assessment or expressing a different risk appetite. After all, all need to navigate their way in a new world featuring fundamental uncertainty.

Both at the macro and micro-economic level, economic agents need to become more resilient to unforeseen shocks such as an unexpected trade war or another pandemic outbreak. From the perspective of the international economy, there are at least two main avenues of change in the ‘post-corona’ world that we would like to emphasize here, as to how risks will be re-assessed and managed differently such that resilience will be increased. The first avenue involves the reconsideration of the ‘lean-and-mean’ notion of efficiency that has spurred globalization and the global international division of labor since the fall of the Berlin Wall, as well as the arrival of countries such as China and India on the world economic stage. In all likelihood, this notion will be dropped for a new concept of efficiency where buffers, security of production lines, and delivery guarantees will gain prominence. Or, as the [Financial Times \(2020\)](#) states: goodbye ‘just-in-time’ management, hello ‘just-in-case’ management. In a nutshell, this implies a return of stock buffers in value chains to make them more shock proof. Partly, this comeback will be initiated by (large) enterprises that are not willing to accept the risk to have their delivery chain being radically disrupted again. Moreover, this will be forced upon the business world by national governments that demand local supply in what they see as vital sectors.

The second avenue through which we think that the current COVID-19 crisis will have a lasting impact on the international economy is via the increased importance of international borders. Borders will make a comeback for two reasons. First, the mere fact that distance will be an increased liability in post-corona times implies that firms, consumers, and governments will put more value on local or near-by production and access to (particularly vital) products and services. Global supply chains will not only be diversified, but will also be regionalized ([Seric & Winkler, 2020](#)). This is not a return, as in the 1930s, to a more autarkic national economy, but a higher distance awareness resulting in further regionalization. The European Union (EU) and the United States (US), say, will no longer accept full dependability on far-away suppliers of vital products and services. Currently, many value chains are critically dependent upon shackles in the chain that have been (close to fully) monopolized by production in China or India. In addition, borders might become more relevant again for the simple fact that national governments (and their citizens) will structurally re-assess the risks associated with the international or cross-border flows of people and goods ([Baldwin & Evenett, 2020](#)).

The goal of this large-scale risk re-assessment along the *buffer* and *border* dimensions is to increase economic *resilience*, of both enterprises and societies. National governments strive to be better able to adapt to and protect their economies and citizens against shocks like COVID-19, firms and their workers also will try to create more leeway to deal with a potential future shock, and consumers, too, will re-assess behaviors and decisions along these two dimensions. For the state of *globalization* as it existed prior to the outbreak of the COVID-19 pandemic, the renewed

risk assessment or re-appraisal implies a mixed message. On the one hand, the international economy will become less global and more regional. This does not mean a decrease of international trade or capital flows per se, but rather involves an increased penalty of distance, which favors (further) economic integration with nearby countries. In addition, the experience of the lockdown creates an increased awareness that working at a distance is possible in production domains that traditionally were carried out in the same office building. The link between the office and the employee is cut by the lockdown, but why stop at the border? Increased international fragmentation can be expected, especially in services.

Finally, we should emphasize that a risk re-assessment through more attention to buffers and borders is only a means to an end; the aim is improved resilience. Until now, performance in our globalized economy, both for countries and firms and their workers alike, is primarily measured in terms of economic growth in GDP, productivity or income, respectively (see also Fig. 1). This, as we have experienced in the COVID-19 crisis, is too one-dimensional. After all, increased resilience does not necessarily coincide with increased growth of GDP, productivity and/or income. Resilience requires costly investment, preparation, and maintenance, with the benefit being less immediate and less salient. Resilience has to with the ability to initially resist or withstand, and to subsequently recover from or adapt to shocks (Brakman, Garretsen, & van Marrewijk, 2015; Fingleton, Garretsen, & Martin, 2012; Garretsen, Stoker, Soudis, Martin, & Rentfrow, 2020). Whether improved resilience (always) coincides with increased growth of GDP/productivity/income performance is far from obvious. Instead of maximizing or optimizing any growth (GDP, productivity, income or otherwise) trajectory as such, resilience refers far more to the ability as an economic agent or entity in the face of shocks to continue to steer as closely to that trajectory as possible, whatever the growth path itself might be.

In the remainder of the essay, we will now further discuss an important and very salient feature of modern globalization – i.e., international just-in-time production – to showcase first what this modern aspect of globalization entails, and next how this might be changed because of the COVID-19 pandemic crisis and the economic aftermath, thereby underpinning our more general argument that, in all likelihood, the international economy will structurally start to attach more weight to the role of borders and buffers.

3. What is at stake? Just-in-time production as the hallmark of modern globalization

Just-in-time delivery is or, more accurately perhaps, was one of the features of modern-day globalization. Spurred by technological changes such automation and robotization, the just-in-time production of intermediate products on the assembly lines across the globe has enabled businesses to manage, or rather minimize, stocks optimally. Also, advances in multi-mode transportation have made it possible to manage production processes in such a way that the need to keep large and expensive stockpiles was substantially reduced, if not no longer necessary altogether, prior to the COVID-19 crisis. As a consequence, global supply chains have become “mean and lean”, as well as reliable in ways that allowed production processes to become highly efficient: By and large, only bones were left, with all flesh cut out. One of the technological advances that has made this possible is the ICT revolution, which further enabled vertical specialization on a global scale.

Richard Baldwin (2016) has dubbed this well-known development the ‘second unbundling’ of the international economy. With this label, vertical specialization or the fragmentation of the production process is differentiated from the first unbundling: The geographical separation of consumption and production that already started in the 19th century. The latter, stimulated by the transport revolution of the 19th century, was responsible for the first wave of modern globalization. The

‘lean-and-mean’ efficiency gains of this second unbundling phase are substantial. The benefits of the modern and truly global division of labor no longer only work at a sector level, but also within production processes – that is, within enterprises themselves. This implies a “Ricardo squared” advancement of globalization, with the fundamental mechanism of comparative advantage working at a much more fine-grained disaggregated level – that is, not so much at the level of jobs, but at that of specific tasks (a vivid description of this second unbundling is given by Baldwin (2019)).

A key issue stressed by Baldwin (2019) is that not only goods and intermediate products are traded globally, but also that, from roughly 1990s onwards, the ICT revolution made international flows of knowledge possible on a new and much larger scale. The consequence is that emerging countries have not followed a development path similar to that of the classic industrial countries in the late 19th and early 20th century – that is, by developing a sector from scratch, as once Japan did with the automobile sector. Rather, specialization could take place in just a fragment of the production process. In addition, the international flows of knowledge changed the privileged or shielded position of American, European and Japanese workers. For a long time, these workers had exclusive access to the knowledge in the advanced industrial countries. The massive increase of the international flows of knowledge changed this.

Not only were parts of the production process relocated from industrial to emerging countries, but the knowledge that made these firms productive was relocated as well. The American, European, and Japanese firms were teaching foreign workers not only how to become more productive, but also offered them access to advanced knowledge in the new factories – knowledge that could be easily transferred because of the ICT revolution. The close tie between capital and labor in the advanced economies was cut by the ICT revolution, and labor in advanced economies could be substituted by labor in emerging markets. The potentially lower productivity in emerging markets could thus be compensated for by lower labor cost. Besides the (huge) benefits of the now global division of labor, this process had adverse consequences in the advanced economies in the form of a rapid de-industrialization at an unprecedented scale (Baldwin, 2019). This process is further magnified by domestic technological progress that also makes certain jobs obsolete.

The competition from emerging markets no longer took place in the form of the re-location of sectors, such as the textile industry of the 1970s, but on a much finer-grained scale. Occupations were disappearing nationally and relocating internationally within the production process. Offshoring is more easily possible than it used to be, affecting fragments within the production process instead of sectors as a whole. As a result, the labor market underwent a remarkable and radical change, which is known as so-called labor market polarization (Autor & Dorn, 2013; Goos et al., 2009). The labor market is hollowed out, and capital rules the world (albeit not in the way Marx had predicted). Employment in medium-skilled (manufacturing) jobs declined relative to low-skilled and high-skilled jobs. If the relative growth of employment categories is plotted against skill levels, we observe a U-shaped pattern. In their seminal study, Autor, Dorn, and Hanson (2013) document that the import penetration from China in the US has had significant negative effects on employment in parts of the US labor market. In a meta-study on the labor market effects of offshoring and technological progress, Terzidis, Brakman, and Ortega-Argiles (2019) find that, using a sample of 90 studies and 1283 estimates, both technology and offshoring are important for labor market developments. However, the overall effect is conditional on a number of moderating contingencies. For one, skill level is important since automation, on the one hand, is more likely to displace low-skilled employment than offshoring is. Offshoring, on the other hand, is more likely to benefit high-skilled workers. In addition, geography matters. Technology’s effect is less likely to be positive in the US than trade effects, and trade by itself has adverse effects in local labor markets.

4. The impact of COVID-19: from just-in-time to just-in-case production?

As Baldwin (2019) points out, the impact of this new ICT-driven globalization that came about after 1990 is less straightforward than the effect of the old globalization, which affected whole industries rather than only small fragments in the production process. The meta-analysis carried out by Terzidis, Brakman, and Ortega-Argiles (2019) reveals that the effects of technology and offshoring are difficult to predict, as the effects are strongly context-specific, and may interact subtly. It is difficult to predict what stage in the production process can be offshored or substituted by, for example, a robot. And importantly, it is difficult to predict what the effects will be, because these effects are “more individual, more sudden, more uncontrollable, and more unpredictable” (Baldwin, 2019, p. 66).

Long supply chains also affect economies in other ways, which are especially relevant for the consequences of system-wide or even global shocks like the COVID-19 crisis. The longer the supply chain, the longer it, for instance, took to recover from the financial crisis that led to the great trade collapse of 2008/9. Brakman and van Marrewijk (2019) study the resilience of countries after trade collapses. The main conclusion of their analysis is straightforward: A strong involvement in global supply chains raises the size of the decline, and slows down the recovery of countries following a recession. Consistent with Altomonte, di Mauro, Ottaviano, Rungi, and Vicard (2012), these results point to a slow (er) adjustment of production to new expected levels of demand, which could indicate a stronger influence of risk aversion at the macro level. So, the susceptibility of countries that are heavily involved in global supply chains is likely to also be more affected this COVID-19 time around, which is underscored by Fig. 1 at the beginning of our essay, giving an indication of how a COVID-19 induced economic crisis and subsequent trade collapse evolve quickly after the launch of national and global lockdown measures.

Crucially, as we argued above, what sets the COVID-19 crisis apart from previous global economic shocks is that the risk perception associated with global value chains is about to change, or has changed already. The supply of medical supplies is, for instance, heavily dependent on China, as PIIE (2020) indicates. But the lockdown that was introduced in many countries was felt everywhere. The insecure deliveries, if any, of intermediate supplies affected industries everywhere, and suddenly not having access to or control over the production of medical supplies became a huge risk factor for countries and firms. This is just one obvious example. But more generally, countries, firms and also consumers learned almost overnight in February–March 2020 what the implications are if global value chains break down and if the

international trade of intermediate products comes to a halt. Suddenly, just-in-time production and management went from very efficient and low risk to very costly and high risk. As we argued above, we predict that this increased risk awareness is here to stay, and that this will thereby change the face of modern globalization.

It can thus be expected that across enterprises and economies a re-evaluation will take place of risk appetite and the fundamental uncertainty associated with pandemic outbreaks. After the financial crisis of 2008/9, the financial sector has re-evaluated its risk exposure. The consequence was that banks were forced to substantially re-capitalize themselves in order to become more resilient than before. Now, in the aftermath of the COVID-19 crisis, this most likely will also take place in the economy in general, across many industries, sectors, and value chains. Spurred by national governments and financial markets alike, firms will try to reduce their dependency on only a few (and far-away) global suppliers, triggering a trend toward geographical diversification and – hence – de-globalization in the form of increased regionalization.

We take the textile industry as an example. Fig. 2 illustrates the increased dependency within the textile industry between 2000 and 2017. What is immediately apparent from Fig. 2, is the increasing importance of China in this sector. Indeed, this increased dependency on China also holds for more technological advanced sectors, such as the electronics sector, the optics sector, micro-chips factories that produce flash memory cards, et cetera. This no doubt has increased cost reductions, but also increased dependencies: Very much a just-in-time world, and not so much a just-in-case one. Indeed, Fig. 2 visualizes why China is often referred to as the ‘factory of the world’. Keeping this in mind, how could COVID-19 lead to a structural change of modern-day globalization?

In a world without frictions along the supply chain, the comparative advantage of China in textile production (low cost and large scale) are driving by the hub position of China and its textile firms. The right-hand side panel of Fig. 2 is then indicative of a very efficient international distribution of production. Risks of production or transport lines breaking down are deemed very low or non-existent. But this apparently highly efficient outcome might look very different if rare but very high-risk events like the COVID-19 shock are starting to get priced. Suddenly, the trade network depicted by the right-hand side panel looks rather vulnerable. And if the costs of such a shock that might with a certain low but still positive probability hit the value chain is discounted to the present, textile firms will probably think twice about the efficiency of this prime example of just-in-time production.

In the short term, becoming less dependent on a single production hub for a global sector like the textile sector could (seemingly) increase

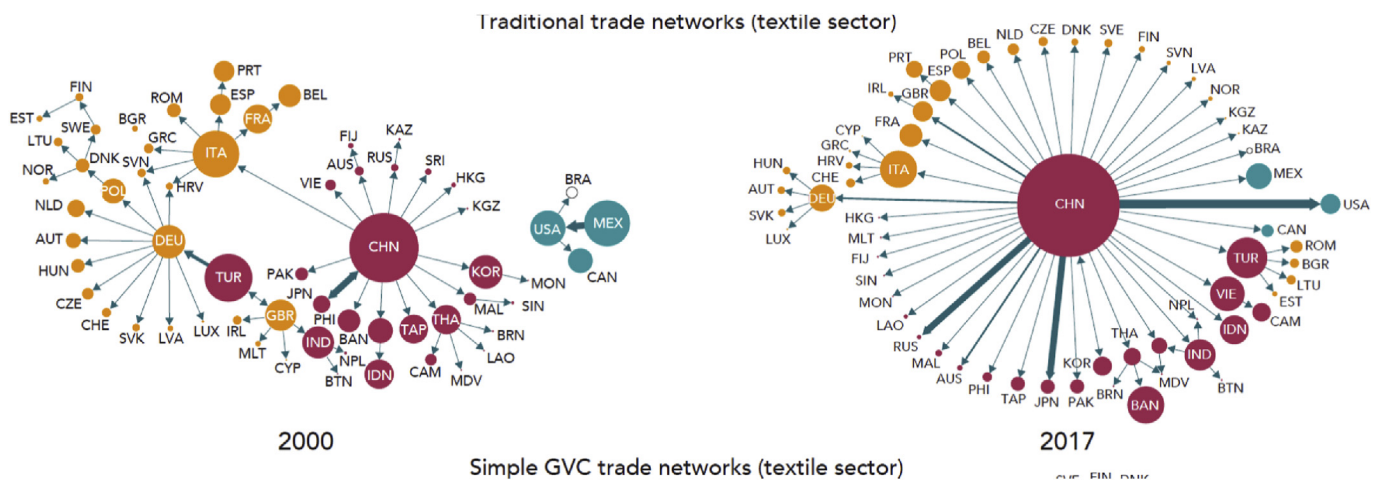


Fig. 2. Traditional trade networks in the textile industry
 Source: WTO Global Value Chain Development Report 2019, p. 29. The volume of the value-added flow between trade partners is indicated by the thickness of the line. The circles represent the relative magnitude of value-added exports.

costs, but will also increase firms' resilience against unexpected and long-lasting disruptive shocks. In that sense, it could be a very efficient move from the perspective of future costs. For global trade, the effect of a shock like COVID-19 will be that firms will try to lower risk and to increase their resilience by diversifying their supply chains, also by geographically shortening their supply chain, making them more regional or even national instead. As opposed to being wholly dependent on a single efficient supplier in China, they might opt for additional suppliers closer to home in, say, Europe or the US. This is the *border effect*, as introduced above, implying that COVID-19 could give rise to a changed risk assessment by firms that engage in international trade in vulnerable value chains. This implies a return to the "old-fashioned" multiple hub-spoke system of international trade such as the one depicted in the left-hand side panel of Fig. 2.

In addition, and irrespective of the precise configuration of a trade network for a particular sector, the increased uncertainty associated with international trade following (the perception of) an increased likelihood of global shocks like COVID-19 will stimulate all firms to be less reliant on global production chains and intermediate deliveries by keeping larger stocks or *buffers* themselves, on or nearby their production location. In the pre-corona lean-and-mean economy, increased "slack" was seen as sign of inefficiency and poor management; but in the post-corona times, buffers are likely to be regarded as a sign of a prudent and very wise strategy. Again, as in the case of the geographical diversification of deliveries, this implies a comeback of a "classic" strategy: keeping stocks to buffer against disruption of production processes. Then, just-in-time management is replaced by just-in-case management (cf. Alfasi & Portugal, 2004). 'Just-in-case' management implies the return of buffers, just like geographical diversification involves the comeback of borders.

5. International Business

So, what may the above analysis, taking primarily an Economics and Geography perspective, imply for IB's future research agenda? A key two-fold question is to what extent and how the future international economy will change due to the current COVID-19 shock, and how that will impact practices of enterprises that operate internationally. Would the current pandemic be seen, post-crisis, as a one-off and unique event, then many internationally operating enterprises will simply bounce back to their pre-corona "normal" practices. In this essay, we argue that this is an unlikely outcome of the worldwide COVID-19 outbreak, as many actors – from firms and governments to consumers and NGOs – will now realize that a shock like this is very likely to hit the world again, probably sooner rather than later. Pandemic outbreaks are anything but rare, and seem to emerge more frequently in current times of globalization. There are more and more of us, the homo sapiens, who like to travel abroad, and we live close to, if not together with, an increasing number of other species. New bacteria or viruses may emerge somewhere, jumping and mutating across species to the homo sapiens (and vice versa), to subsequently quickly spread across the globe. Since the 1980s, we had hiv, sars, ebola, mers, Mexican flu, COVID-19, and more. The next one is very likely to be waiting around the corner, somewhere local. And this next one might be equally contagious, and more deadly than the current corona mutant.

Consumers, firms, governments, and other actors recognizing this, will structurally downgrade their risk appetite, and include the benefits (and costs) of resilience in their decision-making. As a result, the modern variant of just-in-time globalization will be replaced with just-in-case partial de-globalization, triggering the comeback of borders (geographical diversification across supply chains) and buffers (substantial stocks

close to production sites). In value chains considered vital for society, governments may "force" this upon the value chain's actors. Switzerland is a case in point. Their Federal Office for National Economic Supply (FONES) can intervene in markets in order to 'plug' the gaps in essential supplies (see <https://www.bwl.admin.ch/bwl/en/home.html>). Internationally operating enterprises may well decide to adapt their strategies "voluntarily". From an IB perspective, this can be studied by examining the likely positive relationship between this strategic change, on the one hand, and both the industry's societal vitality and the chain's dependency on far-away supplies, on the other hand.

Declaration of competing interest

The authors state that there are no conflicts of interest, and that all three contributed equally to this commentary.

References

- Alfasi, N., & Portugal, J. (2004). Planning just-in-time versus planning just-in-case. *Cities*, 21(1), 29–39.
- Autor, D. H., & Dorn, D. (2013). The growth of low-skill service jobs and the polarization of the US labor market. *The American Economic Review*, 103(5), 1553–1597.
- Altomonte, C., di Mauro, F., Ottaviano, G., Rungi, A., & Vicard, V. (2012). Global value chains during the great trade collapse: A bullwhip effect?. In *Working paper series No. 1412*. Frankfurt am Mainz: European Central Bank.
- Autor, D. H., Dorn, D., & Hanson, G. H. (2013). The China Syndrome: Local labor market effects of import competition in the United States. *The American Economic Review*, 103(6), 2121–2168.
- Baker, S. B., Bloom, N., Davis, S. J., & Terry, S. J. (2020). COVID-induced economic uncertainty. In *NBER working paper No. 26983*. Cambridge, MA: NBER.
- Baldwin, R. (2016). *The Great Convergence: Information technology and the new globalization*. Cambridge MA: Harvard University Press.
- Baldwin, R. (2019). *The robotics upheaval*. Oxford: Oxford University Press.
- Baldwin, R., & di Mauro, B. (Eds.). (2020). *Economics in the time of COVID-19*. CEPR E-book: <https://voxeu.org/system/files/epublication/COVID-19.pdf>.
- Baldwin, R., & Evenett, S. (2020). *COVID-19 and Trade Policy: Why turning inward won't work*. E-book: <https://voxeu.org/content/covid-19-and-trade-policy-why-turning-inward-won-t-work>.
- Brakman, S., & van Marrewijk, C. (2019). Heterogeneous country responses to the great recession: The role of supply chains. *Review of World Economics*, 155, 677–705.
- Brakman, S., Garretsen, H., & van Marrewijk, C. (2015). Regional resilience across Europe: On urbanisation and the initial impact of the great recession. *Cambridge Journal of Regions, Economy and Society*, 8(2), 225–240.
- Financial Times. (2020). *From 'just in time' to 'just in case'*. May 4th 2020 <https://www.ft.com/content/f4fa76d9-aa11-4ced-8329-6fc8c250bc45>.
- Fingleton, B., Garretsen, H., & Martin, R. (2012). Recessionary shocks and regional employment: Evidence on the resilience of UK regions. *Journal of Regional Science*, 52(1), 109–133.
- Garretsen, H., Stoker, J. I., Soudis, D., Martin, R., & Rentfrow, J. (2020). Urban Psychology and British Cities: Do personality traits matter for resilience to recessions? *Journal of Urban Regeneration and Renewal*, 13(3), 290–307.
- Goos, M., Manning, A., & Salomons, A. (2009). Job polarization in Europe. *The American Economic Review*, 99(2), 58–63.
- Keynes, J. M. (1936). *The general theory of interest, employment and money*. London: Macmillan.
- Knight, F. H. (1921). *Risk, uncertainty and profit*. Chelmsford, MA: Courier Corporation.
- IMF. (2020). *World economic outlook*. Washington DC: IMF. April 2020.
- PIIE. (2020). *China should export more medical gear to battle COVID-19*. https://www.pii.com/blogs/trade-and-investment-policy-watch/china-should-export-more-medical-gear-battle-covid-19?utm_source=update-newsletter&utm_medium=email&utm_campaign=pii-insider.
- Scheidel, W. (2017). *The great leveler*. Princeton, NJ: Princeton University Press.
- Seric, A., & Winkler, D. (2020). *COVID-19 could spur automation and reverse globalization to some extent*. VOX EU. April 28: <https://voxeu.org/article/covid-19-could-spur-automation-and-reverse-globalisation-some-extent>.
- Terzidis, N., Brakman, S., & Ortega-Argiles, R. (2019). Labour markets, trade and technological progress: A meta-study. In *CESifo working paper series 7719*. Munich: CESifo Group.
- van Witteloostuijn, A. (1990). Learning in economic theory: A taxonomy with an application to expectations formation. *Journal of Economic Psychology*, 11(2), 183–207.