G20 INSIGHTS

Infrastructure Investment and Financing

G20 2020

Resilience Under Crisis: Proposals and Considerations for Regional and Other Trade Agreements

D. Ciuriak
Anton Malkin (Centre for International Governance Innovation (CIGI)),
Derek Ireland (Arthur Kroeger College, Carleton University),
Guy Stanley (Foresight Synergy Network, University of Ottawa),
Craig Wilson (OS MicroTrends),
David Wynne (CanCham Singapore)

October 7, 2020 | Last updated: December 10, 2020 *Tags:* *Competition Policy*, *Digital Economy*, *E-Commerce*, *Global Supply Chains*

With reference to major global developments including COVID-19, climate change, and digital disruption, this study positions WTO and RTAs reform as key to building robustness and resilience in global supply and value chains. The overall focus of this paper is to combine the demand for resilience posed by the COVID-19 pandemic with addressing concurrent trends in competition and the digital economy. A variety of recommendations are provided; taken together, these aim to inform the further development and implementation of RTAs for a global economic stewardship led by a refurbished WTO. Issues covered include (a) Supply Chain Management; (b) Competition implications of the COVID-19 pandemic and other global crises; (c) Including Workplace Safety Standards in RTAs to protect the integrity of at-risk Global Value Chains (GVCs); (d) Updating TRIMS for the Twenty First Century; (e) Disruption: Digital connectivity, Data Storage/Security; and (f) Principles and Norms for proportional burden-sharing and snapback provisions. Alongside the recommendations in the above areas, the study introduces the concept of a resilience dashboard designed to aid policymakers in assessing the risk and impact of various national trade responses to the COVID-19 pandemic. This policy brief speaks to the ongoing work in the T20 on trade, investment and growth; economy, employment and education in the digital era; and multi-disciplinary approaches to the COVID-19 pandemic crisis.

Challenge

The COVID-19 pandemic is our wake-up call to re-balance global and regional trade relations to account for new, more complex challenges to global governance and effective responses at global, regional and local levels. The new governance challenge is broadening frameworks developed for the exchange of goods and services, to incorporate stronger collaboration and coordination on norms and standards for global and regional cooperation in pandemics, natural disasters, and to minimize risks and impact of disruptive climate change.

We recognize that the responses to the issues laid bare by the COVID-19 crisis will inevitably have to be layered onto policy reforms to address a growing number of concerns about the functioning of the multilateral trading system that call into question the adequacy of the World Trade Organization (WTO) rules framework. It is well beyond the scope of the proposals to address this broader waterfront of concerns. However, by way of delineating the scope of our treatment, we make a number of observations concerning how the COVID-19 issues relate. In particular, the pandemic crisis has amplified concerns about:

- the offshoring of manufacturing leading to the loss of the industrial arts in the advanced industrialized economies;
- the extent to which China has become a critical part of global value chains in a context where it is treated as a strategic competitor by the United States and the European Union (and hence concerns about "weaponized interdependence");
- the need for substantially greater policy space for national governments in an age where the major challenges are primarily of a "public good/bad" nature, including not only the pandemic, but climate change and the emerging data-driven economy; and
- the more or less extreme (depending on the country) skewing of income distribution, for which trade (and globalization more generally) absorbs the lion's share of the blame in the public commentary; and,
- although the analytical record assigns responsibility primarily to the technology-driven emergence of an economy with "winner take most" characteristics and domestic policies whose pursuit of efficiency (measured in returns to capital) off-loaded the risks of the market economy onto workers and households (e.g., through so-called "flexible" labour market policies).

The rules-based framework under the WTO was well-suited for the globally competitive industrial economy of the postwar period that progressively integrated developing countries into the global division of labour and provided them the access to modern technology. It was not so well-suited to addressing the international rivalries induced by the knowledge-based economy based on advanced disruptive technology and intellectual property – indeed the tensions over TRIPS were an important reason for the breakdown of the Doha Development Round. And the WTO system is not at all prepared to deal with the still-larger issues raised by the data-driven economy built on the technology nexus of Artificial Intelligence/Machine Learning/Big Data. The development of an inclusive economic rules framework that provides for effective participation in the data-driven economy and sharing in its benefits by developing countries stands as one of the major challenges of the post-pandemic era. The acceleration of the digital transformation by the pandemic, which has naturally favoured digital modes of commerce over physical modes, brings forward in time the urgency of dealing with those issues.

In general, we note that the pandemic raises concerns that are centred on problems of negative externalities (contagion) and thus necessarily drive a state-led response that will involve considerable investments in pursuit of a public good (health). The same is true of the data-driven economy, which generates both strong positive externalities related to the benefits of technological change and hence invites public sector investment, but also raises the risk of powerful negative externalities due to the propensity for market failure and abuse of dominance, which calls for strong public sector regulatory responses in areas ranging from privacy and consumer protection to competition and workers' rights. A sound response to the pandemic will perforce, in our estimation, dovetail with a sound response to

the issues raised by the digital transformation, not to mention the still larger concerns raised by climate change, and the need to rebalance income and wealth within societies given the stark revelation of inequities which the pandemic has exposed in the current system.

This paper will analyze challenges and lessons learned, including the important regional role of existing RTA's, and recommend future governance action on trade related agreements and collaborative support actions by multilateral agencies to support better response to disruption. Themes balance immediate needs with a longer-term goal of building robustness and resilience into a global system that pivots on commitment to multilateralism. Existing international institutions and agreements – in particular the World Trade Organization – are the focal point of analysis, but the principles and recommendations herein should benefit a variety of existing and new RTAs.

Alongside building robustness and resilience in supply chains, the explosion of the digital economy means rethinking how to regionally manage global value chains. WTO and RTAs must be updated to provide controls to manage this; our paper focuses on TRIPS, TRIMS, and competition policy as key starting points. More specifically, the sections are as follows:

- Supply Chain Management
- Competition Implications
- Workplace Safety Standards
- Updating TRIMS for the Twenty First Century
- Disruption: Digital connectivity, Data Storage/Security
- Principles and Norms for proportional burden-sharing and "snapforward" provisions
- Resilience Dashboard(s)

Proposal
2. Supply Chain Management. D. Ciuriak.

The COVID-19 pandemic has hit at a period of significant change in global manufacturing and trade, particularly in the emergence of global value chains (GVCs). Over the same period, China has become increasingly central to many of these chains as both a supply and demand hub, and has been providing increasingly advanced technology as inputs. Supply chain issues encountered in the rolling shutdowns in the globalized production system have led to consideration of strategic restructuring to reduce risk.[1]

An unfortunate and ill-conceived aspect has been the emphasis on repatriation of supply chains. Of particular concern from a systemic perspective are public subsidy programs to support repatriation of supply chains. For example, India has announced a $6.6 billion subsidy program to attract manufacturing away from China and Japan has announced $2.2 billion subsidy program to support supply chain diversification by Japanese manufacturers, also from China.[2]

Robustness of supply chains, however, is not guaranteed by reshoring or nearshoring; what matters is redundancy of sources of supply as a diversification strategy – dual or multiple sourcing for critical components, not only for upper-tier suppliers, but for lower-tier ones as well.[3] This should be left to the private sector – see for example the adjustments made by Japanese auto firms to diversify their sourcing following the 2011 earthquake.[4]

Repatriation only shifts the locus of risk, since every economy is at risk of shutdown – intra-regional supply chain disruption has been experienced within the United States when meat-packing plants were shut down due to breakouts as well as within China when Hubei Province was shut down. Further, an event such as the pandemic creates disruptions across many dimensions, interrupting not only flows of inputs from supplier factories as these shut down, but also restrictions on labour movement due to quarantines, and cancellation of normal transportation (cancellations of routes or "blank sailings" by freighters; and cancellation of passenger airline flights, which normally carry about 50% of global air freight). Adjustments to own supply chain would not be in a position to control for risks affecting the general operating environment of a company.

Robustness of supply chains can be distinguished from resilience (the ability to restore production after a shutdown) [5] and from self-insurance for critical supplies through strategic stockpiles and perhaps some degree of production capacity. Given that all firms work with some degree of excess capacity that can be drawn on to meet surges, networks with distributed surge capacity are likely to be much more resilient and capable of efficiently meeting spikes in demand for particular goods (such as masks or PPE) in any one region compared to self-insurance by each country by maintaining excess capacity to meet own surge needs. In other words, the self-insurance should be focussed on maintaining adequate strategic stockpiles, rather than excess production capacities calibrated to meet peak needs.

Indeed, investing in strategic nationalism rather than restoring a trust-based trade system will predictably require much greater excess capacity to meet own surge requirements. The total surge capacity of the world as a whole will be substantially greater than needed, even as other needs are left unaddressed by the misdirection of investment, and the inefficiency will drive protectionism. Some quantitative supporting evidence is provided for these by Bonadio et al. (2020), who show an average real GDP decline due to the pandemic shock of -31.5%, of which -10.7% (or about one-third) is due to transmission through global supply chains, while in a world with re-nationalized supply chains, the average GDP decline would have been even larger at -32.3%.

This result emerges because eliminating reliance on foreign inputs increases reliance on domestic inputs; while this reduces the shock by 4 to 6 percentage points in countries with less severe lockdowns (e.g., the approaches adopted by Japan, Taiwan, Greece and Sweden in the first phase of the pandemic), it increases the shock by about 4 percentage points in countries with more severe lockdowns. For the latter economies, the supply of the domestic intermediate inputs falls by more than the supply of foreign ones, and thus the GDP contraction is larger when supply chains are renationalized. The authors thus conclude: "Whether renationalizing supply chains insulates a country from the pandemic depen ds on whether it plans to impose a more or less stringent lockdown than its trading partners."[6]

This area requires the establishment of new international norms and quick-response coordinating mechanism to minimize overtly "beggar-thy-neighbour" behaviour in a crisis and to ensure restoration of normal trade as soon as possible. The focus will need to be on rebuilding trust after the many mis-steps observed by the international community on hoarding in the early months of the pandemic.

3. Competition Implications. D. Ireland PhD

National and multinational competition rules take on even greater significance in a world where healthcare, economic, financial, environmental, and related crises as well as external shocks – such as rapid technological change and disruptive innovation; Schumpeterian dynamic competition; and markets and national economies out of equilibrium — become the new normal. During the crisis and recovery period, reliable market access and access to essential materials, components, facilities, technologies, and national and global supply chains – and flows of goods, services, investment, data, information, ideas, technology and innovations across national and social boundaries — should not be impeded by competition law violations and overly permissive enforcement of existing competition rules.

Better than 135 WTO member states now have competition laws and authorities. And while there are no comprehensive competition rules within the WTO or any other multilateral body, the WTO has many competition references in their agreements and processes including: GATS/services, TRIPs/intellectual property, TRIMs/investment measures, GPA/government procurement; and in the WTO's accession and trade policy review processes. Moreover, 80% of the 280 or so regional trade agreements in the global economy contain dedicated competition policy chapters and provisions, as well as less detailed provisions on the importance of competition for trade – with the biggest RTA of them all, the EU, often playing the leadership role. Recent years have seen growing convergence in the RTA subject matter with emphasis on: existing competition laws andtheir effectiveness and future development; the prohibition of anti-competitive practices; regulation of SOEs and designated monopolies based on competitive neutrality; and information sharing and enforcement cooperation.[7]

These RTA provisions and WTO references, and the ongoing work of the WTO, OECD, UNCTAD, International Competition Network (ICN), and other international organizations provide a strong foundation for promoting and protecting competition during the crisis and recovery periods, and for rebuilding and reinventing the competition and trade interface after that.[8] During these periods of crisis, recovery, and reinvention, the WTO, RTAs, other international organizations, and their member states should expand and modify their competition provisions, references, rules and processes with special attention to:

- Minimizing the relaxation of competition rules; and going back to normal and correcting any enforcement and other errors as quickly as possible during the recovery period; regarding e.g. crisis cartels; pre-emptive, failing firm and other problematic horizontal and vertical mergers; other horizontal arrangements between firms; and efficiency and innovation claims not achieved.
- Applying competition standards and rules and a competition lens to anti-dumping, subsidy and countervail, safeguards and other trade relief, emergency measures and "crisis exceptions".
- The manifold interactions between competition rules and other policy, legal and regulatory regimes on e.g. consumer protection, privacy, big data and the digital marketplace, corporate governance, bankruptcy, and intellectual property rights and innovation.
- Cross-border consumer deceptions, misrepresentations, and frauds.
- Competition matters that raise inequality and negative distributional concerns within and between member states such as significant harm to lower income and more vulnerable consumers, smaller businesses, small entrepreneurial start-ups, individual creators, inventors and innovators, and less developed economies — in short, "beggar-thy-weaker-neighbour" (as mentioned in Section 2 above) relaxation of competition rules should be avoided.
- Cross-border and domestic abuses of monopsony and oligopsony buyer power that reduce wages, workplace safety, workers' rights, and related labour standards, and incomes of small farmers, other resource producers, and small upstream businesses through no-poach agreements and other buyer collusion.
- And enhancing the effectiveness of information exchange and enforcement and other cooperation between member states and their competition authorities.

Modifying and updating competition rules and references to accommodate these new realities and challenges will require action at all spatial scales. The WTO should revisit and revise its current competition references, update the earlier work of the WTO Working Group on the interactions between trade and competition policy, and explore whether a consensus is emerging to resume negotiations on incorporating trade and competition rules more directly into the WTO system — in light of the global crises of the past two decades and the new challenges posed by climate change, inequality, and digital connectivity and markets at the global scale. UNCTAD could address the challenges and lessons learned from the Covid-19 pandemic and the earlier 2007-2009 global financial crisis and economic recession when the UN Set of Principles and Rules for the Control of Restrictive Business Practices is being revised and updated, which is expected to begin later in 2020.

Turning to the regional scale, with a few important exceptions such as the region-wide competition commissions of the European Union, COMESA (Common Market for Eastern and Southern Africa) and CARICOM (Caribbean Community), most of the heavy lifting on changes to competition policies, laws and enforcement practices and priorities will be the responsibility of RTA member states (MS). Nonetheless, important contributions will be required from RTA secretariats and their competition officers and advisors including: advice, guidance documents, technical assistance, and information and lesson sharing through meetings and RTA digital platforms on such matters as:

- guidance and leadership role in building MS consensus on making the required changes to RTA competition provisions and practices;
- improvements to, greater convergence in, and filling gaps in national policies and laws such as strengthening merger control and the enforcement of competition laws in digital markets;

- challenges and lessons learned from Covid-19 and previous crises regarding for example failing firm mergers, excessive pricing/price gouging, increases in cross-border consumer scams and frauds, anticompetitive government subsidies, and structuring horizontal and related arrangements between firms in a manner that meets public interest needs during the crisis with minimum harm to competition and consumers; and,
- general guidance on how to address and mitigate the almost inevitable reductions in competition associated with major regional and global crises as a consequence of for example business bankruptcies, regional and global supply chain disruptions and failures, and reduced international trade and foreign investment flows.[9]

4. Including Workplace Safety Standards in RTA's to protect the integrity of at-risk Global Value Chains (GVCs). D. Wynne

Apart from an appalling loss of life, the major effect of COVID-19 has been to slow or halt economic activity and growth in much of the globe, adding to the tragedy with widespread business closures and job losses. The massive and still-growing levels of unemployment are fueling populist pressure to "take back" jobs that have been off-shored, in particular to China. While governments are fully aware it was similar 'beggar thy neighbour' policies which led to the Great Depression, these political pressures may prove irresistible as evidenced in political platforms of both the right and left. Against a background of climate change, environmental degradation, increasing resource constraints, expanding income and other inequalities within and between nation states, and global shifts in the centres of wealth and power – importantly reactions to a rising China – all of which demand more, not less, from the structures and institutional arrangements of world trade[10] and which might otherwise serve as a foundation for managing these crises, provide conditions for a perfect storm.

Most under threat are Global Value Chains (GVCs), [11] the dominant structures underlying international trade, those often intimate and complex international relationships of production and distribution. By connecting companies, employees and consumers, global value chains (GVCs) influence the structure of international trade with effects on countries' GDP, employment and ultimately on the global economy.[12] The importance and value of GVCs to global economic growth and development is well documented, being responsible for most of the economic development that has taken place over the past thirty to forty years.[13]

The characteristics of GVCs and what has made them so successful have relied on a complex set of prerequisites, including the need to invest in infrastructure, institutions, services, labor force, and in general trade and business environment – and where the confidence to undertake these investments has arisen from signed trade agreements.[14] Once destroyed, the confidence to rebuild may be difficult to resurrect. If global trade were seen in ecological terms, GVCs would be the keystone species.

And while the pace of growth in GVCs in world trade has slowed since 2008, according to OECD approximately 70% of international trade remains within GVCs. [15] COVID-19 has to date impacted every link in global GVCs, from the availability of raw materials, intermediate components and finished goods, to the storage, delivery and sale of these items, and the movement of labour.[16]

Clearly China and other East and South Asian economies have benefited from the rise in GVCs, but the benefits have not been one-sided. In many cases the largest share of returns accrued as returns on intangible capital – royalties and licenses, trade monopolies from intellectual property and know-how and technical and managerial expertise – as well as by enlarged markets and increased profits.[17]

However, these returns have not been equally shared by workers including in developed countries and have contributed to income disparity, which provides additional support and fuel for populist anger and protest. The calls to repatriate and localize production have also been bolstered by appealing to fears of unfair competition from those economies and industries with lower standards of occupational health and safety. This includes industries which can avoid scrutiny, take advantage of workers desperate enough to risk unsafe conditions, and those subject to unscrupulous hiring practices. It also includes governments willing to risk their citizens' lives and health in the interests of the economy. While these are not unreasonable suspicions given credible reports of forced and slave labour in Asian industries[18] it also reflects badly on the hypocrisy of those developed countries taking the same risks with their own workers while pointing fingers elsewhere.

Systemic Risk

The second risk to GVCs is systemic. The present focus on re-opening economies and the accompanying re-starting of manufacturing and processing facilities will expose employees and other workers, across a wide range of industries to various degrees of risk of infection. Absent a vaccine(s) or effective treatment(s), new cases of infection carry the attendant risk to company operations and the wider risk of disruption and damage to the global trading system.

While companies may mitigate these risks by adopting a range of strategies, including inventory management, reserves of components and materials, adopting common core products etc, risk still obtains from other partners in the chain, including production delays and stoppages and their related financial health. As with any chain, a GVC is only as strong as its weakest link. And unlike other disruptions, where a Plan B strategy might include establishing alternate sources of supply (such as adopted by Japanese auto manufacturers in the 2011 Tohoku earthquake and tsunami)[19] this strategy can be nullified in the context of a global pandemic.

WTO generally eschews standards vis-a-vis occupational health and safety, with well-rehearsed objections and considerations, deferring these to the ILO. [20] However, as noted above, the COVID-19 pandemic has introduced wider risks of collateral damage not only to general occupational health and safety but to economies and the trading system as a whole.

While we recognize possible resistance to mandating levels of workplace safety in any new agreement on the grounds these may be interpreted as a form of labour standard, we argue the inherent risks to the trading system, particularly in the context of risks to disruption of critical GVCs, may serve to set COVID-related workplace safety apart from other areas of occupational safety, worker welfare, humanitarian concerns and jurisdictions.

We suggest two main supporting arguments: first, managing this risk will be important, not only for workers, the company and health authorities, but for all stakeholders – buyers, suppliers, insurers, shareholders, consumers, financiers et alia. This is particularly important in critical GVCs. As risk levels may be correlated to COVID-19 safety protocols at both national and workplace levels (testing, PPE, workplace design and layout, worker tracking, worn technologies, production processes. community spread, transparency, data sharing etc), this suggests a place in WTO and RTA's for common, mutually recognized, verifiable and enforceable workplace safety standards.

"The pandemic has transformed our perceptions of who are "front line" and "essential" workers and this should make its way into the core ILO standards. (For example) meat plant workers being required to go back under unsafe conditions is an example that might usefully trigger trade sanctions since the issue is about the cost of restructuring operations to make them safe, not about the ability to do so. When it's about the money, trade agreements should properly kick in since countries that spend the resources to make meat plants safe face higher costs."[21]

These standards could well be developed and managed under the aegis of the ILO, but where the jurisdiction of sanctions and remedies would remain within the authority of the respective agreement.

These could follow from the labour provisions in the USMCA Labour Chapter which:

- Requires the Parties to adopt and maintain in law and practice labor rights as recognized by the International Labor Organization (ILO), to effectively enforce its labor laws, and not to waive or derogate from its labor laws.
- Includes new provisions that require the Parties to take measures to prohibit the importation of goods produced by forced labor, to address violence against workers exercising their labor rights, to address sex-based discrimination in the workplace, and to ensure that migrant workers are protected under labor laws:[22]

As noted by D. Ireland above, we also recognize that during a crisis, secure and reliable market access to essential materials, components, facilities and technologies should not be impeded and prevented by relaxation or abnegation of existing rules. Our suggestion is for workplace safety standards to provide a framework for both defining the exceptions for the temporary relief from anti-competitive and related regulatory provisions and rules; and providing remedies for non-compliance arising from the possible encroachment of anti-competitive behaviours and violations, in particular by those with the power of monopsony or oligopsony in labor and other input markets which, as well as being disruptive and harmful to competition, trade, consumers, workers etc. create the additional risk of GVC failures. Such anti-competitive and damaging behaviors might result for example, from an embargo on exports from a given country on the basis of unsubstantiated COVID-19 related risk,[23] and [24] or where deeming workers to be self-employed might be used to remove them from workplace safety regimes [25] while still posing a systemic risk.

While multilateral agreements are widely accepted as the best way forward, for the past two decades most of the liberalisation outside of purely unilateral opening has occurred at the regional level. [26] 17 In recognizing workplace safety as a critical function in maintaining the integrity of the trading system, while at the same time introducing these in a regional context, RTA's could demonstrate the value of mutually recognized, verifiable and enforceable workplace safety standards as a means to mitigate both supply chain risk as well as avoidance of related anti-competitive behaviors.[27] [28]

5. Updating TRIMS for the Twenty First Century. A. Malkin PhD

The WTO's rules governing cross-border investments need to be broadened to allow for more flexibility to create policies to counter the anticompetitive outcomes that might arise from M&A associated with the transfer of intangible assets from domestic firms to foreign ones. In particular, rules pertaining to Article III (national treatment) could be loosened to allow for policy space for authorities to address the anti-competitive outcomes of cross-border trade involving data and other intangible assets.[29] As the 'new normal' of work and commerce makes emerging technologies take on more fundamental roles in our economies (prime examples being teleconferencing, e-commerce, and biotech) the urgency of updating global trade rules to better govern cross-border M&A involving these technologies, as well as large multinational firms' ownership of these technologies, gains new urgency. The following issues need to be considered to properly update the WTO's TRIMS provisions to reflect novel and long-standing realities associated with cross-border intangible economy governance.

To begin, some countries have begun to look at the intangible economy—defined by the rising share of patents, copyrights, trademarks and data as sources of growth and revenues of national economies and global supply chains—as a form of infant industry promotion.[30] While there has been a long-standing debate surrounding the utility of strong intellectual property protection for developing economies,[31] developed economies have also begun to reconsider whether protecting foreign firms' claim to intangible assets located in their jurisdictions is conducive to innovation and long-term, sustainable economic growth. Developed economies are increasingly instituting restrictions on foreign direct investment, which most prominently include data localization laws (notably in East Asia), as well as emerging recent moves by India to ban Chinese social media apps, as well as the US extraterritorial campaign against the buildout of 5G networks using Chinese-originating hardware (most notably Huawei equipment). These moves reflect geopolitical considerations that threaten to upend global digital interconnectedness.

Before these restrictions further exacerbate the decline of trade and investment that has beset the global economy since the outbreak of COVID19, [32] it is important to ensure that TRIMS, and the foundational GATT agreement on which it rests, are updated to account for policy challenges and international frictions associated with the emergence of the intangible economy. These updates may either broaden the scope of TRIMS or create a new chapter of the GATT that accounts for fundamental changes in global trade and investment precipitated by the expansion of the digital economy. Here, we suggest that these amendments take into account the following realities:

- Many intangible business models are rent-based and not inherently conducive to fair competition. This creates a dilemma for policymakers that wish to create an open investment climate, while preventing instances where domestic innovators do not have room to operate in global markets, where large multinational firms have built up firewalls of patents and copyrights to block competitive challenges to their technologies and business models.
- Even greenfield investments by large multinational firms can raise entry barriers for new entrants due to pervasive network effects of proprietary technology of data and other intangible assets.
- The concentration of market power and growing market entry barriers in industries ranging from telecommunications, to e-commerce, and digital platforms.

At the same time, FDI provisions should not impede foreign investment on spurious grounds. As such:

- FDI restrictions by policymakers aiming to lower market entry barriers for their domestic firms should be limited only to circumstances where policymakers can show that the competitive environment will be significantly reduced by a greenfield investment or M&A transaction.
- National security concerns should be handled separately from intangible asset ownership. Clear provisions and definitions are needed for "dual use" technology under GATT XXI, to avoid abuse and rent-seeking and regulatory capture by entrenched commercial interests.
- Definitions of strategic industries need to be updated to delineate where restrictions can be applicable beyond traditional sectors like natural resources.

New regulatory frameworks for cross-border investment and data flow restrictions also need to reflect both new and long-standing governance gaps in global coordination and enforcement of competition policy. The next section lays out these issues with an eye to recent changes prompted by the expansion of the digital economy and trade in intangibles.

6. Disruption: Digital connectivity, Data Storage/Security. E.C. Wilson.

Unprecedented demands of the COVID-19 pandemic have highlighted major weaknesses in the resilience of the global economy, from the delivery capacity of national healthcare systems to systemic stresses on digital support systems. The virus response has reinforced state powers to enable massive economic interventions to replace lost income, and securely monitor personal movements to achieve lower curves for healthcare demands; but this also magnified leadership challenges to resolve healthcare equipment and personnel shortfalls and maintain public support on isolation, testing and contact tracing regimes. The importance of digital connectivity, especially residential broadband capacity has also been highlighted by the nearly 2 billion workers directed to commute digitally and adopt new software and data technology solutions from their homes.

The COVID-19 crisis also stressed existing market rules on delivery of health care supply needs, amplified by nativist calls for the national re-shoring of big data analytical support and access concerns over national data stored abroad. This reality only increases the potential digital disruption of 5G, multi-cloud data storage and big data analytics. In 2020, un-collaborative stances of large trading nations have already created access, tax and rent allocation strains which cannot be mediated solely via global competition policy and IP patent regimes. These include attempts to create dominance in global data services and cloud storage, with emerging trade and jurisdictional tensions over contested global rents, further stressed by geo-political powers and financial/economic distortions.[33]

In this new digital age where data increasingly drives economic growth, the traditional tariff-focused management of trade flows, has been upended by new digital services, including financial transfers, and cloud data storage capacity with new security layers of block chain secure encryption and cloud access security brokers. These evolutions – which vastly outweigh trade in goods – render the WTO's current services framework inadequate to meet demands for modern data and services governance of anti-competitive behaviour.

The severe stresses of COVID-19 reinforce this requirement for a systemic governance response that builds resilience to these global challenges of natural or environmental disasters and level access to the online retail world which may reach 30% in Asia before 2025. We consider this scale will require a comprehensive WTO negotiation of an adequate framework for national governance within an increasingly cloud dominated international services environment. Such a framework would need to include data governance obligations,[34] and issues arising from anti-competitive behaviours under the guise of relief from pandemic and other disruptions.[35]

There are positive examples for early, low-cost and inclusive progress on a digital framework for the 21st century, such as Estonia's on-line efficient governance model. [36] Until the major players determine it is in their interests to initiate a formal WTO negotiation process, RTAs can provide a forum to explore regulatory innovations to establish global norms and standards for the digital economy. RTAs have tariff-controlled trade agreements but can often be helpless in global trade with ubiquitous dominant powers involved. This said, they can advance a uniform set of controls, especially in larger markets, and can explore new approaches on established rules, especially investment, intellectual property, subsidies and market framework as well as competition policies for a digital cloud world.

We consider the political will and discipline to accept institutional mediation and contain future conflicts awaits leadership consensus and multilateral collaboration. An example that highlights the importance of these considerations is the recently announced UN high-level panel, chaired by Melinda Gates, and Jack Ma, to report on digital interdependence. This panel highlights "permanent platforms of co-operation, multi-stakeholder approach" to flexibly engage governments, companies, research centres and NGOs to exchange best practices or set boundaries for new tech capabilities like multi-cloud storage, AI, quantum computing and the internet of things.

Digital transmission/data taxes

Efforts will accelerate to address the far-reaching revenue implications that new technologies, driven by digitalization and multi-cloud/multi-nation storage, have for existing tax systems. These revenues create a desire to collect taxes in the jurisdiction where services are contracted, value is created, delivered and purchased – rather than in a tax domicile selected for friendly low rates. Data/connectivity

disruptions will also exacerbate existing tensions created by shifts from supply chains, controlled by tariffs and data server technology, to multicloud-based software driven technologies, where global data fabrics link stacked layers of applications and efficient algorithms drive market success.[37]

The weaknesses of existing tax systems, designed for earlier economic structures like tariff-based trade in goods, will receive increasing attention as COVID-19-imposed constraints create opportunities for base erosion and profit shifting (BEPS). It will require bold moves by policy makers to resist normalizing these changes, both to maintain confidence in current systems and ensure that revenues/profits are taxed where economic activities take place and value is created. Proposals and measures are beginning to emerge in various jurisdictions, from digital transmission taxes to national storage regimes.[38]

Some progress is occurring via the Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting, developed by 100+ countries and jurisdictions. RTAs also have the potential to creatively expand on OECD policy recommendations, and pragmatic adoption of regional opportunities. As an example, some flexibility emerged when Facebook recently moved to pay media providers for content. These are opportunities for creating potentially vast new markets, and where RTAs might creatively lead the way.[39]

7. Principles and norms for proportional burden-sharing and "snapforward" provisions. G. Stanley PhD

As earlier sections in this research paper have discussed, COVID-19 severely tested the robustness of the global trading system and, as economies begin to reopen, is beginning to test its resilience, especially with regard to the norms and principles underlying WTO global agreement and the family of associated RTAs. Among the foremost were challenges to reciprocity and proportional burden sharing, especially in regard to medical equipment and PPE, and now, with over a hundred candidates under test for vaccines, for general access to such vaccines as may emerge within a year or two. And, yet, contrastingly, one of the robust elements of global cooperation, has been the continued scientific collaboration on defeating COVID-19, including prophylactic methods, hospital treatments and new research. This global cooperation in scientific research is likely to become even more important as nations ready themselves for the next global challenge, a meaningful attack on the causes of global warming and the massive reduction of reliance in hydrocarbon energy. (A foretaste of this occurred early in the spread of the pandemic as countries began shuttering their economies to the near total detriment of oil prices.)

This challenge is not without precedent: the oil crisis of 1973 posed a challenge of a similar scale to the industrial economies, most of which were members of the OECD. The OECD responded by becoming the midwife for a new, independent multilateral agency, the International Energy Agency, which created a framework for building international resilience and proportional sharing with the cooperation of the global oil industry. The question this example raises is whether the WTO should similarly generate an agency for anticipating extreme stress on trading relationships and help countries and industries prepare to meet that stress with explicit agreements, strategic stockpiling and mutual aid undertakings – even drills. COVID-19 is surely not the last pandemic that mankind will have to face. Meanwhile, climate change, extreme weather events and "green" legislation will also very likely impose challenges to the current rules-based system. WTO should consider developing a unit to help RTAs handle their responses in conformity to trading system norms, including proportional burden sharing. [40]

Additionally, it is becoming clear that the "centrality of technology" will be even more important in the post-COVID-19 world than before. [41] The earlier sections of this paper have drawn attention to what were pre-COVID-19 trade issues coloured by technology, such as TRIPS and TRIMS, competition provisions, and the management of GVCs. From the standpoint of norms and principles, the concept of technological barriers to trade should also be noted and contrasted with technological facilitators of trade.

For example, "dual use" computer components, such as microprocessors, are huge trade enablers, especially of ecommerce transactions. At the same time, they may expose whole trading systems to national protective action on national security grounds, often without objective evidence beyond its mere proclamation. The dispute over Huawei 5G telecom equipment is a conspicuous example. [42] This level of application of the national security exemption exceeds the normal boundaries of a trade law dispute and should not be waved away as a normal use of a GATT trade rule.

Less dramatically, the architecture of technological systems and devices is made of mutually compatible and incompatible components. These can be arranged to inhibit communication with some devices while simplifying it with others (as in the Sony-VHS contest, or EU v US TV standards). In the analogue world of the 1970s, these were national disputes, but applied in a digital world, they become global issues. The world has already normalized the Apple-Microsoft OS differences – to the detriment of 3rd party solutions such as Linux – a spectacular example of rent extraction that national authorities have been powerless to reverse.

Similar examples are beginning to emerge in financial services, in which digital banks face opposition from conventional banks, disputes which inevitably will affect international payments, flows and costs. Further contested areas are sure to intensify around blockchain and smart contracts, such that the terms of those contracts – even for publicly traded companies – are securely hidden from eyes other than those of the contracted parties. Other potential barriers to commerce may be created by national "firewalls" against illicit exploitation of social networks, restrictions on the design of social media apps and the functions they combine, and the uneven impact of business models such as digital platforms and their operational capacities and standards.

Some of these are discussed in the earlier sections of this document. Here, our aim is simply to underline the emergence of a new category of barriers and facilitators to global commerce and the need to develop a common framework for managing them. These are examples of public "goods" and public "bads" that countries have to address. It must also be emphasized that there is a global dimension to the actions members of a global trading system take in addressing them. An additional aspect of importance for the WTO is that in the absence of global and regional standards, the main tools for addressing these issues will be domestic policy tools, such as competition policy, privacy, intellectual property measures, national technical standards, and so on. The WTO is perhaps best positioned among other multilateral agencies to take a leading position on ensuring trade-compatibility among its member countries and in collaborations with other agencies in the multilateral family.

To that effect, in addition to the development of an analytical and "coaching" facility to help RTAs prepare for the global system stressors that lie ahead, the WTO might consider a role in coordinating the creation and maintenance of a "dashboard" of performance indicators of progress towards a more resilient trading system – from pandemics, to global warming, to reduction of technological barriers to trade while advancing technological immunity to malware, hacking shocks and legitimate protection of commercial privacy.

One thing is clear: In the "snapforward" post-COVID-19 world, the WTO will also have to renew itself: from a body concerned with transactions to one more concerned with the structures that enable those transactions, from a theory-based quasi-judicial body to a data driven analytical expert on a dynamic global trading system, equally expert in dispute resolution and avoidance.

8. Resilience Dashboard(s). E.C.Wilson

The purpose of the resilience dashboard proposal below is to measure the impact of various trade responses to a new disruption. COVID-19 is the current example, but it is designed to be applicable for future crises. Measuring not just the consequences of the disruption itself but also policy responses is essential, as trade policies (e.g. repatriation of supply chains) may exacerbate economic damage, undermine trade norms, and otherwise put the international economic system at risk.

The global governance approach to systemic hazards is largely ad-hoc, and COVID-19 has amply demonstrated its inability to effectively manage cross-cutting shocks and black swan events. This is especially problematic if we assume an increasingly frequency of crises that ignore traditional sectoral boundaries and bureaucratic silos. While efficiency concerns have dominated analysis of trade disruptions to this point, pandemics and other natural crises require a greater focus on resilience – society's ability to absorb and adapt to change and prevent systemic breakdowns.

Complex systems involve multi-layered interactions, across a variety of people, sectors, institutions, and policies—interactions driven by feedback loops, path dependencies, time lags between cause and effect, and tipping points that demand more comprehensive, networked and collaborative approaches in implementing truly effective responses.

Building a resiliency dashboard requires an analytical framework that includes the following considerations:

- The reality of systemic hazards: complex, uncertain, and ambiguous, system hazards require new metrics on decision criteria, with input derived from a consensus set of principles [43]
- An emphasis on robustness: decision-makers should target robust, rather than narrowly optimized, choices capable of delivery across wide range of future scenarios.
- Flexibility in design: Choices incorporating flexibility to take advantage of opportunities across a variety of future interventions, without unduly constraining future implementation options.
- Cross cutting metrics: Developing metrics that cross sectors and siloes to fill a dashboard that conveys a robust performance/resilience picture for leaders.
- Transparency and accountability: Underlining the critical need for ongoing transparency and accountability and how best to achieve results among the diverse array of both siloed agencies and revenue-challenged private business.
- Improving measurement: An emphasis on better measuring degrees of disruption in different scenarios and policy choices, such as the impact of governance decisions and supply uncertainties.
- Inter and intra governmental collaboration: It is desirable to assess how specific trade-related actions may be leveraged, where organizations, agencies, officials and government can improve collaborative efforts to augment support, and how collaboration between these actors can best focus on critical issues and improve awareness of required responses to a crisis.

With these factors in mind, key indicators for a resilience dashboard that could inform policy decision makers and leaders could include:

- Reporting on agency/private sector collaboration in measuring critical resilience issues such as impact/degree of disruption, supply interruptions, weak commitment to existing emergency plans, and deliberate disinformation impeding public acceptance of rigorous new testing and isolation and contact tracing regimes;
- Identification of existing collaboration processes underway among multilateral agencies and/or private sector partners working on crisis management, natural disasters, health care, and climate change;
- Identification of norms and standards of bilateral, multilateral capacity to deliver strong support in a crisis, from governance challenges to a collaborative capacity on inter-agency support, to address cross-cutting information such as supply chain resilience standards developed internally for a nuclear crisis standardized for any system shock;
- Solicitation of specialized support needs to be adapted for new challenges, emerging complex problems, drawing input or expertise from other regions, nations or agencies; and,
- Incorporation of analysis on related crises from human rights to climate change.

Such a dashboard aims to build collaborative inter-agency capacity, to stimulate existing trade silos to recognize earlier the implications of non-trade crises and disruptions (from health to technology) and to encourage prompt WTO/RTA responses to the potential for disruption. It provides a proactive approach to measure impacts, inform analysis and generate agreed input to policy discussions.

Ultimately, such a dashboard lowers the risk of arbitrary measures imposed unilaterally, bilaterally, or multilaterally that may accelerates the disruptions or further damages economies and trade/investment relationships. Simply put, a dashboard will breakdown silos and allow collaboration to improve the capacity of various international and domestic agencies to support good policy and program decisions in times of severe and destabilizing stresses.

[1] C. Findlay . et. al. "COVID-19 and the 'zoom' to new global value chains."(East Asia Forum, 2020) https://www.eastasiaforum.org/2020/04/05/covid-19-and-the-zoom-to-new-global-value-chains/

[2] S.Choudhury, "India wants to be a 'partner of the global economy' in its manufacturing push, minister says." (CNBC, 2020) https://www.cnbc.com/2020/06/05/india-wants-to-be-an-electronic-manufacturing-hub-ravi-shankar-prasad.html

[3] C. Siva . et. al. "Covid 19 : Supply Chain Lessons from Asia." (EgonZehnder, 2020) https://www.egonzehnder.com/functions/supply-chain-operations/insights/covid-19-supply-chain-lessons-from-asia & F. Adam.et.al. "Beyond COVID-19:Supply Chain Resilience Holds Key to Recovery" (BakerMcKenzie, 2020).p.10. https://www.bakermckenzie.com/-/media/files/insight/publications/2020/04/covid19-global-economy.pdf?la=en

[4] P.Matous , Y Todo. "Analyzing the coevolution of interorganizational networks and organizational performance: Automakers' production networks in Japan," (Applied Network Science, 2017)https://link.springer.com/article/10.1007/s41109-017-0024-5

[5] S,Miroudot"Resilience versus robustness in global value chains: Some policy implications." (VOXEU, 2020) https://voxeu.org/article/resilience-versus-robustness-global-value-chains

[6] B. Barthélémy. et. al. "Global Supply Chains in the Pandemic." (NBER Working Paper No. 27224, May 2020) https://www.nber.org/papers/w27224 See also, D. Ciurak."The Policy Response to the Coronavirus Pandemic: Recommendations for Canada," (Centre for International Governance Innovation, Opinion, 26 March 2020). https://www.cigionline.org/articles/policy-response-coronavirus-pandemic-recommendations-canada

[7] R.Anderson, W.Kovacic, A.Müller,N.Sporysheva, "Competition Policy, Trade and the Global Economy: Existing WTO Elements, Commitments in Regional Trade Agreements, Current Challenges and Issues for Reflection."(Staff Working Paper ERSD-2018-12 31 October 2018) https://www.wto.org/english/res_e/reser_e/ersd201812_e.pdf

[8] G. Anabel. "Compendium of resources on trade in times of crisis and pandemic, c.15 Covid-19 Policy Responses."(WTO, 2020). p.30-34 https://www.unescap.org/sites/default/files/Compendium%20of%20resources%20on%20trade%20in%20times%20of%20crisis%20and%20pandemic-Version1.0.pdf

[9] See for example D.Ireland. "Broadening the Discourse on Regional Trade Agreements and Competition Rules, Compliance and Performance in Developing Economies." (Presented at the CUTS/CIRC 4th Biennial Competition Conference in Nairobi Kenya, 2015)t https://www.researchgate.net/publication/305469778_Pursuing_Competition_and_Regulatory_Reforms_for_Achieving_Sustainable_Development_Goals/link/578ff7cb08ae4e917cff3a6e/download

[10] S.Deng.. et. al. "Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure".(White Paper, World Economic Forum, 2019.) http://www3.weforum.org/docs/WEF_Reshaping_Global_Value_Report.pdf

[11] B.Patrick, et. al.. "COVID-19 implications on manufacturing and supply systems"(World Economic Forum, 2020) https://www.weforum.org/covid-action-platform/projects/reshaping-global-value

[12]S.Deng.. et. al. "Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure".(White Paper, World Economic Forum, 2019.) http://www3.weforum.org/docs/WEF_Reshaping_Global_Value_Report.pdf

[13] World Bank." World Development Report 2020: Trading for Development in the Age of Global Value Chains. Washington."(World Bank,2020)

[14] N.Lőrincz. "Main characteristics of nowadays' global value chains and their relevance to the Hungarian automotive manufacturing industry"(Budapest Management Review, 2017)https://www.researchgate.net/publication/317093792_Main_characteristics_of_nowadays'_global_value_chains_and_their_relevance_to_the_Hungarian_automotive_manufacturing_industry

[15] S.Deng.. et. al. "Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure".(White Paper, World Economic Forum, 2019.)http://www3.weforum.org/docs/WEF_Reshaping_Global_Value_Report.pdf

[16] OECD"The Links Between Global Value Chains and Global Innovation Networks: An Exploration". (OECD Science, Technology and Innovation Policy Papers,2017) https://www.oecd-ilibrary.org/science-and-technology/the-links-between-global-value-chains-and-global-innovation-networks_76d78fbb-en

[17] G.Francis et. al. "Intangible Capital in Global Value Chains" (World Intellectual Property Report,2017) https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf

[18]ILO. "Forced Labour in Asia and the Pacific". (ILO, 2020) www.ilo.org/asia/areas/forced-labour/WCMS_634534/lang–en/index.htm

[19] C.Davis"How Covid-19 could transform the global economy". (SMU engage, 2020) https://engage.smu.edu.sg/how-covid-19-could-transform-global-economy

[20] WTO. "Labour standards: consensus, coherence and controversy" (World Trade Organisation, 2017) . https://www.wto.org/english/thewto_e/whatis_e/tif_e/bey5_e.htm.

[21] D.Ciuriak. Private note to author, 21 July 2020

[22] USMCA. "Chapter 23- labor" (1998) https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/23-Labor.pdf

[23]I. Almeida. et. al. "China's Virus-Safety Demand Is Latest Hurdle to Trade Deal." (Bloomberg Canada, 2020) https://www.bloomberg.com/news/articles/2020-06-24/china-s-virus-safety-demand-is-latest-hurdle-to-trump-trade-deal

[24] I. Almeida. et. al. "China's Virus-Safety Demand Is Latest Hurdle to Trade Deal." (Bloomberg Canada, 2020) https://www.bloomberg.com/news/articles/2020-06-24/china-s-virus-safety-demand-is-latest-hurdle-to-trump-trade-deal

[25] A.Capobianco. "Competition Issues in Labour Markets – Note by Portugal" (OECD DAF, 2019) https://one.oecd.org/document/DAF/COMP/WD(2019)47/en/pdf

[26] OECD. "Trade Policy Implications of Global Value Chains." (OECD Trade Policy Brief. 2020).http://www.oecd.org/sti/ind/Trade_Policy_Implicatipns_May_2013.pdf

[27] OECD. "Trade Policy Implications of Global Value Chains." (OECD Trade Policy Brief. 2020).http://www.oecd.org/sti/ind/Trade_Policy_Implicatipns_May_2013.pdf

[28]S.Dichter., et. al. "How to rebound stronger from COVID-19: Resilience in manufacturing and supply systems" (White Paper, World Economic Forum, 2020.)http://www3.weforum.org/docs/WEF_GVC_the_impact_of_COVID_19_Report.pdf

[29] D. Ciurak. "Digital Trade: Is Data Treaty-Ready?" (SSRN, 2018). https://ssrn.com/abstract=3110785

[30]A.Malkin. "Getting Beyond Forced Technology Transfers: Analysis of and Recommendations on Intangible Economy Governance in China." (Centre for International Governance Innovation, 2020). https://www.cigionline.org/publications/getting-beyond-forced-technology-transfers-analysis-and-recommendations-intangible

[31] R.Rapp.,P.Rozek. "Benefits and costs of intellectual property protection in developing countries." (J. World Trade 24 ,1990) p. 75. https://heinonline.org/HOL/LandingPage?handle=hein.kluwer/jwt0024&div=44&id=&page=

[32] A.Guterres. "World Investment Report 2020: International Production Beyond the Pandemic." (United Nations Conference on Trade and Development, 2020). https://unctad.org/en/PublicationsLibrary/wir2020_en.pdf.

[33] D.Ciuriak. "World Trade Organization 2.0: Reforming Multilateral Trade Rules for the Digital Age". (WTO, 2019) https://www.cigionline.org/publications/world-trade-organization-20-reforming-multilateral-trade-rules-digital-age

[34] S.Tabeta. "China to crack down on handling of data under new law."(Nikkei Asian Review, 2020) https://asia.nikkei.com/Business/Technology/New-China-data-law-would-include-foreign-companies-in-its-scope.

[35]S.Lau. "EU leaders talk tough to Beijing over long list of unmet promises." (South China Morning Post, 2020) https://www.scmp.com/news/china/diplomacy/article/3090198/eu-leaders-talk-tough-beijing-over-long-list-unmet-promises

[36] N.Heller. "Estonia, The Digital Republic."(The New yorker, 2017) https://www.newyorker.com/magazine/2017/12/18/estonia-the-digital-republic

[37] B.Shreck. "Tax challenges arising from digitalisation." (OECD, 2018 http://www.oecd.org/ctp/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.html

[38] W.Xuandi. "China's first international E-Commerce court is now insession." (Sixth tone, 2020) https://www.sixthtone.com/news/1005946/China%25E2%2580%2599s%2520First%2520International%2520E-Commerce%2520Court%2520Is%2520Now%2520in%2520Session

[39] W.Horobin. "Why digital taxes are the new trade war flashpoint."(Bloomberg, 2020) https://www.bloomberg.com/news/articles/2020-01-22/why-digital-taxes-are-the-new-trade-war-flashpoint-quicktake

[40] (1) Proportional sharing language developed by the IEA members was incorporated into the Canada-US FTA (1989) and carried ofer into the first NAFTA agreement. It is not in the newly concluded USMCA.

[41]E.Norris.et.al. "Preparing for an Unknown World" (Finance and Development,2020) https://www.imf.org/external/pubs/ft/fandd/2020/06/the-international-order-post-covid19-dabla.htm

[42] To counter such allegations, Huawei offered to reveal its source code to Japan, Britain and Canada last September.

N.Fukuda. " 'We're not spies': Huawei offers to reveal source code to Japan." (The Asahi Shimbun,2019) http://www.asahi.com/ajw/articles/AJ201909050046.html

[43] A. Florini. "Reckoning with Systemic Hazards." (International Monetary Fund,2020) https://www.imf.org/external/pubs/ft/fandd/2020/06/reckoning-with-systemic-hazards-florini.htm?utm_medium=email&utm_source=govdelivery

9. Reference List

1. Capobianco. "Competition Issues in Labour Markets – Note by Portugal" (OECD DAF, 2019) https://one.oecd.org/document/DAF/COMP/WD(2019)47/en/pdf
2. Florini. "Reckoning with Systemic Hazards." (International Monetary Fund,2020) https://www.imf.org/external/pubs/ft/fandd/2020/06/reckoning-with-systemic-hazards-florini.htm?utm_medium=email&utm_source=govdelivery
3. Guterres. "World Investment Report 2020: International Production Beyond the Pandemic." (United Nations Conference on Trade and Development, 2020). https://unctad.org/en/PublicationsLibrary/wir2020_en.pdf.
4. Malkin. "Getting Beyond Forced Technology Transfers: Analysis of and Recommendations on Intangible Economy Governance in China." (Centre for International Governance Innovation, 2020). https://www.cigionline.org/publications/getting-beyond-forced-technology-transfers-analysis-and-recommendations-intangible
5. Barthélémy. et. al. "Global Supply Chains in the Pandemic." (NBER Working Paper No. 27224, May 2020) https://www.nber.org/papers/w27224
6. Patrick, et. al.. "COVID-19 implications on manufacturing and supply systems"(World Economic Forum, 2020) https://www.weforum.org/covid-action-platform/projects/reshaping-global-value
7. Shreck. "Tax challenges arising from digitalisation." (OECD, 2018 http://www.oecd.org/ctp/tax-challenges-arising-from-digitalisation-interim-report-9789264293083-en.html
8. Davis"How Covid-19 could transform the global economy". (SMU engage, 2020) https://engage.smu.edu.sg/how-covid-19-could-transform-global-economy
9. Findlay . et. al. "COVID-19 and the 'zoom' to new global value chains."(East Asia Forum, 2020) https://www.eastasiaforum.org/2020/04/05/covid-19-and-the-zoom-to-new-global-value-chains/
10. Siva . et. al. "Covid 19 : Supply Chain Lessons from Asia." (EgonZehnder, 2020) https://www.egonzehnder.com/functions/supply-chain-operations/insights/covid-19-supply-chain-lessons-from-asia
11. Ciurak. "Digital Trade: Is Data Treaty-Ready?" (SSRN, 2018). https://ssrn.com/abstract=3110785
12. Ciurak."The Policy Response to the Coronavirus Pandemic: Recommendations for Canada," (Centre for International Governance Innovation, Opinion, 26 March 2020). https://www.cigionline.org/articles/policy-response-coronavirus-pandemic-recommendations-canada
13. Ciuriak. Private note to author, 21 July 2020
14. Ciuriak. "World Trade Organization 2.0: Reforming Multilateral Trade Rules for the Digital Age". (WTO, 2019) https://www.cigionline.org/publications/world-trade-organization-20-reforming-multilateral-trade-rules-digital-age
15. Ireland. "Broadening the Discourse on Regional Trade Agreements and Competition Rules, Compliance and Performance in Developing Economies." (Presented at the CUTS/CIRC 4th Biennial

15. Ireland. "Broadening the Discourse on Regional Trade Agreements and Competition Rules, Compliance and Performance in Developing Economies." (Presented at the COTS/CIRC 4th Biennial Competition Conference in Nairobi Kenya, 2015)t https://www.researchgate.net/publication/305469778_Pursuing_Competition_and_Regulatory_Reforms_for_Achieving_Sustainable_Development_Goals/link/578ff7cb08ae4e917cff3a6e/download
16. Norris.et.al. "Preparing for an Unknown World" (Finance and Development,2020) https://www.imf.org/external/pubs/ft/fandd/2020/06/the-international-order-post-covid19-dabla.htm
17. Adam.et.al. "Beyond COVID-19:Supply Chain Resilience Holds Key to Recovery" (BakerMcKenzie, 2020).p.10. https://www.bakermckenzie.com/-/media/files/insight/publications/2020/04/covid19-global-economy.pdf?la=en
18. Anabel. "Compendium of resources on trade in times of crisis and pandemic, c.15 Covid-19 Policy Responses."(WTO, 2020). p.30-34 https://www.unescap.org/sites/default/files/Compendium%20of%20resources%20on%20trade%20in%20times%20of%20crisis%20and%20pandemic-Version1.0.pdf
19. Francis et. al. "Intangible Capital in Global Value Chains" (World Intellectual Property Report,2017) https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf
20. Almeida. et. al. "China's Virus-Safety Demand Is Latest Hurdle to Trade Deal." (Bloomberg Canada, 2020) https://www.bloomberg.com/news/articles/2020-06-24/china-s-virus-safety-demand-is-latest-hurdle-to-trump-trade-deal
21. "Forced Labour in Asia and the Pacific". (ILO, 2020) www.ilo.org/asia/areas/forced-labour/WCMS_634534/lang--en/index.htm
22. Fukuda. " 'We're not spies': Huawei offers to reveal source code to Japan." (The Asahi Shimbun,2019) http://www.asahi.com/ajw/articles/AJ201909050046.html
23. Heller. "Estonia, The Digital Republic."(The New yorker, 2017) https://www.newyorker.com/magazine/2017/12/18/estonia-the-digital-republic
24. Lörincz. "Main characteristics of nowadays' global value chains and their relevance to the Hungarian automotive manufacturing industry"(Budapest Management Review, 2017)https://www.researchgate.net/publication/317093792_Main_characteristics_of_nowadays'_global_value_chains_and_their_relevance_to_the_Hungarian_automotive_manufacturing_industry
25. "Trade Policy Implications of Global Value Chains." (OECD Trade Policy Brief. 2020).http://www.oecd.org/sti/ind/Trade_Policy_Implicatipns_May_2013.pdf
26. OECD"The Links Between Global Value Chains and Global Innovation Networks: An Exploration". (OECD Science, Technology and Innovation Policy Papers,2017) https://www.oecd-ilibrary.org/science-and-technology/the-links-between-global-value-chains-and-global-innovation-networks_76d78fbb-en
27. Matous , Y Todo. "Analyzing the coevolution of interorganizational networks and organizational performance: Automakers' production networks in Japan," (Applied Network Science, 2017)https://link.springer.com/article/10.1007/s41109-017-0024-5
28. Anderson, W.Kovacic, A.Müller,N.Sporysheva, "Competition Policy, Trade and the Global Economy: Existing WTO Elements, Commitments in Regional Trade Agreements, Current Challenges and Issues for Reflection."(Staff Working Paper ERSD-2018-12 31 October 2018) https://www.wto.org/english/res_e/reser_e/ersd201812_e.pdf
29. Rapp.,P.Rozek. "Benefits and costs of intellectual property protection in developing countries." (J. World Trade 24 ,1990) p. 75. https://heinonline.org/HOL/LandingPage?handle=hein.kluwer/jwt0024&div=44&id=&page=
30. S,Miroudot"Resilience versus robustness in global value chains: Some policy implications." (VOXEU, 2020) https://voxeu.org/article/resilience-versus-robustness-global-value-chains
31. Choudhury, "India wants to be a 'partner of the global economy' in its manufacturing push, minister says." (CNBC, 2020) https://www.cnbc.com/2020/06/05/india-wants-to-be-an-electronic-manufacturing-hub-ravi-shankar-prasad.html
32. Deng.. et. al. "Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure".(White Paper, World Economic Forum, 2019.) http://www3.weforum.org/docs/WEF_Reshaping_Global_Value_Report.pdf
33. Dichter., et. al. "How to rebound stronger from COVID-19: Resilience in manufacturing and supply systems" (White Paper, World Economic Forum, 2020.)http://www3.weforum.org/docs/WEF_GVC_the_impact_of_COVID_19_Report.pdf
34. Lau. "EU leaders talk tough to Beijing over long list of unmet promises." (South China Morning Post, 2020) https://www.scmp.com/news/china/diplomacy/article/3090198/eu-leaders-talk-tough-beijing-over-long-list-unmet-promises
35. Tabeta. "China to crack down on handling of data under new law."(Nikkei Asian Review, 2020) https://asia.nikkei.com/Business/Technology/New-China-data-law-would-include-foreign-companies-in-its-scope.
36. "Chapter 23- labor" (1998) https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/23-Labor.pdf
37. Horobin. "Why digital taxes are the new trade war flashpoint."(Bloomberg, 2020) https://www.bloomberg.com/news/articles/2020-01-22/why-digital-taxes-are-the-new-trade-war-flashpoint-quicktake
38. Xuandi. "China's first international E-Commerce court is now insession." (Sixth tone, 2020) https://www.sixthtone.com/news/1005946/China%25E2%2580%2599s%2520First%2520International%2520E-Commerce%2520Court%2520Is%2520Now%2520in%2520Session
39. World Bank." World Development Report 2020: Trading for Development in the Age of Global Value Chains. Washington."(World Bank,2020)
40. "Labour standards: consensus, coherence and controversy" (World Trade Organisation, 2017) . https://www.wto.org/english/thewto_e/whatis_e/tif_e/bey5_e.htm.

Existing Initiatives & Analysis