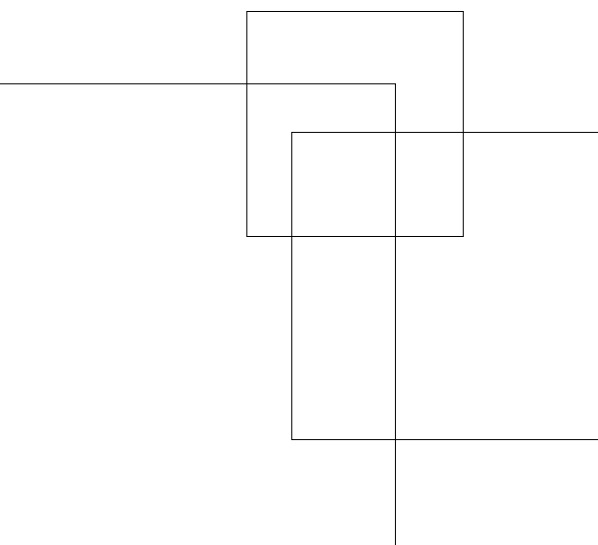




Trade wars and their labour market effects

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Abstract

Recent years have seen a remarkable reversal in trade liberalization with the significant raises in tariffs on imports among major G20 economies. This working paper discusses the rationale for these policy shifts, provides an overview of recent measures, especially those implemented by the US administration and presents an overview of the estimated effects on employment as currently presented in the literature. The paper also provides an overview of the specific challenges represented by trade in digital services.

Key words: Protectionism, trade liberalization, trade in digital services, employment, trade and labour

JEL Code: F16, F66, F68

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1. Introduction

Since 2016, several G20 countries implemented measures to raise tariffs on imports from main trading partners. Initiated by the US administration after the election of President Trump, this escalation of measures and counter-measures has heightened the fear of a full-out global trade war with long-lasting adverse consequences for growth and employment as well as for the global architecture of trade agreements itself (Bown, 2019). This working paper discusses the evolution of trade barriers over the past decade, the particular measures adopted by the United States and the background in terms of trade developments against which these measures were taken. It then provides an overview of already visible and potential future effects of these measures, based on a survey of recent publication in this area, and explains the likely outcomes for job growth both in advanced and emerging economies. It also gives an overview of the arguments provided in favour of these measures, which may have been reinforced by recent developments in the emerging digital economy. In our assessment, the escalating trade war, notably between China and the United States, does not remedy existing concerns about imbalances and negative consequences for employment arising from globalization. So far, direct negative effects for labour markets remain limited at this stage. However, significant risks for a collapse of the global architecture of trade do exist, which would have negative repercussions for labour markets.

2. Long-term trends in trade and implication for labour markets

Trade liberalization is typically argued to lead to both an improvement in economic efficiency when countries concentrate on their comparative advantages and to a rise in overall growth as the size of the market expands. Welfare effects from trade manifest themselves foremost in the form of consumer gains through relative price changes and corresponding increases in real wages (Muendler, 2017).¹ Direct labour market consequences, such as higher employment, variations in informality rates or wages, tend to be geographically localized and limited to certain sectors and occupations. If labour is mobile enough, any negative consequences for employment in certain geographical regions or sectors are thought to be temporary and small compared to the larger gains for most consumers. In addition, trade is expected to boost growth, stimulating job creation. Both channels – an increase in economic efficiency and a rise in growth – are intuitive and often taken for granted, notably by policy makers. The empirical literature acknowledges, however, that any transition dynamics triggered by economic opening can be complex and non-linear, making gains from trade for labour hard to identify (Huchet-Bourdon, 2018). Finally, trade liberalization does not only affect job creation and growth, it has also an important impact on job quality. Research in this area has produced ambiguous results. In particular, the hope that conditions of work would improve in developing countries through falling informality rates proved to be not always met by facts (Bacchetta et al. 2009). The following box summarizes the most recent findings of the empirical literature in this regard.

¹ <https://econpapers.repec.org/paper/zbwwtowps/ersd201715.htm>

Box 1. The effects of trade protectionism on labour markets

Trade protectionism might have different **effects on wages and employment** in advanced and developing countries. Also, effects might vary depending on the sector. In developing countries, the employment response to changes in trade policy is small, with wage adjustments playing a more important role. In contrast, in advanced economies studies find larger employment than wages response to trade protectionism (Pierce and Schott, 2015). However, if firms are highly dependent on imports of intermediate goods produced abroad, trade protectionism might also have a substantial impact on wages, even in advanced countries, caused by costly disruption of supply chains (Erken et al., 2017 and 2018; Kraemer et al., 2011; Afonso and Holland, 2019).

Protectionism may reduce **labour productivity** and thus output and employment. Higher tariffs reallocate domestic market share toward less-efficient domestic producers, lowering aggregate productivity (Furceri et al., 2019; Barattieri et al., 2018).

Regarding the effects on **labour informality**, the conventional view posits that trade liberalization has not led to a corresponding improvement in working conditions since job creation has mainly taken place in the informal economy (Bacchetta et al., 2009; Langot et al., 2019). In return, protectionism could reduce labour informality. However, the mechanism through which trade liberalization/protectionism affects workers in the presence of informality is not clear. The empirical literature provides mixed evidence on the effects of trade liberalization on informality, most likely because these effects are country and/or industry-specific.*

Most of the literature predicts that **trade wars** will damage growth, income distribution and employment in all countries (Erken et al., 2017, and 2018; Bollen and Rojas-Romagosa, 2018; UNCTAD, 2018). The tariff escalation triggers downward pressures on wages and generates uncertainty around the path of economic policy. This damages aggregate demand, economic growth and, ultimately, trade activity and financial stability.

Major consequences of a trade war would come from indirect effects due to macroeconomic adjustments and uncertainty, rather than direct effects due to a change in trade volumes (see UNCTAD, 2018). Actually, trade volumes are likely to shrink due to a contraction in national incomes (which reduces import demand) rather than higher tariffs. Indirect effects due to macroeconomic adjustments include, beside monetary tightening, government interventions. During a trade war, governments of each belligerent party may decide to reimburse domestic exporters to retain global export shares. Additionally, some countries will allow their real exchange rates to depreciate marginally to maintain global market shares. Indirect effects, such as disruption of supplier-customer relationships in the supply chains, knock-on effects from financial market developments, trade tensions and conflicts, geopolitical concerns, and mounting political uncertainty may exacerbate the effects of trade wars and further slowdown economic activity (Ciuriak et al., 2019).

* Some works find little or no effect of trade liberalization on informality (e.g. Goldberg and Pavcnik, 2003; Menezes-Filho and Muendler, 2011; Bosch et al. 2012), whereas some others estimate significant effects of trade liberalization on informality (e.g. Currie and Harrison, 1997; Aleman-Castilla, 2006; Ponczek and Ulyssea, 2015; Acosta and Montes-Rojas, 2014, Artuc et al., 2019)

The ambiguous effects identified in the literature help explain some of the unintended consequences that emerged from the gradual opening of large developing countries, notably with the access of China to the WTO around the turn of the millennium and trade liberalization measures in India in the 1990s. Even though both efficiency gains through price changes and accelerated economic growth materialized, these were often accompanied by distributional and (long-term) transitory effects not foreseen by the proponents of free trade:

- Trade growth happened mostly along the intensive margin by fostering intra-industry and intra-firm trade through global value chains (GVC) in an attempt to exploit comparative advantages at each level of the production process. As a consequence, trade grew several orders faster than GDP over the past two decades. At the same time, participation in GVCs contributed to a deepening of global current account imbalances, thereby creating a sense of unfair distribution of gains from trade (Brumm et al., 2019).² After an initial surge, the potential of this process of expanding trade through deepening GVCs seems to have significantly slowed down since 2010, as re-shoring and in-shoring became more important, eventually resorbing some of the current account imbalances (Degain et al., 2017).³
- The integration of two large, low-income countries (China and India) into the world market created a significant labour supply shock that changed relative prices between capital and labour. This shock took a significant amount of time to be absorbed, creating frictions on labour markets in particular among advanced economies (the “Great Doubling”, Freeman, 2005) and led to a significant decline of real wage growth concentrated among low- and middle-class workers in advanced economies (Milanovic, 2018).
- The shift in comparative advantages caused significant distributional consequences for medium- and low-skilled workers in exposed industries in developed economies, like the United States for example, that could not easily be dissolved through transitions and mobility (the “China effect”, see Autor et al., 2015; Artuc et al., 2019). Moving geographically or switching occupations is typically associated with costs or other inhibiting factors that prevent workers from changing jobs. Hence, negative effects for employment and wages through import competition are unevenly distributed across the working population, and adjustment costs for workers and firms are higher and more prolonged than anticipated.
- In theory, countries’ aggregate trade balances should gravitate towards equality in the long run as a country’s excess spending over its income is unlikely to be financed by others forever. But with increasing trade volumes, the world experienced rising global trade and debt imbalances that peaked before the global financial and economic crisis in 2008-2009 (IMF, 2019, ch. 4). These imbalances have been a rising cause of concern to policy makers and have also been identified by some as the root cause of the global crisis (Rajan, 2010).⁴
- A final, less appreciated fact is that globalization increased the mobility of capital but not that of workers – owing to restrictions of international labour mobility –, and therefore created downward pressure on wages (Choi, 2001). Governments in advanced economies resorted to increasing taxation of (less-mobile categories of) labour and lowered taxes on capital in their attempt to finance public expenditure and especially social protection systems (Egger et al., 2016). This increase in the labour tax wedge accelerated automation among workers in exposed sectors (notably in manufacturing), and led to further job losses. With the advent of artificial intelligence in many applications, pressure for automation is increasingly felt in hitherto

² https://www.sciencedirect.com/science/article/pii/S0261560619300610?dgcid=rss_sd_all

³ https://www.wto.org/english/res_e/booksp_e/gvcs_report_2017_chapter2.pdf

⁴ For example, these imbalances were one reason for the introduction of the Macroeconomic Imbalance Procedure (MIP) in 2011 by the European Commission, which surveys trade imbalances.

protected and less exposed sectors, magnifying the potential impact of automation on job destruction.

Taken together, trade liberalization over the last two decades has brought large benefits to consumers and been conducive to growth but it also entailed undesired side effects. The adjustment costs for certain groups of workers and firms may have been underestimated, and were only insufficiently compensated. These trends have – in some countries – created or fuelled social imbalances that have put pressure on policy makers to consider protectionist measures in an attempt to slowdown or even revert inequalities. At the same time, policy makers have become uneasy to tolerate large trade and debt imbalances over extended periods, in particular in the aftermath of the Global Financial Crisis (GFC). A significant tightening of trade measures became visible over the period succeeding the GFC that has accelerated in the past two years and has included outright trade retaliation measures, such as increases in tariffs alongside further tightening of non-tariff barriers (Fajgelbaum et al., 2019).

3. The evolution of trade and trade barriers

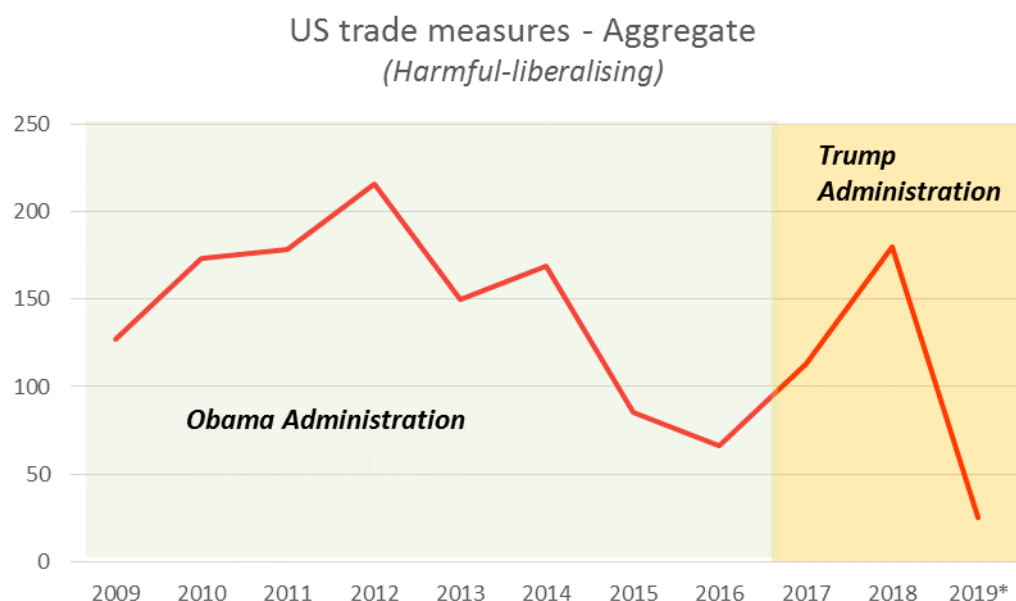
Against this backdrop, the WTO currently predicts positive but decelerated growth of worldwide merchandise trade volume in 2019 and 2020.⁵ Over the last decade, merchandise trade growth has recovered from its crisis slump in 2009 and finally exceeded post-crisis levels again. Nevertheless, the WTO notes that “trade growth in 2018 was weighed down by several factors, including new tariffs and retaliatory measures affecting widely-traded goods”. Accelerated trade growth of 4.6 per cent in 2017 had raised hopes that trade would recover “some of its earlier dynamism” but the WTO expects trade growth to be weaker in 2018 and 2019 at least. Overall, trade has stopped expanding faster than GDP since 2007.⁶

In no small part, this is due to a rise in protectionist measures that have been introduced since then. Indeed, after decades of successful political efforts to reduce trade barriers, this trend may have been reversed since 2009: The most prominent examples of rising trade barriers are the US tariffs implemented during 2018, which triggered retaliation measures by China, Mexico, Turkey, the European Union, Canada and Russia. However, despite appearances, protectionist measures have already been high on the agenda prior to the Trump administration and there are significant risks that additional measures will be implemented after the 2020 US presidential election, irrespective of the electoral outcome (see figure 1).

⁵ https://www.wto.org/english/news_e/pres19_e/pr837_e.htm

⁶ <https://ourworldindata.org/trade-and-globalization>

Figure 1. Evolution of protectionism



Note : * :January to April 2019. A higher value means more harmful measures.

Source: <https://www.globaltradealert.org/country/222>

Specifically, the current US Administration introduced or raised additional tariffs on solar panels, washing machines, aluminium, iron and steel as well as specific measures targeted at China on a total of 12,007 products covering USD 303 billion (Amiti et al., 2018; Fajgelbaum et al., 2019). The US sectors receiving most protection are primary metals, machinery, computer products, and electrical equipment and appliances; the retaliatory measures targeted mainly US agricultural exports and cover a trade value of USD 96 billion (see table 1).⁷ Most of the adopted measures, therefore, can be found in traditional sectors of the economy, triggering the fear that much of the benefits from globalization over recent decades could be undone without necessarily addressing the challenges that free trade has caused for jobs and wages of the middle class in advanced economies. Specifically, the hope that these measures would bring back jobs in those areas and sectors most strongly hit by trade openness is likely to remain illusionary. This would require permanent government protection of domestic companies that are not competitive enough on international markets followed by investments of these companies in increased production capacity. To maintain such jobs in the long run, the higher production cost would have to either permanently subsidized by the government or be borne by consumers or other companies in the supply chain.

⁷ This note takes only measures into account that were effective before August 2019. Recently, new tariffs have been announced for the second half of 2019 from both, the United States and China

Table 1. US Tariffs 2018 and retaliatory measures by trade partners

Panel A: Tariffs on U.S. Imports Enacted by US in 2018						
Tariff Wave	Date Enacted	Products	2017 Exports		Tariff (%)	
		(# HS10)	(mil USD)	(%)*	2017	2018
Solar Panels	Feb 7, 2018	8	5,782	0.2	0.0	30.0
Washing Machines	Feb 7, 2018	8	2,105	0.1	1.3	33.9
Aluminum	Mar-Jun, 2018	65	17,685	0.7	2.0	12.0
Iron and Steel	Mar-Jun, 2018	753	30,523	1.3	0.0	25.0
China 1	Jul 6, 2018	1,668	33,510	1.4	1.2	26.2
China 2	Aug 23, 2018	429	14,101	0.6	2.7	27.6
China 3	Sep 24, 2018	9,076	199,264	8.3	3.4	13.4
Total		12,007	302,970	12.6	2.6	17.0

Panel B: Retaliatory Tariffs on U.S. Exports Enacted by Trading Partners in 2018						
Retaliating Country	Date Enacted	Products	2017 Exports		Tariff (%)	
		(# HS10)	(mil USD)	(%)*	2017	2018
China	Apr-Sep, 2018	1,997	60,522	3.9	7.8	22.7
Mexico	Jun 5, 2018	232	6,746	0.4	9.5	27.4
Turkey	Jun 21, 2018	240	1,554	0.1	9.9	30.1
European Union	Jun 22, 2018	303	8,244	0.5	4.0	29.3
Canada	Jul 1, 2018	323	17,818	1.2	2.1	20.1
Russia	Aug 6, 2018	162	268	0.0	5.0	36.7
Total		3,135	96,045	6.2	6.5	23.3

Note: Denominator for import (export) share is the total 2017 annual USD value of all US imports (exports). Panels display un-weighted monthly HS10-country average statutory tariff rates. The 2018 rates are computed using the post-tariff increase period. The total tariff rates row is computed as the trade-weighted average of table values. The US government announced import tariffs on aluminium and steel products on March 23 but granted exemptions for Canada, Mexico, and the European Union; those exemptions were lifted on June 1. The dates of Chinese retaliations are: April 6, July 2, August 23, and September 24. See text for data sources.

Source: Fajgelbaum et al. (2019).

4. Trade and trade barriers in digital services

The rising digital economy has provided a new rationale for protectionist measures as the debate has shifted its focus on trade in digital services. Indeed, the above tariffs concern the most visible and publicly discussed trade barriers; another, less visible dimension of the new trade war takes place in the digital economy (Foster and Aszmeh, 2019). Large network effects that arise from a business model based on the collection of huge amounts of data (“Big Data”) combined with the application of sophisticated statistical tools on these data to generate new (digital) services (“artificial intelligence”) have allowed a few companies to exploit first-mover advantages and amass significant amount of market shares and profits. This rise in few, dominant market players in the digital economy has created incentives for protectionist measures, most notably in upstream services around data collection and digital infrastructure, to support nascent (digital) businesses in an attempt to be the first to operate in a new market (Ciuriak, 2018). The existence of these network externalities and the importance of digital trade in the future call into question the rationale for trade liberalization (Krugman, 1985, 2011).

Despite the rising importance of transnational e-commerce, cloud computing, and other parts of the digital economy, the lack of clear global regulatory frameworks remains and prevents cooperative global solutions on sharing tax revenues of multinational digital companies (Falção, 2018). Some developing and emerging economies such as China, Indonesia and Nigeria have introduced policies that legislate against foreign data flows and e-commerce, affecting the business models of leading global digital corporations in advanced economies. Several developing and emerging countries successfully resisted the push for digital trade rules at the WTO in 2017 and some countries started questioning existing digital trade rules at the WTO in which countries agreed to (temporarily) refrain from imposing custom duties on electronic transmissions. The USTR (2018) identifies a whole range of digital trade barriers introduced or maintained by developing or advanced economies. France, for instance, introduced a digital services tax on revenues generated by multinational companies that exceed a certain sales threshold, which is typically not met by its domestic digital companies, creating differential tax rates depending on the location of the digital services provider.

Whether directly through tariff and non-tariff barriers or through preferential tax rates, countries pursuing protectionist measures in this area expect to build comparative advantages in these dynamic technological sectors. So far, however, both the employment and the productivity impact can be expected to be fairly small. Employment in digital services is small with ICT specialists comprising less than 4 per cent of total employment in the United States or the European Union and is highly skewed towards high-skilled employees.⁸ Similarly, productivity gains from advances in information and communication technologies have been limited even in most advanced economies, partly due to the fact that most of them focused on areas with little cross-sectoral spill-overs such as marketing; whether the advent of tools based on artificial intelligence (AI) changes this assessment remains an open question (Ernst et al., 2019). A potentially concerning development is the ability of AI driven platforms to (re-) allocate the demand for digital services to workers across the globe with little possibilities for regulators to control or influence working conditions or to enforce compliance with labour regulations.

5. What would be the effect of an outright trade war?

What have been the effects of the already imposed new trade barriers and what would be the impact of an accelerated trade war on labour markets? A first escalation into a trade war would be a continued spiral of retaliatory measures imposed on trading partners with the purpose of harming the trading partners' possibilities to export into the home market. The most important channel of protectionist trade measures would run through price effects, impacting households (workers) through the real wage channel. Indeed, focussing on the recent increases in tariffs, Amiti et al. (2018) find that the full incidence for the US economy falls on consumers and leads to a reduction of real income in the amount of USD 1.4 billion per month (efficiency loss) plus USD 3 billion per month in added tax costs that become revenue for the government. No evidence is yet found that the existing US tariffs have impacted exporter prices and hence harmed foreign (i.e. non US) producers, a finding also confirmed by others (Bollen and Rojas-Romagosa, 2018; Fajgelbaum et al., 2019). Amiti et al. (2018) estimate that the consequences for the consumers in the retaliatory countries are similar, i.e. they find no evidence of declining US export prices, which indicates that consumers outside of the US will bear the brunt of the cost of their governments' imposed retaliatory tariffs.

Other costs are likely to be substantial but much more difficult to quantify: First, disruptions or shifts of supply chains and related depreciations of capital equipment based in the in the country imposing the tariffs; second, a reduction of the variety of goods; and third, the general spread of policy uncertainty with its negative impact on business sentiment. Amiti et al. (2018) estimate that trade diversion resulted in approximately USD 165 billion (USD 136 billion in US imports and USD 29 billion in US exports) as a result of the tariffs during 2018 alone with potentially high associated costs for multinational enterprises. They also find a significant effect of the tariffs on US producer prices, which is partly

⁸ https://www.oecd-ilibrary.org/science-and-technology/ict-employment/indicator/english_0938c4a0-en; https://ec.europa.eu/eurostat/statistics-explained/index.php/ICT_specialists_in_employment

explained by higher input costs, but also through higher mark-ups implemented by domestic US firms. In other words, reduced international competition has led to higher margins for the protected industries. These findings and estimates are in line with Fajgelbaum et al. (2019) who propose slightly higher current US producer and consumer losses to the tune of USD 68.8 billion per year or 0.4 per cent of GDP. Terms-of-trade gains through tariffs, i.e. re-allocation of demand from foreign to domestic producers, reach approximately USD 21.6 billion or 0.1 per cent of GDP.

In terms of direct labour market effects, both studies emphasize negative effects for real wages. These effects are likely to be concentrated geographically and by sector, depending on the amount of foreign inputs used by specific industries. Possible positive employment effects in protected domestic industries are not yet quantifiable. Amiti et al. (2019) note that even a hypothetical recovery of all 35,400 manufacturing jobs that were lost in the US over the last decade would require additional economic costs of about USD 195,000 (deadweight loss) per job, which is almost four times the average wage of an American steel worker (USD 52,500). Thus, little – if any – positive effects on employment numbers are to be expected.

Could tariffs at least help reducing current account imbalances and, for example, lead to reduction of the aggregate US trade deficit? Related, would this also reduce the surpluses observed in countries such as China or Germany? The global imbalances were at the heart of the global financial crisis in 2008 and triggered substantial political debate, which constitutes the backdrop to the current spat over trade. In this regard, analysis conducted by the IMF (2019) shows that the main drivers of bilateral trade and trade balances over the past two decades were macroeconomic. These drivers included fundamental factors, such as (i) differences in demographic change and the level of economic and institutional development; (ii) macroeconomic policies, in particular fiscal policy and credit cycles but in some cases also exchange rate policies and domestic supply-side policies (e.g. subsidies to production costs). In contrast, changes in bilateral tariffs played only a smaller role in the evolution of bilateral trade balances according to their analysis.

In summary, the expected costs of the recent tariff increases are still relative small and probably range below one percent of GDP. Costs may raise, however, if relatively open countries try to force trading partners with higher barriers to open up; in this case, the asymmetric size of trade barriers forces the relatively more open country to significantly increase its tariffs before it can expect to successfully negotiate overall and symmetrically lower tariffs (Mattoo and Staiger, 2019). At the moment, heightened tariffs are largely borne by consumers in the affected countries with little to no positive effects on employment in the protected industries. In case of a further escalation of the trade war, it can be expected that these effects would increase in scale, with particularly disruptive effects on global value chains and with rising political uncertainty. As in the case with trade liberalization, the effects are not evenly distributed and affect some groups more than others. Hence, trade wars also have distributional consequences.

On the other hand, the impact of tariffs on global imbalances appears to be limited. Macroeconomic policies such as fiscal policy or investment policies that affect aggregate demand or capital movements should be more effective than tariffs to reduce undesired imbalances. Also, some of the imbalances are driven by long-term structural shifts such as demographic changes and the depth of financial markets (“safe heavens”) that are outside the scope of policy makers, at least in the short term.

Finally, trade barriers arising from a lack of a regulatory framework for the digital economy have not yet been quantified but are expected to increase with increasing importance of the digital economy. In a scenario of an outright trade war with punitive tariffs imposed by trading partners on each other, there is little prospect to see such agreements on a multilateral level. On the contrary, further NTBs to block digital trade are likely to become another weapon in countries’ arsenal of retaliatory measures.

References

- Acosta, P.; Montes-Rojas, G. 2014. “Informal jobs and trade liberalisation in Argentina”, in *Journal of Development Studies*, Vol. 50, No. 8, pp. 1104-1118.
- Afonso, H.; Holland, D. 2018. “Trade policy and the United States labour market”, in *Journal of Policy Modeling*, Vol. 40, No. 3, pp. 601-613.
- Aleman-Castilla, B. 2006. *The effect of trade liberalization on informality and wages: Evidence from Mexico*, CEP Discussion Paper No. 763 (London, London School of Economics).
- Amiti, M.; Redding S.; Weinstein, D. 2019. *The impact of the 2018 trade war on U.S. prices and welfare*, NBER Working Paper No. 25672 (Cambridge, MA, National Bureau of Economic Research (NBER)).
- Artuc, E.; Lopez-Acevedo, G.; Robertson, R.; Samaan, D. 2019. *Exports to jobs: boosting the gains from trade in South Asia*. South Asia Development Forum. Washington D.C.: World Bank.
- Autor, D. H.; Dorn, D.; Hanson, G. 2013. “The China syndrome: Local labor market effects of import competition in the United States”, in *The American Economic Review*, Vol. 103, No. 6, pp. 2121-2168.
- Bacchetta, M.; Ernst, E.; Bustamante, J. 2009. *Globalization and informal jobs in developing countries*. A joint study of the International Labour Office and the Secretariat of the World Trade Organization. (Geneva, ILO and WTO).
- Barattieri, A.; Cacciatore, M.; Ghironi, F. 2018. *Protectionism and the business cycle*, unpublished document, NBER Working Paper No. 24353 (Cambridge, MA, NBER).
- Bollen, J.; Rojas-Romagosa, H. 2018. *Trade wars: Economic impact of US tariff increases and retaliations. An international perspective*, CPB Background Document (The Hague, Central Planning Bureau).
- Bosch, M.; Goñi-Pacchioni, E.; Maloney W. 2012. “Trade liberalization, labor reforms and formal-informal employment dynamics”, in *Labour Economics*, Vol. 19, No. 5, pp. 653-667.
- Bown, C. P. 2016. *Global antidumping database* (Washington, DC, The World Bank).
- . 2019. *The 2018 US-China trade conflict after 40 years of special protection*. PIIE Working Paper, No. 19-7 (Washington, DC, Peterson Institute for International Economics).
- Brumm, J.; Georgiadis, G.; Gräß, J.; Trottnier, F. 2019. “Global value chain participation and current account imbalances”, in *Journal of International Money and Finance*, Vol. 97, No. C, pp. 111-124.
- Choi, M. 2001. *Threat effect of foreign direct investment on labor union wage premium*, Working Paper, No. 27 (Amherst, PERI).
- Ciuriak, D. 2019. “A trade war fuelled by technology”, in *Center for International Governance Innovation*, available at: <https://www.cigionline.org/articles/trade-war-fuelled-technology> [3 May 2019].

- ; Ouyang, M.; Xiao, J.; Zhang, T. 2019. *Trade wars #2018: The likely trade and economic impact*, Ciuriak Consulting Research Report.
- Currie, J.; Harrison, A. 1997. “Sharing the costs: The impact of trade reform on capital and labor in Morocco”, in *Journal of Labor Economics*, Vol. 15, No. 3, pp. 44-71.
- Degain, C.; Meng, B.; Wang, Z. 2017. “Recent trends in global trade and global value chains”, in WTO. *Global Value Chain Development Report*. (Geneva, WTO), pp. 37-68.
- Egger, P. H.; Nigai, S.; Strecker, N. 2016. *The taxing deed of globalization*. Discussion Paper No. 11259 (London, CEPR)
- Erken, H.; Marey, P.; Wijffelaars, M. 2017. *Why Trump’s protectionist trade agenda will fail*, VoxEu 15 August 2017.
- ; Giesbergen, B.; de Vreede, I. 2018. *Re-assessing the US-China trade war*. RaboResearch Special (Utrecht, Rabobank), available at: <https://economics.rabobank.com/publications/2018/november/re-assessing-the-us-china-trade-war/> [6 May 2019].
- Ernst, E.; Merola, R.; Samaan, D. 2019. “The economics of artificial intelligence: Implications for the future of work”, in *IZA Journal of Labor Policy*, Vol. 9, No. 1.
- Fajgelbaum, P. D.; Goldberg, P. K.; Kennedy, P. J.; Khandelwal, A. K. 2019. *The return to protectionism*, NBER Working Paper, No. 25638 (Cambridge, MA, NBER).
- Falçao, T. 2018. “Taxing the digital economy: Policy considerations and how to advance the debate”, in *Tax Notes International*, 12 Feb, pp. 623–in 628.
- Foster, S.; Azmeh, S. 2019. “Trade wars are growing over the digital economy – and developing countries are shaping the agenda” in *The Conversation*. Available at: <https://theconversation.com/trade-wars-are-growing-over-the-digital-economy-and-developing-countries-are-shaping-the-agenda-113000> [3 May 2019].
- Fugazza, M.; Fiess, N. 2010. *Trade liberalization and informality: New stylized facts*, UN Policy Issues in International Trade and Commodities Study Series, No. 43 (Geneva, UNCTAD).
- Furceri, D.; Swarnali Ahmed, H.; Ostry, J.; Rose, A. 2019. *Macroeconomic consequences of tariffs*, IMF Working Papers 19/9 (Washington DC, International Monetary Fund).
- Goldberg, P. K.; Pavcnik, N. 2003. “The response of the informal sector to trade liberalization”, in *Journal of Development Economics*, Vol. 72, No. 2, pp. 463-496.
- ; –. 2016. *The effects of trade policy*, CEPR Discussion Papers, No. 11104 (London, CEPR).
- Huang, Y.; Chen, C.; Liu S.; Tang, H. 2018. *Trade linkages and firm value: Evidence from the 2018 US-China ‘Trade War’*, IHEID Working Papers 11-2018 (Geneva, The Graduate Institute).
- Huchet-Bourdon, M.; Le Mouël, C.; Vijil, M. 2018. “The relationship between trade openness and economic growth: Some new insights on the openness measurement issue”, in *The World Economy*, Vol. 41, No. 1, pp. 59-76.

- IMF. 2019. *World economic outlook, April: Growth slowdown, precarious recovery*. (Washington, DC).
- Kovak, B. K. 2010. *Regional labor market effects of trade policy: Evidence from Brazilian liberalization*, Working Paper, Carnegie Mellon University.
- Kraemer, K.; Linden, G.; Dedrick, L. 2011. *Capturing value in global networks: Apple's iPad and iPhone*, UC Berkeley and Syracuse working paper.
- Krugman, P. 1985. *Increasing returns and the theory of international trade*, NBER Working Paper, No. 1752 (Cambridge, MA, NBER).
- . 2011. "Increasing returns in a comparative advantage world", in: Stern, R. M. (ed.) *Comparative advantage, growth, and the gains from trade and globalization*, (World Scientific Publisher), pp. 43-51.
- Langot, F.; Merola, R.; Oh, S. 2019. *How can taxes help ensure a fair globalization?*, Policy Research Working Paper, No. 8975 (Washington, World Bank).
- Mattoo, A.; Staiger, R. W. 2019. "Understanding trade wars", in: Crowley, M. A. (ed.). *Trade war. The clash of economic systems endangering global prosperity* (London, CEPR), pp. 33-42.
- Menezes-Filho, N. A.; Muendler, M. A. 2011. *Labor reallocation in response to trade reform*, NBER Working Paper No. 17372 (Cambridge, MA, National Bureau of Economic Research).
- Milanovic, B. 2018. *Global inequality: A new approach for the age of globalization*, (Cambridge, MA, Belknap Press).
- Muendler, M-A. 2017. *Trade, technology, and prosperity – An account of evidence from a labor market perspective*, WTO Staff Working Paper ERSD-2017-15 (Geneva, WTO).
- Paz, L. S. 2014. "The impacts of trade liberalization on informal labor markets: A theoretical and empirical evaluation of the Brazilian case", in *Journal of International Economics*, Vol. 92, No. 2, pp. 330-348.
- Pierce, J.; Schott, P. 2016. "The surprisingly swift decline of US manufacturing employment", in *The American Economic Review*, Vol. 106, No. 7, pp. 1632-1662.
- Ponczek, V.; Ulyssea, G. 2015. *Trade opening, enforcement and informality: Evidence from Brazil*, unpublished manuscript.
- Rajan, R. G. 2010. *Fault Lines: How hidden fractures still threaten the world economy*. (Princeton, Princeton University Press).
- Topalova, P. 2010. Factor immobility and regional impacts of trade liberalization: Evidence on poverty from India, in *American Economic Journal: Applied Economics*, Vol. 2, No. 4, pp. 1-41.
- Topel, R. 1986. Local labour markets, in *Journal of Political Economy*, Vol. 94, No. 3, pp. 111-143.
- UNCTAD. 2018. *Trade and development report 2018* (Geneva, UNCTAD).