



Inequality

The IFS Deaton Review

A primer on trade and inequality

Dani Rodrik

An IFS initiative funded by the Nuffield Foundation

A primer on trade and inequality

Dani Rodrik (John F. Kennedy School of Government, Harvard University)¹

Economists have generally underplayed, until recently, globalisation's role in exacerbating inequality in the advanced economies. But in the public imagination, globalisation's adverse effects have loomed much larger, significantly contributing to the backlash against the political mainstream and the rise of far-right populism. The literature on trade and inequality is in fact exceptionally rich, with important theoretical insights as well as extensive empirical findings covering recent experience. In these comments I will summarise a few key takeaways.

Redistribution is the flip side of the gains from trade

Economic theory provides a natural starting point. Received theory suggests the redistributive effects of opening up to trade are large and permanent. Both of these implications – the magnitude and permanence of redistribution – are baked in trade theory and are its immediate implications. The gains from trade derive from the difference in relative prices that prevail in the world economy, on the one hand, and in the pre-trade (autarky) domestic economy, on the other. As an economy opens up to trade, domestic relative prices change, producing income redistribution alongside gains from trade. The identities of gainers and losers depend on the nature of social stratification in society (class, occupation, skills, education, gender, region, etc.) and on which side of the change in relative prices each group stands.

The famous theorem of Stolper and Samuelson (1941) produces one particular, and especially stark, result in a highly stylised model. It shows that trade creates absolute losses for a segment of society, and not just relative losses. The assumptions behind the theorem are extreme: only two factors of production, two goods, and perfect mobility of factors across goods. But the logic of the Stolper–Samuelson theorem generalises to a much broader set of economic environments. In a competitive economy, and as long as the home economy does not specialise completely (i.e. it continues to produce the goods that are imported), opening to trade must leave at least one factor of production worse off – regardless of the numbers of goods and factors and the degree of factor mobility.²

Importantly, this result implies that the consumer price effects of trade can never fully compensate the losers. This is a consequence of the fact that in a neoclassical production system changes in factor prices must bracket changes in goods prices. This produces the conclusion that there will be at least one factor of production whose wages fall more than the price of the good with the steepest price drop. So, even if less-skilled workers tend to heavily consume importables, they are still left worse off when such goods are intensive in the use of less-skilled workers.

These theoretical results are important because they run counter to many of the arguments in the public debate – that trade benefits most or all people, that even if trade creates some losers, these are merely transitory 'adjustment costs', or that consumer price effects outweigh losses.

¹ I am grateful to Penny Goldberg, other participants at the review meeting and, especially, Angus Deaton for comments and suggestions.

² See Rodrik (2018a) for a sketch of the proof.

Essentially, it is theoretically inconsistent to argue for significant gains from trade without accepting that there will be sharp distributional consequences. No pain, no gain!

Tracing out these distributional effects empirically requires that we identify accurately the relevant factors of production. Labour clearly differs from capital, and less-educated workers cannot quickly transform themselves into educated professionals. Early empirical work focused on these broad demarcations – labour versus capital, skilled versus less-skilled workers – but these were probably too aggregate to be very revealing. Employer- or industry-specific skills create an additional, more fine-grained distributional margin between the winners and losers from trade. More importantly, spatial immobility of workers produces distributional effects across regions. The research reviewed by Dorn and Levell (2021) for this volume identifies significant adverse local labour market consequences of the North American Free Trade Agreement (NAFTA; in the US) and the China trade shock (in both the US and Europe) in regions heavily reliant on jobs that compete with imports. See, in particular, Autor, Dorn and Hanson (2013) on the China trade shock and Hakobyan and McLaren (2016) on the NAFTA. These studies show that regions that were heavily affected by trade – and workers and industries most directly competing with China and Mexico – suffered significant and long-term income losses.

Redistribution looms larger in advanced stages of globalisation

Another important, but less well recognised, implication of trade theory is that the gains from removing trade barriers become smaller relative to the induced redistribution as the barriers in question become smaller. In other words, the redistributive component of trade looms larger relative to the overall gains as globalisation advances.

This result follows straightforwardly from standard economic theory. The efficiency costs of a tax on trade, as with all taxes, rise with the square of the tax. Reducing a tariff that is half the size creates a gain at the margin that is only a quarter as large. The distributive effects, meanwhile, are roughly linear in relative price changes and do not depend on the magnitude of the tax (or where we are in globalisation).

To see the practical significance of this, consider the following question: how many dollars of income are shuffled across different income groups per dollar of gains from trade? The answer to this question is given by what I have called the political cost–benefit ratio (PCBR) of trade liberalisation (Rodrik, 1994). The numerator of the PCBR is the sum of the absolute values of gains and losses across identifiable groups, divided by two (to ensure there is no double-counting). The denominator is the standard efficiency gains produced by trade liberalisation. We can compute this indicator using textbook partial- or general-equilibrium models of trade with benchmark parameter values (for elasticities in the former case and factor shares in the latter case). In both cases, the ratio of redistribution to net gains rises from around 5 when tariffs are initially at 40% to more than 20 when tariffs are at 10% or below (Rodrik, 1994, 2018a). In other words, the magnitude of redistribution is quite dramatic at low levels of trade barriers relative to gains from trade that are generated. Nor is this merely a theoretical possibility. Empirical analyses of the NAFTA (Romalis, 2007; Caliendo and Parro, 2015) have found that the gains from trade reaped by the US economy are minute compared with the distributive effects highlighted, for example, by Hakobyan and McLaren (2016).

These considerations offer an important perspective on the political economy of globalisation. Once national markets have become fairly open, attempts to push globalisation further will seem to be motivated primarily by the objective to enrich certain groups rather than expand the size of

the overall pie – and with good reason! I would hazard the guess that advanced economies had already reached that stage by the late 1990s, if not earlier.

Compensation is problematic

Trade induces income redistribution, but it need not aggravate inequality if the beneficiaries are the less fortunate in society. Theory and empirics both suggest, however, that redistribution went in the wrong direction in the advanced economies. The losers were poorer workers with less education, and regions that were already adversely affected by de-industrialisation and the concomitant loss of jobs. The income losses were in turn magnified by rising mortality rates and other social costs (Case and Deaton, 2020).

The standard response by economists and trade policymakers to such concerns is that trade agreements need to be accompanied by compensation for the losers. In the US, compensation is often explicitly built into trade policy in the form of Trade Adjustment Assistance (TAA). In Europe, compensation is not directly targeted at workers affected by trade, but social insurance and active labour market programmes that address job losses in general tend to be more generous than in the US. In neither case is compensation provided for earning losses per se, unless workers are thrown into unemployment or fall under income thresholds that trigger public assistance. It is fair to say that compensation is incomplete and imperfect.

There are good reasons why compensation never quite works in practice. First, there are informational problems that impede targeting the losers. It is not clear how well governments can identify workers whose earnings would have been higher in the absence of trade liberalisation. In practice, this problem is ‘solved’ by making public assistance conditional on an observable trade shock – such as job loss due to trade. But this misses workers who have to accept lower wages either as they change jobs or in their existing employment. In general, imperfect information rules out lump-sum transfers, which means that compensation must create by-product inefficiencies.

This brings us to the second problem. Because compensation is costly, the deadweight loss of compensation could easily eat up an important chunk of the gains from trade. This would make the aggregate gains from trade liberalisation-cum-compensation much smaller, and could even turn those gains into losses. Antràs, de Gortari and Itskhoki (2017) show that the relevant magnitudes can be significant in a quantitative trade model: the uncompensated rise in inequality produced by trade can make a sizeable dent in social welfare; and the distortionary taxation deployed to moderate inequality can in turn reduce the gains from trade. In this study, trade liberalisation is modelled as a reduction in ‘iceberg’ trade costs, which ignores the loss in government tariff revenues. When government revenues are added in, the requisite compensation is larger.

Consider a back-of-the envelope calculation based on the Rodrik (1994, 2018a) results cited earlier. Assume the excess burden of tax-transfer policies is as low as \$0.10. In other words, for every \$1 of redistribution, 10 cents of deadweight loss is generated. Assume further that the PCBR (at the margin) of trade liberalisation is 10, which is not an extreme number when economies are already highly open (as discussed previously). Then, compensating the losers fully would produce a deadweight loss that exhausts all the gains from trade. A PCBR larger than 10 and/or excess burden greater than 0.10 would produce net losses to society from trade liberalisation-cum-compensation. Particular groups (export-oriented interests) might still gain – and gain a lot – but the losses incurred by the rest of society would be larger.

I have so far considered the economic arguments for why compensation may be problematic, and incomplete at best. The assumption is that there is a social welfare function that takes income distribution into account and that political authorities want to maximise. But there are also political reasons that can stand in the way of compensation. If globalisation's beneficiaries are powerful enough to get the trade agreements they want, they might be also powerful enough to block redistributive policies. And even if they need a broad enough coalition at the outset, they can wiggle themselves out of their commitments down the line.

A particular version of this argument is based on the time inconsistency of the promise to compensate the losers. Suppose that signing a trade agreement requires that at least some of the potential losers are on board. In advanced countries, these groups are likely to represent workers in declining industrial regions. To get their agreement, the government will want to promise compensation. In the US context, this takes the form of enhanced TAA. Once the agreement is signed, however, and as long as the trade agreement cannot be easily reversed, there will be little incentive to ensure the compensation is undertaken. More generally, promises to redistribute ex-post are time-inconsistent when the trade deal undermines the power of veto players (Fernandez and Rodrik, 1991). Indeed, TAA has generally been under-funded and its effectiveness has been limited (D'Amico and Schochet, 2012).

In short, the fact that globalisation's losers have not seen much compensation in practice is not surprising from either an economic or a political standpoint.

Fairness versus inequality: trade differs from other market exchanges

But why should governments try to undo the redistributive effects of trade and globalisation in the first place? Market-based economies undergo continuous changes, many of which have implications for relative prices and for income distribution. Changes in demand conditions, new technologies and a variety of other idiosyncratic shocks buffet economies without necessarily giving rise to concern about inequality or calls for compensation. Moreover, it is not clear that trade is the most important factor behind the distributional woes of advanced societies in recent decades: consider, for example, rising wage inequality, de-industrialisation, regional decline, middle-class squeeze, increasing top incomes, and falling income shares of labour. There is broad consensus within the economics profession that technology and broad institutional changes (such as the decline in unionisation or labour power) have played a larger role. Yet somehow the adverse effects of trade and globalisation have become politically salient in a way that many of the other determinants have not. A large body of empirical literature shows that globalisation shocks have played a causal and significant role in the rise of right-wing populist movements (Rodrik, 2021).

The outsized effects of trade shocks in shaping public attitudes are demonstrated in an experiment that Rafael Di Tella and I ran on US respondents (Di Tella and Rodrik, 2020). In a large-scale online survey, we presented subjects with a 'newspaper article' on the impending closure of a garment plant. Our subjects were divided randomly into different treatment groups, with each group presented with a different scenario as to the reason for the plant closure. The scenarios covered a negative demand shock, the introduction of labour-saving technology, management mistakes, and different types of international outsourcing (trade). The respondents were then asked about their preference for various types of government policy: they could choose to do nothing, provide government transfers to the displaced workers, or impose trade protection.

In general, the scenarios elicited an increase in support for government action compared with the control scenario (with no job losses). But the main takeaway was that people do not treat different types of job loss uniformly. They distinguish among labour market shocks according to what produces them. While non-trade disruptions such as technology and demand shocks did increase the demand for protection, trade shocks elicited a much more drastic protectionist response, doubling or tripling the share of respondents who sought trade restrictions. Moreover, our subjects were especially sensitive to trade with a developing nation. Simply changing the name of the country to which production is outsourced, from France to Cambodia, increased the demand for import protection significantly (by more than half the baseline level of demand for trade protection).

These results suggest that people view trade shocks as being inherently different from other kinds of shocks. Our respondents' views on the desirability of government action of some kind (and trade protection in particular) depended not just on prospective outcomes – the job losses – but also on the causal channels. People seem to have preferences over distributive mechanisms as well.

Angus Deaton, among others, has argued that public reactions to economic trends are shaped less by inequality per se than by perceptions of unfairness. As Deaton (2017) writes, 'inequality is not the same thing as unfairness ... it is the latter that has incited so much political turmoil in the rich world today. Some of the processes that generate inequality are widely seen as fair. But others are deeply and obviously unfair, and have become a legitimate source of anger and disaffection.' Foreign trade is particularly prone to charges of unfairness, because it entails economic transactions between entities that operate under different sets of rules and regulations.

Consider the difference between a market exchange that is domestic and one that crosses national borders. In the first case, all firms operating in a given industry are subject to identical rules and regulations – established by the national government – and the expectation is that the state does not favour one over the other. In other words, there is a level playing field. In the second case, circumstances facing different firms may be quite dissimilar. A firm in country A might be subsidised (explicitly or implicitly) by its government, may face much weaker environmental and labour standards than prevail in country B and, even if regulations on the books are similar, may be allowed to evade them. From a formal economic standpoint, the resulting variations in comparative costs across countries are no different from those that arise from differences in relative factor endowments or productivity, and hence may even be the source of additional gains from trade. But the opportunities to trade that arise from such unevenness in the playing field have a rather different feel and appear to be unfair.

Economists have traditionally resisted bringing forward such fairness concerns in discussions of trade policy. If labour standards are weak or non-existent in low-income countries, why should that not count as just another source of comparative advantage? Besides, would the workers displaced from sweatshops if trade of this kind were to be restricted not be even worse off in the absence of the trade opportunities? Does it not make economic sense to move pollution-intensive activities to jurisdictions where the demand for cleaner air is lower and hence environmental regulations are weaker?

But let us look at these concerns from the standpoint of the affected groups, particularly labour, in the importing country. After long political struggles, workers in most advanced countries have achieved a significant expansion of social rights, including labour standards such as freedom of collective bargaining and prohibition of forced and child labour. A key feature of these labour

standards is that they make it illegal (and illegitimate) for firms to compete on the basis of cost advantages derived by violating these standards. A firm cannot outcompete another firm by employing workers who are willing to exempt themselves from national labour regulations – even if those workers are willing to do so voluntarily.

But international trade renders what is illegal (and illegitimate) in a national setting to be suddenly legal (and, in the eyes of many economists and technocrats, fully legitimate). A firm cannot import child workers and put them to work at home; but it is perfectly able to do so when it employs those child workers abroad (directly, or through a subcontractor). An economist looks at this, and sees gains from trade. For the labour advocate and social reformer, however, what is taking place is an undercutting of domestic labour standards. Effectively, domestic workers are told: if you want to compete with imports, you need to sacrifice your hard-earned labour rights.

In some cases, international trade laws recognise the need to pay at least lip service to considerations of fairness. This is why export subsidies and dumping (selling below cost) on the part of exporters are generally punishable by trade remedies (i.e. import tariffs) even though the purely economic case for doing so is weak. Prison labour was left outside trade rules in the original General Agreement on Tariffs and Trade (allowing countries to restrict imports made with such labour). A similar exception was not made formally for goods made with slave labour, though presumably few would object today to trade prohibitions in this case. But what about child labour, exploitative work practices, or blatant repression of collective bargaining rights? In all these cases, there is a strong argument that such trade is open to charges of unfairness. Yet current trade rules generally do not allow countries to restrict imports on the basis of such considerations (outside a few bilateral or regional trade agreements). Prohibiting or restricting imports because of labour rights violations in exporting nations would violate World Trade Organization (WTO) rules and could be met with retaliation on the part of affected exporters.

Regulatory differences across countries need not be always problematic. They can be based on differences in circumstances or preferences, and need not reflect clear-cut violations of social rights. For example, an exporting country may have a comparatively low minimum wage, reflecting a depressed level of labour productivity. Clearly, this would not be a source of downward arbitrage on working conditions in importing countries, and should not raise concerns about unfair trade (though in practice it often does). In other cases, countries may choose weaker social and labour protections because of perceived trade-offs with other social objectives (e.g. higher levels of employment). Arbitrage considerations will then still enter, even if there are no rights violations in the low-standard country. This is one of the considerations that weighed heavily with the European Union (EU) when negotiating the terms of Brexit with the UK.

Fairness considerations in trade do not call for uniformity in labour or social rules. Regulatory diversity is a value in itself. But in general, the more complete and deeper the integration, the greater will be the demand for harmonising regulations. Within the EU, divergence in labour rules between some of the countries in the periphery (e.g. Poland) and the more advanced nations (e.g. France) has often created tensions. In the Brexit agreement, the EU received assurances from the UK that its industries would not be undercut by weaker labour and environmental rules in the latter (and reserved the right to restrict trade if changes in UK labour, social or environmental policies produce ‘material impacts on trade or investment between the parties’).³

³ See ‘U.K. Explores Reform of Workers’ Rights That Would Break From EU’, by A. Morales, Bloomberg News, 14 January 2021, <https://www.bloomberg.com/news/articles/2021-01-14/u-k-explores-reform-of-workers-rights-that-would-break-from-eu?utm>.

Economic integration comes with a trade-off between the gains from trade, on the one hand, and the gains from regulatory diversity, on the other. It is impossible in general to maximise on both fronts. The deeper we go into integration, the more we must sacrifice regulatory diversity – either de jure, or de facto through arbitrage. (I discuss regulatory harmonisation further in the next section.) Without claiming to resolve such issues, economists might nevertheless acknowledge that trade does indeed raise thorny questions of fairness under such conditions.

The benefits of deep integration are ambiguous

Economists typically think of international trade policy in terms of tariffs and quotas. But as the discussion above suggests, over the years, trade policy has become less and less about such textbook frictions and more about so-called behind-the-border 'barriers' that raise the costs of accessing domestic markets. The idea was that as traditional barriers came down, further gains from trade could be reaped by removing the transaction costs created by policies or regulations that were traditionally considered to be domestic policies. Agriculture, services, subsidies, health and sanitary rules, and intellectual property regulations were some of the new areas that were incorporated into the WTO in 1994. Subsequent trade agreements negotiated bilaterally or regionally went even further in these domains and entered additional areas such as banking, finance, and labour regulations. The trouble is that domestic policies in these domains often served important distributive roles or were the outcome of historical social bargains. When they became part of trade negotiations, the result was the perception (often accurate) that trade agreements were being hijacked by specific groups and lobbies seeking to overturn long-standing social contracts. Trade agreements became more divisive and contentious.

But this is not merely a question of perceptions. The political backlash against deep integration does have reasonable economic underpinnings. International agreements that constrain domestic regulatory autonomy produce aggregate economic benefits that are far more ambiguous than is the case for lowering traditional border barriers. They may well reduce trade costs and boost increases in the volume of trade and cross-border investment. But their welfare and efficiency impacts are fundamentally uncertain. I discuss the issues more fully in Rodrik (2018b); see also Maggi and Ossa (2021).

Consider the case of regulatory standards (designed to promote consumer safety, the environment or health). The harmonisation of such regulatory standards lies at the centre of today's trade agreements. The justification is that reducing regulatory differences among nations reduces the transaction costs associated with doing business across borders. Demanding regulatory standards that may impede market access by foreign producers are sometimes labelled 'non-tariff barriers'. And there is little question that governments sometimes do deploy regulations to favour domestic producers over foreign ones. But, as I discussed earlier, these differences often reflect dissimilar consumer preferences or divergent regulatory styles. European bans on genetically modified organisms (GMOs) and hormone-fed beef, for example, are rooted not in protectionist motives – the same bans apply to domestic producers as well – but in pressures from consumer groups at home. The US government considers these as protectionist barriers, and dispute-settlement panels of the WTO have often agreed (Rodrik, 2018b).

The trouble is that, unlike in the case of tariffs and quotas, there is no natural benchmark that allows us to judge whether a regulatory standard is excessive or protectionist. Different national assessments of risk (e.g. safety, environmental, health) and varying conceptions of how business

should relate to its stakeholders (e.g. employees, suppliers, consumers, local communities) will produce different standards, none obviously superior to others. In the language of economics, regulatory standards are public goods over which nations (and groups within nations) can have different preferences. Nations need to trade off the benefits of expanding market integration (by reducing regulatory diversity) against the costs of excessive harmonisation. The resulting decisions are inherently political and distributional. And they remain contested as preferences and political coalitions shift.

The European *Acquis Communautaire* represents the apex of regulatory harmonisation. The European single market is the self-conscious result of pursuing not just free trade, but deep integration, which in turn has required an extensive and detailed body of laws and regulations – going so far as prescribing, for example, the size of cages for egg-producing hens – that apply, for the most part, to all member states. These trade-offs featured heavily in the UK debate on Brexit. One (perhaps charitable) way to understand the pro-Brexit case is that it was a demand for such decisions to remain in the hands of domestic politicians and policymakers (rather than European technocrats). Continued membership in the EU implied that the relevant trade-offs would be made in Brussels, relatively distant from democratically elected leaders, and would likely favour the single market rather than national difference.

This was perhaps a different kind of distributional conflict, revolving less around material interests and more around values and broader social/political preferences. For those with significant commercial, economic or professional stakes in accessing the European market, it was natural that material interests would predominate. For others, for whom the economic prospects were less bright, political and regulatory autonomy could rise to the surface.

‘Dynamic’ gains from trade are uncertain

The standard gains from trade are static, level effects that are the result of a more efficient allocation of domestic resources, given trade possibilities. It is possible to envisage also dynamic growth effects or productivity benefits that go beyond standard allocative efficiency gains. In particular, freer trade could produce an increase in the underlying rate of productivity growth of the economy instead of a one-time increase in consumption possibilities. The advocates of trade agreements often rely on such growth or productivity effects to claim large economic gains. Many of the distributional issues I have discussed would not loom as large in the presence of a sustained increase in economic growth. A continuously rising tide is much more likely to eventually lift all (or most) boats.

The growth effects could arise from either an increase in capital accumulation or a faster rate of innovation and its dissemination. Note first that an increase in medium- or long-run growth need not in itself imply a corresponding rise in welfare. Suppose, for example, that freer trade raises the domestic return to capital and hence the rate of investment, along with the long-run rate of growth. In the absence of a divergence between the private and social rates of return to accumulation, the opportunity costs of foregone consumption in the short run (in order to increase savings and finance the investment) are equal at the margin to the longer-run increase in consumption possibilities. In this case, the gains from trade, appropriately calculated, would be

no different from the standard static gains, despite the increase in the growth rate of the economy.⁴

Welfare-significant growth effects are most likely when trade enhances productivity within sectors, either within firms or by reallocation among firms, and when there are positive externalities associated with the innovation process. One common mechanism is increased trade-facilitating technology transfer from frontier firms in other countries (Bayoumi, Coe and Helpman, 1999). Another is import competition that forces less-efficient firms to exit while others are forced to rationalise their operations (Melitz, 2003). Such effects are extensively documented and, in general, trade is associated with increased productivity growth within sectors most exposed to the global economy, such as manufacturing.

What has been less well recognised is that trade-induced productivity growth within manufacturing does not necessarily translate to what really matters for aggregate gains, which is economy-wide productivity growth. In many middle-income and advanced economies, and the UK in particular, import competition has accelerated the process of de-industrialisation. The key question is what happens to the labour that has to be re-allocated to other sectors, as manufacturing shrinks. When labour moves to lower-productivity service activities, where technological externalities are less significant, or employment levels remain depressed in adversely affected regions, the economy-wide effects are considerably less salutary. Local economic decline and de-industrialisation have been linked not only to poorer productivity performance, but to a variety of social ills ranging from family breakdown to rising rates of addiction and suicide (Case and Deaton, 2020). The UK's international economic specialisation has generally promoted financial services and a strong pound, to the detriment of many parts of the real economy.

What about low-income exporting countries? It is undeniable that growth in many of these countries – and China in particular – has benefited from the openness of markets in Europe and the US. Export-oriented industrialisation has been a potent engine for growth in countries that managed to engineer it. So even if trade may have aggravated inequality in advanced economies, it likely reduced global inequality – thanks in large part to China's economic performance.

However, two points are worth making here, lest one draws too tight a link between post-1990 globalisation and global equality. First, successful industrialisers relied on a wide range of policies that violated deep integration rules. China promoted industrialisation not only by shielding its state enterprises from import competition for a long time, but also through subsidies, forced technology transfer, domestic-content requirements, currency manipulation, and lax patent and copyright practices. Second, aside from China, the most prominent examples of export-oriented industrialisation (Japan, South Korea, Taiwan) took place before the 1990s, when trade restrictions in the advanced economies were generally higher and trade liberalisation was confined to border barriers.

Financial globalisation and capital mobility aggravate inequality

My discussion so far has focused on trade, but it would be incomplete without some discussion of the distributional effects of the international mobility of corporations and of financial globalisation.

⁴ By the same token, a trade opening that reduced the rate of return to capital and produced lower rates of accumulation and growth in the medium term would not be any less beneficial on account of these induced adverse growth effects.

Researchers at the International Monetary Fund (IMF) have found that greater capital mobility produces strong inequality effects (Jaumotte, Lall and Papageorgiou, 2013; Furceri and Loungani, 2015; Furceri, Loungani and Ostry, 2017). In particular, they find that capital-account liberalisation leads to statistically significant and long-lasting declines in the labour share of income, and corresponding increases in the Gini coefficient of income inequality and in the shares of the top 1%, 5% and 10% of income.

There is no analogue to trade theory's Stolper–Samuelson theorem in international macroeconomics, but there may be an obvious, bargaining-related explanation (as argued in Rodrik, 1997, Chapter 2). As long as wages are determined in part by bargaining between employees and employers, capital mobility gives employers a credible threat: accept lower wages, or else we move abroad. Furceri et al. (2017) provide some evidence that the decline in the labour share is related to the threat of relocating production abroad. The bargaining explanation is also consistent with the finding in Jaumotte et al. (2013) that it is foreign direct investment in particular that is associated with the rise in inequality. More broadly, the wage-bargaining regime may be endogenous to globalisation, with the greater ease of moving production abroad associated with weaker labour power.

Another argument in Rodrik (1997) is that capital mobility would increase volatility of labour earnings and, in particular, shift the burden of economic shocks to labour. This too follows from the differential mobility of labour and capital across borders. The factor that is stuck within borders has to absorb the costs of idiosyncratic shocks. Subsequent evidence has been largely consistent with this conjecture (Scheve and Slaughter 2004; OECD 2007; Buch and Pierdzioc 2014). Workers with the lowest skills and qualification, those least able to move across borders, are typically the most affected by this risk shifting.

Another distributional shift has to do with the burden of taxation. As capital becomes globally mobile, it becomes harder to tax. Indeed, corporate tax rates have come down sharply in virtually all advanced economies since the late 1980s, sometimes by half or more. Such trends have been linked explicitly to tax competition in countries with free capital-mobility regimes (Devereux, Lockwood and Redoano, 2008). Meanwhile, the tax burden on wages (social security charges, etc.) has remained roughly constant and value added tax (VAT) rates have generally increased (Rodrik, 2018a).

There has been much greater cooperation and information-sharing among advanced economies in recent years, with a view to restricting tax competition. Agreement has been reached recently among leading economies to establish a floor on corporate income taxation. Whether this will produce a significant shift in the taxation of globally mobile capital remains to be seen.

References

- Antràs, P., de Gortari, A. and Itskhoki, O. (2017), 'Globalization, Inequality and Welfare', *Journal of International Economics*, 108, 387–412.
- Autor, D., Dorn, D. and Hanson, G. (2013), 'The China Syndrome: Local Labor Market Effects of Import Competition in the United States', *American Economic Review*, 103 (6), 2121–68.
- Bayoumi, T., Coe, D. T. and Helpman, E. (1999), 'R&D Spillovers and Global Growth', *Journal of International Economics*, 47, 399–428.

- Buch, C. M. and Pierdzioc, C. (2014), 'Labor Market Volatility, Skills, and Financial Globalization', *Macroeconomic Dynamics*, 18, 1018–47.
- Caliendo, L. and Parro, F. (2015), 'Estimates of the Trade and Welfare Effects of NAFTA', *Review of Economic Studies*, 82, 1–44.
- Case, A. and Deaton, A. (2020), *Deaths of Despair and the Future of Capitalism*, Princeton, NJ: Princeton University Press.
- D'Amico, R. and Schochet, P. Z. (2012), 'The Evaluation of the Trade Adjustment Assistance Program: A Synthesis of Major Findings', Washington, DC: US Department of Labor Employment and Training Administration, Office of Policy Development and Research.
- Deaton, A. (2017), 'How Inequality Works', Project Syndicate, <https://www.project-syndicate.org/onpoint/anatomy-of-inequality-2017-by-angus-deaton-2017-12>.
- Devereux, M. P., Lockwood, B. and Redoano, M. (2008), 'Do Countries Compete Over Corporate Tax Rates?', *Journal of Public Economics*, 92, 1210–35.
- Di Tella, R. and Rodrik, D. (2020), 'Labor Market Shocks and the Demand for Trade Protection: Evidence from Online Surveys', *Economic Journal*, 130, 1008–30.
- Dorn, D. and Levell P. (2021), 'Trade and Inequality', IFS Deaton Review: Inequalities in the Twenty-First Century, London: Institute for Fiscal Studies.
- Fernandez, R. and Rodrik, D. (1991), 'Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty', *American Economic Review*, 81 (5), 1146–55.
- Furceri, D. and Loungani, P. (2015), 'Capital Account Liberalization and Inequality', IMF Working Paper No. 243.
- Furceri, D., Loungani, P. and Ostry, J. D. (2017), 'The Aggregate and Distributional Effects of Financial Globalization', IMF, unpublished paper.
- Hakobyan, S. and McLaren, J. (2016), 'Looking for Local Labor Market Effects of NAFTA', *Review of Economics and Statistics*, 98, 728–41.
- Jaumotte, F., Lall, S. and Papageorgiou, C. (2013), 'Rising Income Inequality: Technology, or Trade and Financial Globalization?', *IMF Economic Review*, 61, 271–309.
- Maggi, G. and Ossa, R. (2021), 'The Political Economy of Deep Integration', *Annual Review of Economics*, 13, 19–38.
- Melitz, M. J. (2003), 'The Impact of Trade on Intra-industry Reallocation and Aggregate Industry Productivity', *Econometrica*, 71, 1695–725.
- OECD (2007), 'Globalisation, Jobs and Wages', OECD Policy Brief, <https://www.oecd.org/els/emp/Globalisation-Jobs-and-Wages-2007.pdf>.
- Rodrik, D. (1994), 'The Rush to Free Trade in the Developing World: Why So Late? Why Now? Will It Last?', in S. Haggard and S. Webb (eds), *Voting for Reform: Democracy, Political Liberalization, and Economic Adjustment*, New York: Oxford University Press.
- Rodrik, D. (1997), *Has Globalization Gone Too Far?*, Washington, DC: Institute for International Economics.

- Rodrik, D. (2018a), 'Populism and the Economics of Globalization', *Journal of International Business Policy*, 1, 12–33.
- Rodrik, D. (2018b), 'What Do Trade Agreements Really Do?', *Journal of Economic Perspectives*, 32 (2), 73–90.
- Rodrik, D. (2021), 'Why Does Globalization Fuel Populism: Economics, Culture, and the Rise of Right-Wing Populism', *Annual Review of Economics*, 13, 133–70.
- Romalis, J. (2007), 'NAFTA's and CUSFTA's Impact on International Trade', *Review of Economics and Statistics*, 89, 416–35.
- Scheve, K. and Slaughter, M. J. (2004), 'Economic Insecurity and the Globalization of Production', *American Journal of Political Science*, 48, 662–74.
- Stolper, W. and Samuelson, P. A. (1941), 'Protection and Real Wages', *Review of Economic Studies*, 9, 58–73.