BANK OF ENGLAND

Financial Stability Paper No. 43 – January 2018

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There is substantial evidence that openness to trade raises economic growth and boosts living standards. But trade liberalisation has been asymmetric, focused on goods rather than services trade. The decline in goods trade barriers may have favoured countries specialising in goods, like China, Germany and Japan, allowing them to increase exports relative to imports, and contributing to their persistent current account surpluses. By contrast, countries like the United States and the United Kingdom, who specialise in the services sector where trade is more restricted, have been running persistent deficits. This pattern of persistent surpluses and deficits in these key countries has proven hard to explain in the International Monetary Fund's External Balance Assessment methodology. This paper suggests that asymmetric trade liberalisation is one overlooked explanation. We demonstrate how realistic additions to textbook economic models allow trade policy to have persistent effects on current account imbalances. We also find empirical support for significant quantitative effects. These results suggest that liberalising services trade, levelling up to the liberalisation seen in goods trade, could reduce excess global imbalances by around 40%. Moreover it could contribute to higher and more inclusive global growth.

Introduction

There is substantial evidence that openness to trade raises economic growth and boosts living standards. Cross-country evidence suggests that greater trade openness results in higher per capita income (Frankel and Romer (1999)). This is achieved by raising productivity: a 138-country study finds that a 1 percentage point increase in openness raises productivity almost one-for-one in the long run (Alcalá and Ciccone (2004)). Ahn *et al* (2016) estimate that a 1 percentage point reduction in tariffs raises productivity by 2%.

Openness supports economic dynamism through a range of channels. It promotes innovation and the adoption of new technologies through the free movement of capital and labour. It allows firms to specialise and exploit economies of scale, raising efficiency. Greater competitive pressure, from operating in a larger market, favours more productive domestic firms, enhancing economic dynamism in the long run as production shifts to them. Greater financial openness improves matching of savers with borrowers which lowers financing costs, boosts investment and ultimately growth.

The reallocation of resources necessary to reap the substantial benefits that trade has to offer can have adverse distributional consequences. But at the same time, trade makes a wider variety of goods and services accessible to consumers at lower prices — a channel that tends to benefit lower-income households in particular (Faijgelbaum and Khandelwal (2016)). Indeed, poor consumers spend relatively more on sectors that are more traded (eg food and beverages) and thus experience larger price drops upon opening to trade. Overall the evidence suggests that more open trade over the past three decades has been an important factor driving the large decline in the share of the world population living in significant poverty (BIS (2017) and IMF/WTO/World Bank (2017)).

But trade liberalisation has been asymmetric, with greater liberalisation being achieved in goods rather than services trade. This paper explores how that may have contributed to the opening up of trade imbalances — the difference between a country's imports and exports — and hence how much countries borrow from or lend to each other. Given the evidence that openness to trade supports growth, liberalising services trade could therefore both reduce risks from global imbalances and increase global growth.

The broadest measure of imbalances is the current account, which measures the net flow of capital between countries — deficit countries borrow from surplus countries. Countries gather twice a year at the International Monetary Fund (IMF) to discuss the global economic and financial system, including current account imbalances. The IMF is the guardian of the smooth function of the international monetary and financial system. At the October 2017 IMF Annual Meetings, the Secretary of the US Treasury, Steven Mnuchin, said:

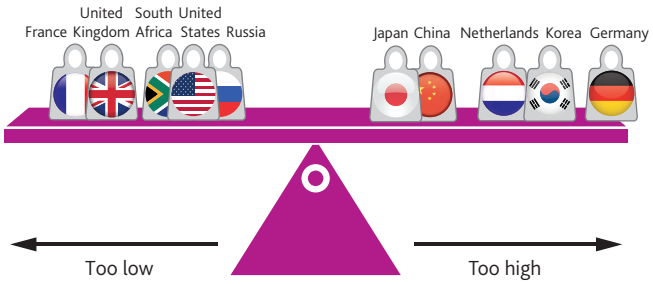
> 'As the IMF's recent *External Sector Report* highlights, global rebalancing is far from complete, and sustained global excess imbalances continue to pose risks for the global system.'

He further called on the IMF to:

> '…make clear policy recommendations — in particular highlighting ways that surplus and deficit countries must adjust to reduce imbalances.'

The IMF assesses imbalances each year in its *External Sector Report* (*ESR*), gauging the degree to which they might be 'excessive' — that is greater than can be explained by fundamental factors — and, if so, discussing policies that countries should pursue to reduce them. Those excesses for some key countries are shown in **Chart 1**. Unfortunately the very thorough modelling framework used by the IMF has been unable to explain much of the persistence in these excesses through traditional factors. That makes it difficult to offer clear advice on policies to help reduce them.

Chart 1 Current account misalignments(a)



Source: *IMF External Sector Report* (*2017*).

(a) Shows the mid-point of the IMF's estimated current account gaps as a percentage of country GDP, which indicate whether the current account is stronger or weaker than warranted.

The aim of this paper is to show that asymmetric trade liberalisation could be one explanation that has been overlooked. Goods trade has been significantly liberalised since the mid-1990s, helping countries like China, Germany and Japan, which specialise in producing goods, to run surpluses. By contrast, services trade remains much more restricted, making it more difficult for countries like the United States and United Kingdom, who specialise in services, to expand their exports. So liberalising services trade could be a clear policy recommendation to help reduce imbalances. Moreover, given the substantial evidence that openness to trade raises economic growth, it would contribute more broadly to fulfilling the G20 commitment to *Strong, Sustainable, Balanced, and Inclusive growth*.(1)

(1) G20 2017 Hamburg Summit Declaration; https://www.g20.org/profiles/g20/modules/custom/g20_beverly/img/timeline/Germany/G20-leaders-declaration.pdf.

The paper is structured as follows: first we review the landscape of current account imbalances through the lens of the IMF's External Balance Assessment (EBA) methodology; next we look at the economics of how trade policy could contribute to explaining imbalances and assess the quantitative significance empirically. Finally, while recognising that liberalising services trade is not easy, the broader benefits in terms of growth are discussed.(1)

What are global imbalances?

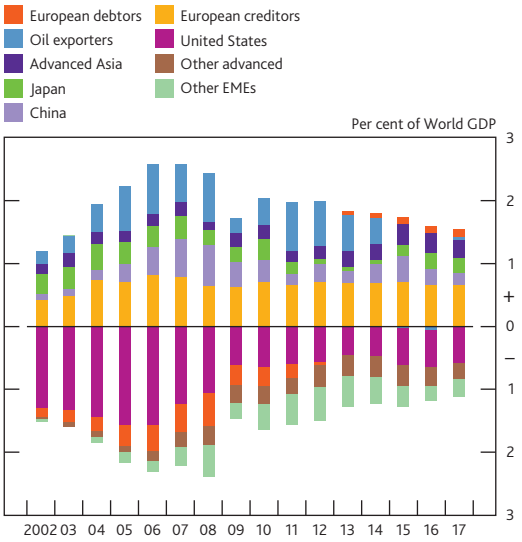
The economic concept most commonly used when discussing global imbalances is the current account balance. That measures the net saving position of an economy in relation to the rest of the world. Within an economy, the sum of household, corporate and government spending need not always equal a country's income. With open global financial markets, it is possible for a country to smooth spending by borrowing or saving in response to income shocks or expected future income changes.

Current account imbalances are therefore an inevitable and welcome feature of an open global financial system. Aggregating these across surplus and deficit countries gives a sense of global imbalances (**Chart 2**). But very large imbalances have in the past been a precursor to financial crises. A vast literature has documented how the expansion of global imbalances in the run-up to 2007 could have been a contributor to the global financial crisis (eg Bernanke (2005); Caballero *et al* (2008)). They argue that excessive saving by surplus countries depressed global interest rates and contributed to asset price bubbles in borrowing countries. The parallel increase in gross global financial flows also contributed to the crisis, with gross foreign asset positions as a share of global GDP increasing fourfold and maturity and currency mismatches opening up.

Global current account imbalances narrowed after the financial crisis, from around 2½% of global GDP to around 1½%, but have persisted at that level in recent years, contributing to a widening in stock imbalances. And the constellation among major countries on the eve of the crisis, with China, Germany and Japan running surpluses and the United States and United Kingdom running deficits, hasn't changed.

Of course many factors explain movements in current account imbalances, so first the next section explores in more detail what the traditional determinants are. We then go on to explain how asymmetric trade liberalisation could also have contributed to imbalances.

Chart 2 Global current account imbalances(a)



Source: IMF *World Economic Outlook* (*WEO*) October 2017.

(a) European creditors = Austria, Belgium, Denmark, Finland, Germany, Luxembourg, Netherlands, Norway, Sweden and Switzerland. European debtors = Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain. Other advanced = Australia, Canada, France, Iceland, New Zealand and United Kingdom. Advanced Asia = Hong Kong SAR, South Korea, Singapore and Taiwan Province of China. Oil exporters = Algeria, Azerbaijan, Iran, Kazakhstan, Kuwait, Nigeria, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates and Venezuela.

What drives imbalances between countries?

The current account position of an economy is determined by the sum of spending and saving decisions made by different sectors of the economy. In aggregate it represents the difference between what a nation earns and spends. So, much like a household's overdraft at its bank, when the nation is spending more than it earns it is running a current account deficit. It is alternatively expressed as the difference between national saving and investment, or net exports of goods and services plus net investment income from abroad.(2) This equivalence can be shown by simple accounting arithmetic.

National income, also called gross national product (*GNP*) — the total value-added accruing to residents of a country, regardless of the location of the factors of production they own — is equal to a country's GDP (*Y*) plus the income they earn on net foreign assets *F*.

$$GNP = Y + F$$

The current account (*CA*) is the difference between national income and domestic spending, which comprises private spending on consumption *C*, investment *I* and government spending *G*:

$$CA = Y + F - (C + I + G)$$

(1) This paper builds on the speech, 'A Fine Balance', given by Mark Carney in June 2017, www.bankofengland.co.uk/speech/2017/a-fine-balance; and staff analysis in Joy *et al* (2017).
(2) Net transfers are excluded here for simplicity.

Rearranging we get:

$CA = (Y + F - C - G) - I = S - I$

where S is national saving, equal to $Y + F - C - G$.

Or alternatively, rearranging

$(Y + F - C - G) - I$ as $Y - (C + G + I) + F$

and recognising that the difference between domestic output (Y) and domestic spending ($C + I + G$) is net exports (NX, exports minus imports), we get:

$CA = NX + F = S - I$

In other words, the current account is both the difference between national saving and investment and the sum of net exports and net investment income from abroad. A current account deficit (surplus) requires a net flow of finance from (to) the rest of the world, which is captured in a country's financial account.

Current account imbalances can indicate countries smoothing spending over time relative to income, and this intertemporal mechanism is the focus of textbook models like Obstfeld and Rogoff (1996). According to the theory, countries will run deficits today, by borrowing from abroad, in order to smooth consumption whenever income today is low relative to future income, either due to a temporary fall in income, or due to relatively higher expected future income growth. Conversely, countries will run current account surpluses, and build up net foreign assets, to smooth consumption in the face of relatively high income today or in anticipation of relatively slow future income growth.

The determinants of imbalances will therefore be differences across countries in the factors which affect the path of income over time, or the incentives of agents to save and invest. These can be differences in fundamental structural features of economies, for example their level of development, demographic structure, or resource endowments. Differences in government policy, for example social safety net provision, monetary or fiscal policy, or regulation of the financial sector, can also affect current account balances. Next we discuss these two groups of determinants and then summarise how the IMF's *ESR* framework estimates the extent to which imbalances are justified by fundamentals, may be distorted by government policy not being optimal, and how much remains unexplained.

Structural factors

A key structural driver relates to the level of the capital stock. Poorer countries with less capital per worker may be able to offer high prospective marginal returns to capital and so attract investment from richer countries, where capital levels have already reached high levels and the marginal returns may be lower. These flows would help incomes in poorer countries to catch up. If so, other things equal, emerging market economies should tend to run current account deficits, borrowing from advanced economies. Private sector behaviour has tended to support this pattern, but it has often been obscured by EME sovereigns' building up reserves (Whitaker (2017)).

The relative demographic structure of the economy is another important structural determinant of current account positions (Backus, Cooley and Henriksen (2014) and Lisack, Sajedi and Thwaites (2017)). Changes in the age composition of the population influence national savings decisions. For instance, an increase in the fertility rate of an economy will probably decrease national savings and reduce current account balances, because the young are net consumers. By contrast, rising life expectancy relative to other countries may increase savings, as people need to accumulate a higher stock of wealth to finance longer retirements, which raises the current account balance. For example, Germany often cites the fact that their population is ageing more quickly than other economies as an explanation of their current account surpluses.

Resource endowments like oil also play a role in current account determination. While plentiful today they may run out in the future, so a commodity producer is likely to save more today and run a current account surplus, building up assets to cushion the anticipated lower future income. Furthermore, movements in commodity prices act like income shocks for these countries, leading to net lending and borrowing to smooth their consumption.

Policy settings

Saving for a 'rainy day' can also be influenced by government policy. For example, uncertainty about future income combined with insufficient social safety nets, or population ageing without sufficient state pension provision, can increase precautionary savings by households, thus making a country more likely to run a current account surplus.

The smoothing of consumption relative to income can be constrained by access to finance. So the degree of financial liberalisation can also be an important determinant of domestic saving and investment decisions. When financial markets are developed, domestic saving is likely to fall, and investment to rise, as borrowing constraints are relaxed and capital market integration reduces borrowing costs. Thus, countries that are more financially liberal may be more likely to run current account deficits.

But lax domestic financial regulation, for example that allows banks to lend at imprudently low interest rates, can encourage

excess spending and current account deficits. Just as overindebted households can ultimately lose access to credit, economies that run persistent current account deficits and accumulate external liabilities on too large a scale may become vulnerable to sudden stops in capital flows that force abrupt cuts in spending — making financial crises more severe (Al Saffar, Ridinger and Whitaker (2013)). And these financial crises can, in turn, affect countries that had been running current account surpluses and hence accumulated assets, now impaired, overseas.

Monetary, fiscal or exchange rate policies can also contribute to current account imbalances. For example, under imperfect capital mobility, if governments buy foreign currency to build up reserves, their exchange rate will depreciate. In turn, by reducing the price of exports relative to imports, this will tend over time to raise the current account.

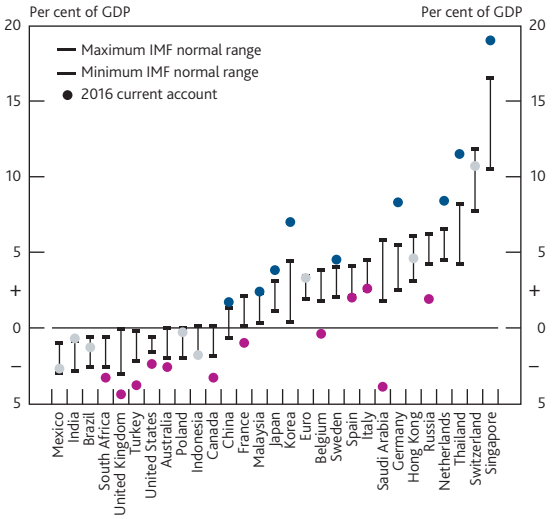
A large body of literature has studied the impact of fiscal policy on the current account balance (Abbas *et al* (2010)). If governments raise their fiscal surplus, and the private sector does not fully offset that by saving less, then national saving and the current account will rise. Empirical estimates suggest there is a net impact on the current account.

Monetary policy's influence on the current account is ambiguous. On the one hand, looser policy is likely to lead to a weaker real exchange rate, pushing up on the current account. For example in the IMF's EBA methodology,(1) monetary policy helps explain movements of real exchange rates, with the strength of that link depending on the degree of openness to capital flows. On the other hand, looser policy boosts domestic demand, which is likely to push down on the current account. The relative strength of these factors varies by country.

To what extent are observed imbalances excessive?

The most comprehensive assessment of global imbalances is the IMF's *External Sector Report* (*ESR*). Using a detailed cross-country empirical model the IMF estimates current account 'norms' for a range of countries. These norms encompass the fundamental drivers of imbalances described above — such as demographic structure or income level — and also reflect the IMF's judgement on appropriate (rather than actual) policy in areas like the monetary and fiscal stance, social spending and exchange rate and capital controls. IMF staff also apply some judgement to the 'norms', to try and capture country-specific factors that the model may find hard to capture, and express them as ranges, given modelling uncertainties. As shown in **Chart 3**, these are broadly consistent with simple theory: three-quarters of the countries that should be running current account deficits are EMEs; Russia and Saudi Arabia with non-renewable resources should be running surpluses; and rapidly ageing countries like Japan and Germany should also be running surpluses, lending to more youthful countries like Brazil, India and South Africa where demographic factors contribute to their deficits.

Chart 3 Actual and fundamental 'norms' for current accounts(a)



Source: IMF July 2017 *ESR*.

(a) Current account stronger than warranted in blue, weaker than warranted in magenta, broadly consistent in grey. The 'normal' ranges are derived from the IMF staff assessed current account gaps — Table 2 in the *ESR* — and so incorporate staff judgements as well as EBA model results.

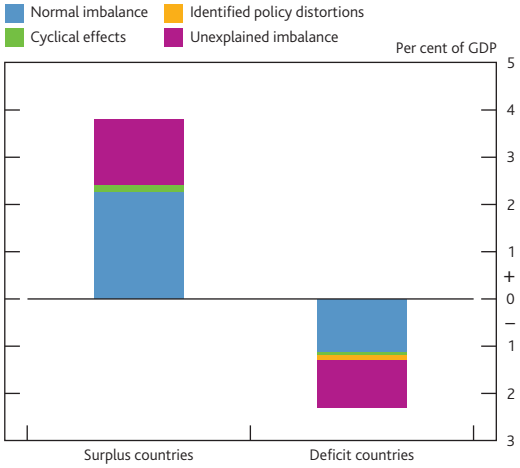
Current accounts balances that exceed these IMF staff assessed norms (after adjusting for the cyclical factors) are deemed 'excessive'. In the July 2017 *ESR* the IMF concluded that, while global imbalances have fallen by around a third since the crisis, around one-third of the remaining imbalances were excessive. So the existing IMF *ESR* approach leaves a large portion of imbalances unexplained by fundamentals. Moreover, what the IMF term 'identified policy gaps' — eg where monetary or fiscal policy is away from its optimal settings — explain only a small part of the excess imbalances in aggregate (**Chart 4**).(2) To resolve excess imbalances it is important then to investigate what distortions may not be captured by the IMF methodology. The next section explores the role that may have been played by asymmetric trade policies.

Asymmetries in trade liberalisation

Liberalisation of trade accelerated in 1995 with the conclusion of the Uruguay round and the advent of the World Trade Organisation (WTO). As China and other Asian economies

(1) IMF (2013), 'The external balance assessment methodology', *IMF Working Paper WP/13/272*.
(2) For individual economies these policy gaps can be more material, for example the IMF estimate that too tight fiscal policy in Germany relative to the rest of the world can explain around one third of its excess surplus, but for some countries the policy gaps have the wrong sign.

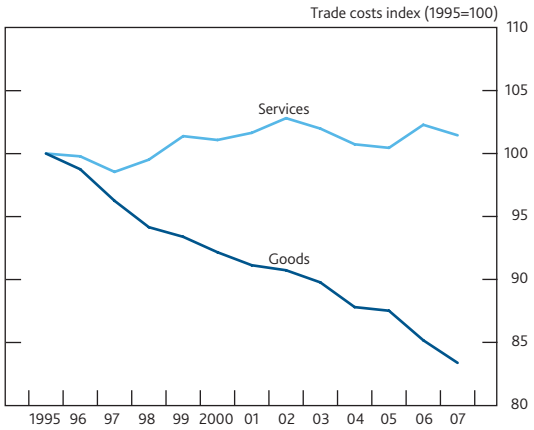
Chart 4 IMF EBA explanation of imbalances in 2016[a]



Sources: IMF *WEO* and *ESR* (2017), Tables 3 and 4 and authors' calculations.

(a) 'Normal imbalance' is the IMF EBA estimated current account 'norm' based on fundamentals and policies at optimal levels; 'Cyclical effects' is the IMF estimate of the impact of the GDP cycle; 'Identified policy distortions' is the IMF estimate of policies being away from their estimated optimal level; 'Unexplained imbalance' is the IMF 'unexplained residual'. These factors are summed across the group of surplus and deficit countries, expressed as a percentage of each group's GDP.

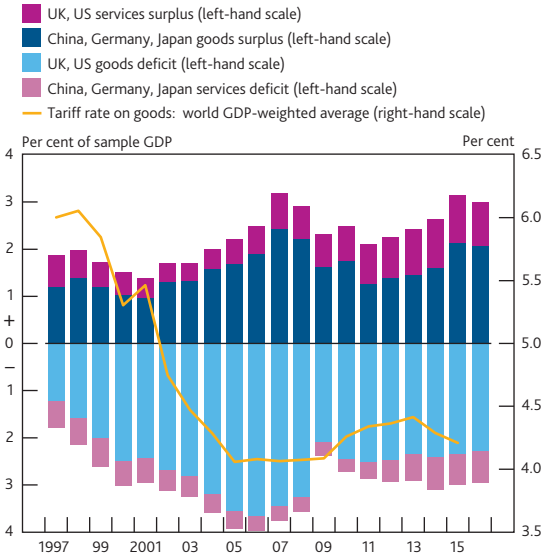
Chart 5 World aggregate trade cost indices for goods and services, 1995–2007 (1995=100)[a]



Source: Miroudot, Sauvage and Shepherd (2013).

(a) This measure of trade costs is a geometric average of bilateral trade costs for exports from one country to another, expressed relative to domestic trade costs in each country.

Chart 6 Trade liberalisation and imbalances[a]



Sources: IMF, World Bank and authors' calculations.

(a) The world average tariff rate on goods weights by GDP World Bank country data for applied tariffs, covering all traded goods.

entered global markets and goods trade was liberalised there were sharp falls in effective tariffs on goods.

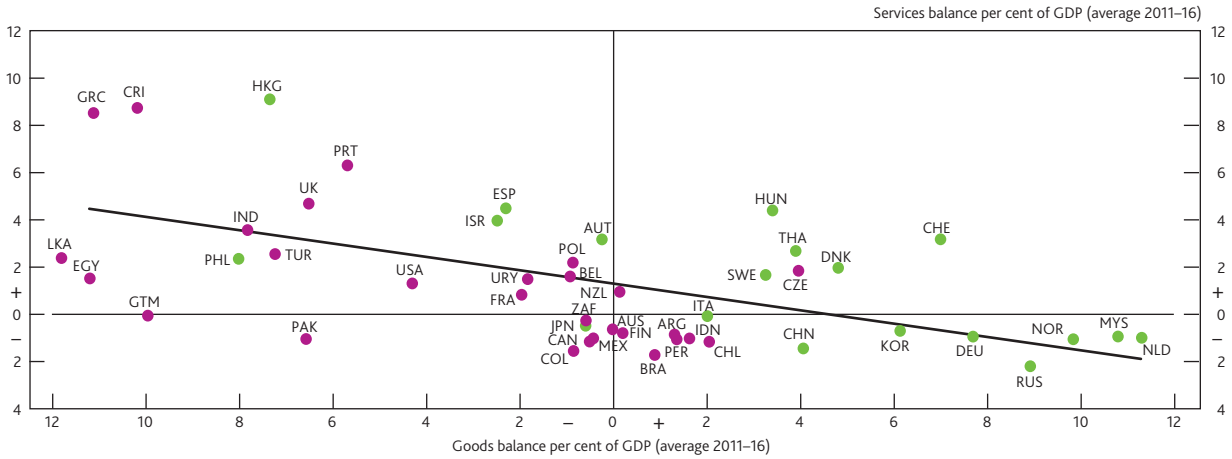
In contrast, evidence suggests that trade costs in services have remained relatively stable. A common way of quantifying the effects of trade policies is to convert indicators of restrictions on services trade into *ad valorem* tariff equivalents. In other words, to estimate how high a tariff-like instrument would need to be in order to produce a similar trade-depressing effect. As an indicator of trade restrictions, Miroudot, Sauvage and Shepherd (2013) use differences across sectors in the extent to which trade occurs within borders rather than with other countries. They calibrate that effective trade costs for services are up to three times higher than those for goods. Over the decade of intense goods market liberalisation (1995–2005), when trade costs for goods fell by around 15%, those for services remained constant (**Chart 5**). These restrictions help to explain why services only account for around a quarter of global trade, a share that has remained fairly constant for decades, despite comprising some two-thirds of global GDP and employment.

This asymmetry in liberalisation may favour countries with a comparative advantage in producing goods, like China, Germany and Japan, rather than those specialising in services, like the United kingdom and United States. Consistent with that, over the period of asymmetric liberalisation, the imbalances that have emerged and persisted seem to reflect countries' comparative advantage (**Chart 6**).

Across a wide range of countries there is a pattern of those with goods surpluses (deficits) tending to have services deficits (surplus) — demonstrated by the downward sloping best fit line in **Chart 7**. But that trade-off is not one for one (the slope is not 45 degrees). So countries with goods surpluses on the right-hand side of the chart also tend to have overall current account surpluses (coloured green), while those running goods deficits tend to have overall current account deficits (magenta).

Based on these general patterns in the data, it seems plausible that asymmetric trade liberalisation has affected global imbalances in recent years. Before doing a more thorough empirical exercise, it's important to consider whether economic theory supports such a causal link.

Chart 7 Goods and services imbalances[a]



Source: IMF.

(a) Countries coloured green (magenta) have current account surpluses (deficits).

How could asymmetric trade liberalisation affect imbalances?

The idea that trade policy can affect the current account seems an intuitive one. If countries agree to reduce tariffs in one particular sector relative to others, exports from countries with a comparative advantage in that sector should rise more than in other countries. This asymmetry could lead to a widening of global imbalances.

However, this intuitive link between trade policy and current accounts does not necessarily hold in the general equilibrium of the textbook model (Obstfeld and Rogoff (1996)). As described above, the current account is seen through the lens of a country's net foreign lending — domestic saving minus domestic investment. Therefore, for any policy to affect the current account, it must affect intertemporal decisions. A permanent change in trade policy, which permanently raises a country's income path, will cause an equal permanent increase in its spending path and thus have no effect on net saving. In terms of the trade balance, the positive shock to demand for domestic relative to foreign goods would shift their relative price, leaving net exports unchanged.

Textbook theory therefore implies that, in general equilibrium, permanent trade policy is irrelevant for current account positions. However, the world is much more complicated than the textbook model, which makes strict assumptions about household behaviour and the structure of the economy. We show below that relaxing some of these assumptions — such as allowing for habit formation in consumption, or the inclusion of capital as a production input — implies that the current account position of countries can be persistently affected by trade liberalisation.

A simple model with frictions

We consider an illustrative theoretical framework where, in the baseline, there is no change in the current account in response to permanent trade liberalisation. The model comprises of two countries. Each produces two types of output, 'goods' and 'services'. We label the countries the 'goods specialist' and the 'services specialist' by giving each a comparative advantage, in terms of higher total factor productivity, in one or the other type of output. Private agents in each country consume goods and services produced in both countries. We add trade barriers in the form of import tariffs, which can differ for goods and services. Throughout, we consider trade liberalisation in a given sector to refer to a simultaneous reduction in the tariff applied to imports in both countries, reflecting bilateral trade agreements applied to a given sector, rather than unilateral changes in domestic tariffs. Aside from these differences, the two countries are symmetric, and private agents in the two countries can trade an international non-contingent bond.

Within this illustrative model, the impact on current account imbalances is the same whether it is goods or services trade that is liberalised. Given the focus on showing how liberalisation could reduce imbalances from where we are now, we look at the case of liberalising services trade. Within the baseline model, a global reduction in import trade barriers for services will raise production and consumption in both countries, illustrating the global benefits of liberalisation. Because of their comparative advantage, the present discounted value of output in the services specialist will rise more. Since the model assumes that agents optimise over an infinite horizon, adjust consumption and wealth costlessly, and expect the reduction in trade barriers to be permanent, their consumption will be proportional to the present discounted value of output. Hence a one-off shift in this present discounted value will be matched one-for-one with a one-off shift in consumption, with no change in saving. Seen

from the trade side, the real exchange rate of the services specialist will appreciate instantly to ensure that there is no rise in net exports and hence the current account. In other words this environment yields the irrelevance results that trade barriers do not affect the current account.

However, in reality many of the assumptions that give this result will not hold. To illustrate this, we will discuss some realistic additions to the model that will break the irrelevance result. Households may not respond one-for-one to permanent income changes, for example because different age groups will respond differently to the shock, or because households dislike sharp changes in consumption. And production requires capital which takes time to accumulate. The aim is not to quantify the effects of liberalisation on the current account, but rather to illustrate that realistic additions to the textbook model will imply that asymmetric liberalisation can persistently affect the current account.

Frictions in the household sector

Households prefer to maintain a certain level of consumption and dislike major changes in it, being influenced by 'habits'. Recognising this in the model prevents consumption from fully responding to trade liberalisation on impact.

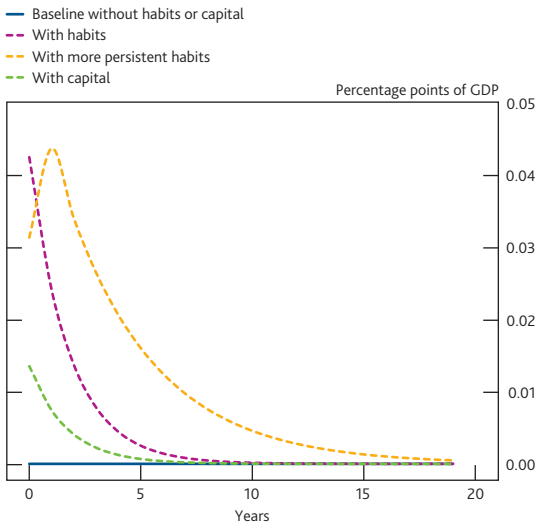
Chart 8 shows the response of the current account of the services specialist to a permanent reduction in global trade barriers to services. The flat blue line represents the baseline case, where changes in trade policy have no impact on the current account. With habits however, as consumption in the services specialist rises more gradually than its income towards the new steady state, there is a period of higher saving and hence a persistent current account surplus (magenta line). The more weight consumers place on habits, the greater the persistence (orange line).

Frictions in the production sector

Current accounts will also respond to trade liberalisation when the production sector is modelled in a more realistic manner, such as by including capital as an input. Capital requires investment, in advance, to build and maintain it. The current account is the difference between domestic saving and investment, so the behaviour of investment will be very important in determining the impact of trade policy. Investment decisions are intertemporal and the capital stock is slow-moving, so does not respond to shocks immediately in the same way as consumption. Once we allow for capital and investment, the current account will react in the face of asymmetric trade liberalisation.

Movements in saving and investment are now important for understanding why the services specialist's current account rises. Reducing services import tariffs renders imported services cheaper. Since both countries use foreign-produced services, their lower price raises the incentives to invest. Given its comparative advantage, the service specialist's income gain is more than sufficient to finance its extra investment. In contrast, the goods specialist does not receive the immediate income gain and so borrows from the services specialist to finance its additional investment. This gives rise to a current account surplus for the services specialist (green line, **Chart 8**), until both countries reach their new higher long-run level of capital.

Chart 8 Response of services specialist current account to a permanent 10 percentage point reduction in services import tariffs[(a)]



(a) Illustrative symmetric model.

Therefore, our theoretical work highlights that, within a workhorse international macroeconomics model, simple, plausible assumptions are enough to generate a causal link from permanent trade policy changes to current account changes. We achieve this within a model that nests the irrelevance result as a baseline. Moreover, within the model, consumers in the goods exporting country as well as the services exporting country can benefit from services trade liberalisation, consuming more than they did prior to liberalisation. While these results illustrate such effects could exist, we turn now to empirics to gauge their potential quantitative importance.

What empirical evidence is there?

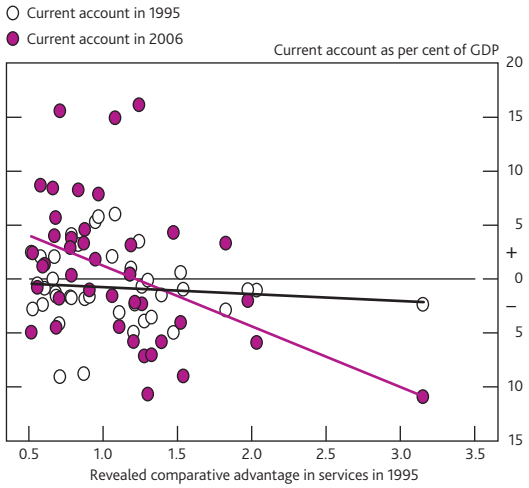
Impact of asymmetric liberalisation

Empirically, we first want to address the following question: how has the global liberalisation of trade in goods, over the past 20 years, affected current account imbalances depending on whether a country's comparative advantage is in goods or services exports?

A glance at the data (**Chart 9**) suggests that before liberalisation started in 1995, there was no relationship between whether a country specialised in goods or services,

and its current account position. However, as pointed out by Barattieri (2014), after the ten-year intense period of global liberalisation of goods trade, when global imbalances peaked, countries which specialised in services had lower (more negative) current accounts than those specialised in goods trade. A significant slope appears in **Chart 9**. That pattern has persisted, albeit less starkly, since then.

Chart 9 Comparative advantage in services in 1995 versus current account balances in 1995 and 2006(a)



Sources: IMF and authors' calculations.

(a) The magenta and black lines are lines of best fit. Comparative advantage in services is measured as 'revealed' comparative advantage, as explained in Box 1. A value larger than 1 indicates that the country is relatively specialised in exporting services, implying it has a comparative advantage.

To assess this more rigorously we use the same regression framework that the IMF uses in its EBA. The IMF regress current account balances for many countries on a battery of explanatory variables covering economic fundamentals, such as demographic factors and the level of development, and policy variables, such as health spending, the fiscal balance and capital controls. The important point is that by following this approach we are assessing the marginal impact of trade policies on current accounts, once all of these other factors are controlled for. In other words we are assessing whether trade policies can help us understand the excess imbalance left unexplained by the EBA approach.

We proxy asymmetric trade liberalisation with the long-term decline in the world average tariff rate on goods (as shown in **Chart 6**). We find that global goods trade liberalisation has been associated with higher current account balances for countries specialising in goods and lower current account balances for countries with a comparative advantage in services, suggesting a causal link from asymmetric trade liberalisation to imbalances (Box 1).

To illustrate the quantitative implications of these results, take China and the United States as two countries with a comparative advantage in goods and services respectively: a 3 percentage point lower world average tariff rate on goods (it has fallen by slightly more than 3 percentage points since 1995) is associated with an increase in the Chinese current account of around 1.1% of GDP, and with a reduction in the US current account of around 0.2%.(1)

Impact of liberalising services trade

As a simple thought experiment we can invert the empirical estimates above to roughly calibrate what might have happened to imbalances in each country had trade in services been liberalised to the same extent as in goods, ie had the cost of trading services fallen to the same extent as the decline in goods tariffs. This is akin to the scenario in the model section when all countries reduce services trade tariffs. We can then compare this with IMF model estimates of the proportion of current account imbalances in 2016 that could not be explained by either fundamentals or identified policy gaps. When we do this, we find that services trade liberalisation could have narrowed the absolute sum of unexplained 'excess' current account imbalances across the sample of countries contained in the IMF's *ESR* by around 40%.(2)

To better calibrate the extent to which future services trade liberalisation could contribute to reducing excess imbalances, we need an empirical measure of services trade restrictions that can be directly related to actionable policies. Measuring the restrictiveness of services trade is complex because services are delivered through various means, called 'modes' in WTO/GATS terminology.(3) A services provider can directly export abroad, for instance if it sells software through digital means (Mode 1: cross-border trade). International trade also comprises services provided in the firm's own country to non-residents, primarily in the tourism industry (Mode 2: consumption abroad). Firms can also set up local affiliates abroad when proximity to customers matters, as when a commercial bank opens a network of retail branches abroad (Mode 3: commercial presence). Service-exporting firms can also send professionals abroad on a short-term basis, for example engineers co-designing projects locally with the client (Mode 4: movement of natural persons). These distinct delivery methods will interact with each other. For example establishing a foreign presence in the local market does not directly show up in services trade statistics but can act as a shop window to help boost cross-border sales. Profits from foreign affiliates will also help generate investment income, which is a component of the current account balance but not necessarily measured as services trade.

(1) Proxying asymmetric trade liberalisation alternatively by the difference between global exports of goods and services (relative to world GDP), which has more than doubled since 1995, we get similar results.
(2) From our model we take, for each of the countries in the IMF's *ESR*, the estimated effect on the current account of the fall in the world average tariff rate since 1995, and divide this by the IMF's estimate of that country's unexplained excess imbalance ('EBA Gap Residual' in Table 4 of the *ESR*). We then take the GDP-weighted average of these proportions as we are interested in how much of the excess absolute global imbalance can be explained by trade policy.
(3) General Agreement on Trade in Services (GATS) is the WTO agreement for services (signed in 1994).

Box 1
Estimating the impact of services trade liberalisation on current account balances

How has asymmetric global trade liberalisation affected current account imbalances?

Current accounts are affected by many factors other than trade policy, so to estimate the marginal impact of trade policies on current accounts we need to control for other fundamental factors. A well respected empirical framework for doing this is the IMF's External Balance Assessment (IMF (2013)). The IMF regress current account balances for many countries on a battery of explanatory variables covering economic 'fundamentals', such as demographic factors and the level of development, and policy variables, such as health spending, the fiscal balance and capital controls. Most of these are measured as the deviation from the relevant 'world' counterpart, consistent with the idea that current accounts are determined by the relative positions of different countries.

To the set of explanatory variables used by the IMF, we add a measure of asymmetric trade liberalisation (goods trade being liberalised faster than services) and interact that with the country's comparative advantage in services. Our measure of comparative advantage is the revealed comparative advantage index introduced by Balassa (1965) which is an index of relative export specialisation. A value of the index bigger than 1 indicates that the country is relatively specialised in exports in a particular sector relative to the world average, implying a comparative advantage:

$$RCA_{i,services} = \frac{Exp_{i,services} / \sum_k Exp_{i,k}}{Exp_{world,services} / \sum_k Exp_{world,k}}$$

where $Exp_{i,k}$ is exports from country i from sector k (with k = *goods or services*). That this index can act as a good proxy for comparative advantage rests on the Ricardian trade theory idea that, if differences in relative productivity determine the pattern of trade, then the (observable) pattern of trade can be used to infer (unobservable) differences in relative productivity and thereby comparative advantage.

To measure asymmetric trade liberalisation we use the decline in the world average tariff on goods, consistent with the findings of Miroudot, Sauvage and Shepherd (2013) that services trade costs have remained fairly stable. But similar results can be obtained using a more indirect proxy of the difference between global exports of goods and services (relative to world GDP).

We find that global goods trade liberalisation between 1995 and 2007 has been associated with lower current account balances for countries that started off in 1995 (the year that marked the birth of the World Trade Organisation) with a comparative advantage in services (a higher 'revealed comparative advantage index') and higher balances for those specialised in goods (**Table A)**. This would suggest a causal link from trade liberalisation to current account balances. This result is only a little weaker using the full sample including the period after 2007, since when there has been little movement in goods tariffs (**Table A**, column 1 versus column 2).

Table A Current account imbalances, global trade liberalisation and country comparative advantage[a]

	(1)	(2)
[A] Tariffs on goods (world average)	-0.635**	-0.772**
	(0.034)	(0.016)
[B] Revealed comparative advantage in services in 1995	-0.038***	-0.049***
	(0.001)	(0.000)
[A]*[B]	0.486**	0.623***
	(0.025)	(0.006)
Other EBA variables	Yes	Yes
Observations	1,069	628
R-squared	0.601	0.618
Number of countries	49	49
Sample	1995–2016	1995–2007

(a) The dependent variable is the current account to GDP ratio. The regression setup is the standard reduced form one used by the IMF for its annual External Balance Assessment of current account imbalances, where we take the same left and right and side variables (22 regressors, not shown, covering a range of factors that may influence saving, investment, net exports and the current account) and we add, on the right-hand side, the explanatory variables shown in the table. 'Tariffs on goods' are from the World Bank's WDI database and defined as: 'Simple mean applied tariff, the unweighted average of effectively applied rates for all products subject to tariffs calculated for all traded goods.' We use simple average tariffs because the alternative, of trade-weighted average tariffs, suffers from an endogeneity problem: products with higher tariffs receive low weights because of small import volumes. 'Revealed comparative advantage in services' is an index of comparative export specialisation, where a value above 1 indicates a revealed comparative advantage in services.

We can estimate how asymmetric trade liberalisation might have impacted the current accounts of individual countries (as we do in the main text) by taking the change in the world average tariff rate on goods from 1995 to 2007 (it fell by 3.3 percentage points), and multiplying this by [-0.772 + (0.623)*(comparative advantage of country in services)], where -0.772 and +0.623 are the estimated coefficients on asymmetric liberalisation and on its interaction with comparative advantage, respectively (from **Table A**, column 2):

Current account = Constant
+ (-0.772)*(Trade liberalisation)
+ (0.623)*(Trade liberalisation)*(Comparative advantage of country)
+ (Other variables)

What might be the effect on global current account balances of reducing country-level restrictions on services trade?

If past asymmetric liberalisation focused on goods has contributed to today's global imbalances, liberalising trade in services would be a potential remedy. Opening up trade in services should also boost global growth, whereas rolling back goods trade liberalisation would harm growth. But would liberalising services have a quantitatively significant effect on current account imbalances? To address this question, we ask by how much global imbalances might be affected if countries reduced their services trade barriers to the level of the least restrictive country?

Again building on the specification used in the EBA, we add measures of each country's services trade restrictiveness relative to the world average using OECD measures of services trade restrictiveness. These OECD measures are only available from 2014 so we assume that, for a given country, restrictiveness in all previous years is the same as in 2014. This assumption is a strong one, but studies suggest that services trade costs, which policy restrictiveness are part of, have been relatively stable since the mid-1990s (Miroudot, Sauvage and Shepherd (2013)).

We find that countries with higher barriers to services trade relative to the rest of the world tend to have higher current account balances (**Table B**).(1) If they liberalise it should allow countries with more competitive service sectors to export more to them, narrowing imbalances. We estimate that, for instance, the US current account deficit would be about 0.3% of GDP narrower if countries were to reduce their restrictions to the level of the least restrictive country. For the United Kingdom, it could be around 0.7% of GDP narrower.

Table B Current account imbalances and country trade restrictiveness relative to world average(a)

	(1)
Services restrictions relative to world average	0.105**
	(0.011)
Other EBA variables	Yes
Observations	808
R-squared	0.649
Number of countries	37
Sample	1995–2016

(a) The dependent variable is current account as a share of GDP. As in **Table A**, we do not report the other 22 control variables used as standard in the IMF's EBA specification but which are included in the estimation. Services restrictions relative to the world average are calculated using the OECD's composite Services Trade Restrictiveness Indices, which, for national service sectors, aim to quantify 'restrictions on foreign entry and the movement of people, barriers to competition, regulatory transparency and other discriminatory measures that impact the ease of doing business.'

(1) We checked that the results are robust to also including a measure of how country-specific goods tariffs deviated from the rest of the world.

The OECD (2015) attempts to capture these different dimensions and their interaction by calculating aggregate Services Trade Restrictiveness Indices (STRI) for a range of service sectors. The STRI database contains factual information on laws and regulations grouped under the same four policy areas in all sectors:

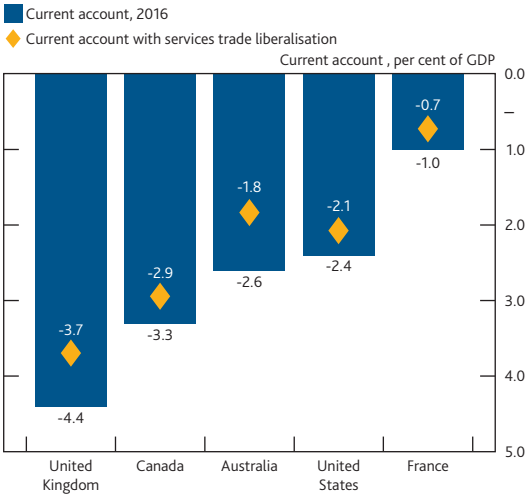
(a) Restrictions on foreign entry.
(b) Restrictions on the movement of people.
(c) Other discriminatory measures; barriers to competition.
(d) Regulatory transparency.

The advantage of these indices relative to other surveys is they are largely objective (based on statutory restrictions) and have transparent sources and methodology. They also relate directly to policy barriers which countries could reduce.

Using these data, we can start to address the following question: by how much might global imbalances be reduced if countries with the highest service trade restrictions were to liberalise? We do this by adding each country's STRI, relative to the world average, to the IMF's standard EBA model of current account imbalances. These OECD measures of restrictiveness are available only since 2014, so we make the assumption that, for a given country, restrictiveness back to 1995 is the same as in 2014. As mentioned before, this assumption is based on studies that suggest that services trade costs, which policy restrictiveness are part of, have been relatively stable since the mid-1990s (Miroudot, Sauvage and Shepherd (2013)).

We find that countries with higher restrictions on services trade tend to have higher current accounts (Box 1). If they liberalise, opening their service sectors to imports or making it easier for foreign firms to establish a presence in their local markets, it should allow countries with more competitive service sectors to export more. For instance, we estimate that the US current account deficit would be about 0.3% of GDP narrower if all countries reduced their services trade restrictions to the level of the least restrictive country. For the United Kingdom, the current account deficit could be around 0.7% of GDP narrower (**Chart 10**). In total, this could reduce unexplained 'excess' current account imbalances by around

Chart 10 Estimated effect on selected current account deficit countries of all countries reducing services trade barriers to the level of the least restrictive country



Sources: IMF and authors' calculations.

40% for the countries covered by the IMF's *ESR*, a similar magnitude to the calibration in the previous section.

Of course that still leaves a significant portion of the excess that is unexplained, which could be due to other distortions not captured by the IMF EBA model. As highlighted in the IMF's latest *ESR*, distortions affecting corporate saving could be one fruitful avenue for future research, tax being one factor highlighted by some (eg Setser (2017)).

How could levelling up be achieved in practice?

The many interrelated modes by which services are delivered makes liberalising trade complex. The relative importance of different modes of supply is not well understood, but a pilot study by Eurostat (2016) on EU trade with the rest of the world found that cross-border trade (Mode 1) accounted for 21% of services trade, consumption abroad (Mode 2) for 6%, commercial presence (Mode 3) for 69% and services supplied by natural persons (Mode 4) 4%.

The importance of commercial presence demonstrates the complementarities between reducing trade barriers and opening domestic service sectors up to foreign investment. Restrictions in one area may hinder any potential gains from reducing barriers in another. Effects on the current account could come through investment income from foreign direct investment as well as services exports.

This suggests that our empirical estimates, based only on a reduction in trade barriers, may well be understating the potential effects. For example, there is also evidence that domestic regulation in services sectors — even when non-discriminatory to foreign firms — can deter foreign entrants and reduce services exports (Crozet, Milet and Mirza (2012)). The IMF's 2017 *ESR* suggests that deregulation in surplus countries could reduce imbalances by raising their consumption and investment and thus imports.

Differences in how countries regulate the provision of the same service create additional costs for exporters that need to adapt to new sets of rules in each new market. Nordås (2016) finds that implicit services trade costs imposed by the average degree of regulatory difference are equivalent to an *ad valorem* tariff of between 20% and 75%. So regulatory convergence, to reduce the costs of preparing for different rules in each market, could bring additional benefits.

Global standards and regulatory co-operation are particularly important for financial services, which, together with other (often related) business services, account for around one-third of global trade in services (UNCTAD). Post-crisis reforms to the global financial system, agreed through the G20, have laid a foundation for greater financial services trade by implementing a series of new international minimum standards. The playing field for cross-border activities is being levelled and at the same time supervisory co-operation has intensified. That provides a platform for countries to defer to each other's approaches when they achieve similar outcomes, facilitating trade agreements. This could serve as a template for other service sectors.

Levelling up is good for growth

While we have highlighted that services liberalisation could help to address global imbalances, the potential rewards are much broader. The greater prize could be reinvigorating global growth.

Seminal work by Baumol (1967) underpinned the 'classical view' of the contribution of services to growth. This view was unambiguously negative, indicating that services were largely non-tradable and exhibited little scope for productivity improvements. But services have changed significantly since then and evidence today suggests that services are widely traded across borders (Loungani *et al* (2017)) and that, when services productivity is correctly measured, historical services productivity growth has been as strong as in manufacturing (Young (2014)).

Many studies confirm positive linkages between service sector liberalisation and economic growth. There are three aspects to this: direct benefits for the services sector, downstream benefits for production in other sectors which use services, and the potential distributional benefits from services growth.

Direct benefits of services liberalisation

The OECD (2017) estimate that restrictions on services trade lead to a price premium for domestic users of services that can

be quantified as a sales tax equivalent on their purchases. On average across 42 countries, estimates of this tax equivalent range from about 3% in road freight transport to almost 40% in broadcasting. The entry of international services providers can therefore improve choice for consumers and reduce prices, contributing to higher living standards.

Downstream benefits of services liberalisation

Services have special properties as inputs into the economy-wide production process. By helping to co-ordinate the, often complex, operations of other inputs, services such as education, R&D and ICT can be determinants of the productivity of the more traditional factors of production (Francois and Hoekman (2010)). Services, such as transport and telecommunications, also facilitate geographically dispersed production processes. Financial services permit transactions across time, for example trade credit.

Trade in goods and services are therefore complementary. Baldwin and Lopez-Gonzales (2015) emphasises the role of services in enabling participation in global value chains. Freeman and Mavroeidi (2017) find that, because of the spillovers from services to goods trade, trade agreement provisions related to services liberalisation have large positive impacts on both goods and services trade.

The close relationship between trade in goods and services is underscored by the fact that a greater volume of exported services is embodied in products from other sectors than those exported directly, and that three-quarters of services exported directly across borders are intermediate inputs, meaning they are largely business-to-business transactions (De Backer and Miroudot (2013)).

These interlinkages are consistent with a large body of research finding that services trade can improve productivity growth across manufacturing. Most recently, using sectoral-level data, Beverelli, Fiorini and Hoekman (2017) find that liberalising services trade has a positive impact on the productivity of manufacturing sectors that use services as intermediate inputs in production. Importantly, they find that countries' institutional quality is an important determinant of the size of this effect; countries with high institutional quality benefit the most from services trade liberalisation. Similar benefits to manufacturing productivity from liberalising services have also been measured using firm-level case studies (Arnold, Javorcik and Mattoo (2011) and Arnold *et al* (2016)).

Access to financial services contributes to these spillovers as open financial markets help compress borrowing costs. The OECD (2017) find that reforming the regulatory environment in commercial banking, so as to halve the distance from the most open market, could, for the average country, boost exports of electrical machinery by almost 8%, and automobile exports by about 3%.

Inclusive growth

There is also emerging evidence that liberalising the service sector could make growth more inclusive, with the benefits shared more widely across the population. The costs of complying with diverging regulations in every new market will fall more heavily on smaller exporters. As services trade restrictions are eased and regulatory co-operation makes tangible progress, small and medium-sized enterprises (SMEs) are the first to gain, OECD (2017). The impact on employment may prove sizeable, since SMEs are responsible for the greater part of new job creation. The World Bank (2012) has also pointed to growth in the services sector making a higher contribution to poverty reduction than growth in the manufacturing sector. This is because services have been the main source of employment growth. The proportion of women employed in services is typically higher than that in manufacturing, and increasing employment opportunities for women is closely associated with poverty reduction. These employment gains would complement the reduction in poverty achieved by the falls in goods prices following goods trade liberalisation.

Conclusion

Current account imbalances have risen up the international policy agenda. While the absolute scale of imbalances has declined since the global financial crisis, a pattern of excessive surpluses and deficits in the same key countries has persisted. This has proven hard to explain in the IMF's EBA methodology. This paper suggests that asymmetric trade liberalisation — which saw barriers to goods trade fall sharply relative to those for services trade — is one explanation. Trade policy can have persistent effects on current account imbalances when realistic assumptions are added to textbook economic models. And empirical results suggest significant quantitative effects. Simple calibrations suggest that liberalising services trade could reduce unexplained 'excess' current account imbalances by around 40%. These results suggest that liberalising services trade, levelling up to the liberalisation seen in goods trade, could make a significant contribution to reducing excess global imbalances. While not easy to achieve, that could also make global growth stronger and more inclusive.

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