The danger posed to the global economy by protectionist tendencies

Protectionism has reappeared on the international economic policy agenda. Calls for restrictions on cross-border trade are typically heard in phases of major macroeconomic problems. During the global financial and economic crisis, however, the leading economic nations declared their common support for the rules-based multilateral world trading system. Over the past years, global economic output has expanded steadily while unemployment in the group of industrial countries has receded.

Recent studies do point, though, to a negative impact of globalisation on local labour markets. In particular, low earners with limited geographical and sectoral mobility have suffered job and income losses. While trade liberalisation has yielded benefits on balance, their uneven distribution across sectors, regions and individuals is now threatening to weaken popular acceptance of globalisation and is presenting a challenge to policymakers. The topic of so-called global imbalances has likewise attracted critical attention. Persistent large surplus and deficit positions in current account balances are sometimes cited as evidence of a supposed uneven distribution of the benefits of the current world trading system.

Neither argument provides ammunition for attacking the existing trade system set-up. The structural problems arising from globalisation resemble – and often accompany – those relating to technological progress. Current account balances reflect saving and investment decisions and cannot be labelled as either good or bad without first analysing their backgrounds. Moreover, global imbalances are currently substantially lower than they were prior to the global financial and economic crisis.

Protectionist measures harbour the risk of inflicting self-harm even if they do not trigger retaliatory measures. As a rule, a country's own export industry suffers, and higher prices may depress consumption. This is also suggested by simulations using various macroeconomic models. A country's own economy would be negatively impacted at the latest when adversely affected partner countries took retaliatory action. The welfare losses for the world as a whole would then be even greater than before.

Protectionist tendencies pose a major danger to the global economy. There is thus a lot to be said in favour of defending and further developing the rules-based multilateral trading system. In order to tackle problems that may emanate from structural change, suitable adjustments should be made, if necessary, to education and economic policies as well as to tax and transfer systems.

Tendencies since the global financial and economic crisis

No slide to protectionism during the financial crisis

During the global financial and economic crisis, many feared that governments might be tempted to impose trade barriers in their quest to halt falling output and employment. Such a slide to protectionist measures probably exacerbated the global economic crisis in the 1930s.[1] There was no repeat of this in 2009.[2] Subsequently, global trade recovered quickly from the sharp economic downturn.

Sluggish growth in global trade over the past few years, …

Yet since 2012 global trade has grown sluggishly, also in relation to aggregate output, although the latter has likewise expanded less dynamically. However, protectionist tendencies do not appear to have been driving this.[3] This development probably owes more to the changed composition of global demand. In particular, global economic growth was largely fuelled during this period by the emerging markets, whose expansion is not as trade-intensive as that of the advanced economies.[4] In addition, capital formation, which is likewise often accompanied by a high level of imports, was restrained in the past few years by adjustments in the commodities sector and the realignment of the Chinese economy.[5] This demand-side explanation for the sluggish development of world trade is supported by the fact that the global economy's acceleration in recent quarters was notably accompanied by a pick-up in investment and in cross-border trade in goods.[6]

… but trade policy tendencies relatively inconspicuous

Information from the World Trade Organization (WTO) suggests that protectionist tendencies have not intensified over the last few years.[7,8] Following a temporary increase in 2013, the number of new trade restrictions adopted in the G20 countries, which account for the bulk of world trade, has been relatively stable. Yet only a fraction of the trade barriers imposed since 2009 have since been terminated, which means that their stock has steadily increased. However, many of these restrictions were trade remedy actions such as anti-dumping and countervailing investigations designed to counter unfair trading practices and which WTO member states are fundamentally entitled to introduce. In addition, a number of trade-facilitating measures were recorded. While the number of such trade-facilitating measures fell well short of the newly introduced trade restrictions, these figures should be interpreted with caution as the trade coverage of the measures may differ substantially.[9] At 6½% at the end of 2016, the share of G20 imports sub-

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1 See M J Crucini and J Kahn (1996), Tariffs and aggregate economic activity: Lessons from the Great Depression, Journal of Monetary Economics, Vol 38, pp 427-467. According to Eichengreen and Irwin, clinging to the gold standard, with the constraints on monetary policy that this entailed, was one of the main reasons for the relapse into protectionism; see B Eichengreen and D A Irwin (2010), The slide to protectionism in the Great Depression: Who succumbed and why?, Journal of Economic History, Vol 70, pp 871-897.

2 See C Henn and B McDonald, Avoiding protectionism, International Monetary Fund, Finance & Development, March 2010, pp 20-23.

3 See Deutsche Bundesbank, On the weakness of global trade, Monthly Report, March 2016, pp 13-35; IRC Trade Task Force (2016), Understanding the weakness in global trade – What is the new normal?, European Central Bank, Occasional Paper Series, No 178; and International Monetary Fund, Global trade: What's behind the slowdown?, World Economic Outlook, October 2016, pp 63-119.

4 See Deutsche Bundesbank, The decline in the elasticity of global trade to global economic activity, Monthly Report, January 2015, pp 27-29.

5 See Deutsche Bundesbank, Recent trends in world trade in goods, Monthly Report, March 2016, pp 23-24.

6 See Deutsche Bundesbank, Global and European setting, Monthly Report, May 2017, pp 10-11.

7 The WTO has been monitoring trade policy developments since 2009 and has reported on them at regular intervals. For further information, see WTO, Report on G20 trade measures, 30 June 2017, available at http://www.oecd.org/daf/inv/investment-policy/17th-Report-on-G20-Trade-and-Investment-Measures.pdf.

8 The WTO records traditional trade-restrictive measures, such as tariffs or anti-dumping measures. The Global Trade Alert (GTA) database, which is occasionally used as an alternative, also covers protectionist measures that are not directly aimed at international trade but may be of a discriminatory nature ("murky protectionism"), such as government aid for domestic companies. Bundesbank observations suggest that the GTA data are highly susceptible to revision, with corrections even being made to data from many years ago.

9 It should be noted that the information customarily included in the regular WTO reports does not take into account the extensive effect of implementing the ITA Expansion Agreement. This agreement aims to abolish tariffs on high-tech products, which make up around 10% of global goods trade. The initial steps of this implementation (since July 2016) already affected goods flows in the amount of US$375 billion (3% of the G20 countries' imports of goods). See WTO, Report on G20 trade measures, 10 November 2016, available at https://www.wto.org/english/news_e/news16_e/g20_wto_report_november16_e.pdf

ject to the import restrictions recorded since October 2008 was rather low.[10]

Despite steady economic growth and declining unemployment …

Overall, the global economic setting in recent years did not seem to foster stronger protectionist dangers. Global economic output expanded steadily, albeit at a moderate pace. The industrial countries saw a gradual decline in unemployment. Of late, the unemployment rate in some major economies has even dropped to lows that, in some cases, have not been reached in decades.

… more calls for protectionism of late

In the light of the above, it is all the more astonishing that protectionism has recently been identified by many observers as one of the most significant downside risks to the global economy.[11,12] Moreover, the jump in corresponding internet searches suggests that interest in the topic of protectionism shot up at the turn of 2016-17.[13] While one factor in this may have been the outcome of the presidential election in the United States, it would be oversimplistic to narrow this problem down to the United States alone. Demands which could ultimately lead to greater isolation of a country's economy have also been voiced in other mature economies.

Rationale behind protectionist measures

The calls for more restrictive trade policies are essentially based on two arguments: the dislocations induced by globalisation, especially on domestic labour markets, and so-called global imbalances.

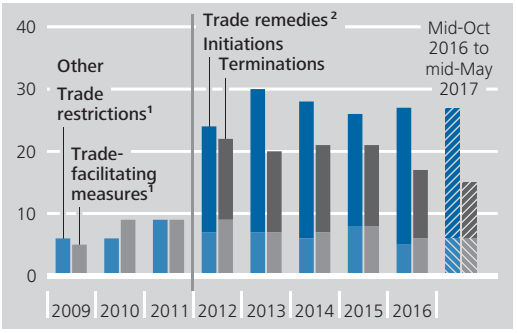
Employment losses in the manufacturing sector

Globalisation and long-term loss of importance of manufacturing for employment

The alleged adverse effects of globalisation are frequently cited in order to justify demands for restrictive trade policies. Some claim, for instance, that the United States has suffered massive job losses in the industrial sector due to competition from cheap imports following China's entry into the market. In fact, the number of jobs in the manufacturing sector fell from 17½ million in 1998 to just 11½ million in 2010 after essentially not having changed over more than three decades. Looking at the overall employment dynamics since the turn of the millennium, which have been greatly dulled by demographic change, the share of manufacturing jobs in total non-farm payroll employment contracted between 1998 and 2010 from 14% to just under 9%. While this contraction hardly stands out against the long-term loss of manu-

Newly introduced trade policy measures in the G20 countries

Number, average per month



Source: WTO Report on G20 trade measures (mid-October 2016 to mid-May 2017). **1** Export and import-related measures and other measures. **2** Trade remedies include anti-dumping and countervailing investigations as well as safeguards. Annual data on trade remedies before 2012 are not available.

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10 According to figures for the period from mid-October 2016 to mid-May 2017, newly introduced import restrictions and trade remedy initiations affected just over ½% of G20 imports. At the same time, 1¼% of imports benefited from additional trade-facilitating measures. This does not include the effects of implementing the ITA Expansion Agreement. See WTO, Report on G20 trade measures, 10 November 2016, ibid; WTO, Report on G20 trade measures, 30 June 2017, ibid.

11 See International Monetary Fund, Global prospects and policies, World Economic Outlook, April 2017, pp 23-24; and European Central Bank, The recent evolution of global risks – an assessment, Economic Bulletin, Issue 4 /2017, pp 36-39.

12 Crowley et al (2017) even argue that uncertainty about future trade policies alone could weigh on international goods flows. However, the effectiveness of such a channel to some degree contradicts the recovery of global trade recently observed. See M Crowley, H Song and N Meng, Protectionist threats jeopardise international trade: Chinese evidence for Trump's policies, VOX, 10 February 2017, available at http://voxeu.org/article/protectionist-threats-jeopardise-international-trade

13 See World Bank, Global Outlook: A fragile recovery, Global Economic Prospects, June 2017, pp 25-26.

Employment in the US manufacturing sector

Sources: US Bureau of Labor Statistics, Census Bureau, Haver Analytics and Bundesbank calculations. **1** Non-farm payroll employment. **2** Data refer to 18 sectors or product categories. **3** Chinese import penetration defined as the ratio of imports from China to the value of production.

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facturing employment in favour of jobs in the services sector,[14] a breakdown of the main US manufacturing industries does reveal that the job losses that have occurred since 2000 tended to be higher when the competition from imports, especially from China, was greater. This could be an indication that globalisation has accelerated the underlying structural change.

Marked job losses after opening up of markets to China

Earlier studies predominantly identified technological progress as the driving force behind the relative employment haemorrhage in the US manufacturing sector. They additionally argued that job cuts in the sectors or regions affected could have been offset without much ado by new employment opportunities in other areas. However, recent studies draw a more nuanced picture.[15] They state that a substantial part of industrial job losses were attributable to the increase in Chinese imports.[16] They also say that the job cuts that occurred in sectors in direct competition with imports and among the associated suppliers then spilled over into other industries via income and demand losses.[17] Another finding is that the increased competitive pressures prompted firms to invest in labour-saving technology, an effect that was amplified by US corporations' offshore and outsourcing activities.[18]

Persistent effects on local labour markets; low earners particularly hit

The adverse labour market effects in the regions of the United States where the affected industries are concentrated were found to be comparatively persistent. Migration processes seem to have played an insufficient role as an offsetting mechanism.[19] Low earners, in particular, remained in their region and industry and suffered sizeable income losses. By contrast, those on a higher income – most likely owing to their higher level of education – appeared better able

14 According to the data of the US Bureau of Labor Statistics, which date back to 1939, the peak share of manufacturing employment (38%) was reached way back in 1943.
15 See DH Autor, D Dorn and GH Hanson (2016), The China shock: Learning from labor-market adjustment to large changes in trade, Annual Review of Economics, Vol 8, pp 205-240.
16 Autor et al (2013) quantify the contribution at around one-quarter of the reduction in employment in industry between 1990 and 2007. See DH Autor, D Dorn and GH Hanson (2013), The China syndrome: Local labor market effects of import competition in the United States, American Economic Review, Vol 103, pp 2121-2168.
17 According to Acemoglu et al (2016), the number of job cuts between 1999 and 2011, which the authors attribute to Chinese import competition, increased from just under 1 million (around half of which occurred in the industries directly affected and half in their upstream suppliers) to up to 2½ million. See D Acemoglu, DH Autor, GH Hanson and B Price (2016), Import competition and the great U.S. employment sag of the 2000s, Journal of Labor Economics, Vol 34, pp S141-S198.
18 See JR Pierce and PK Schott (2016), The surprisingly swift decline of US manufacturing employment, American Economic Review, Vol 106, pp 1632-1662.
19 This is consistent with empirical studies which found that the level of geographical mobility in the US economy has diminished over time. See R Molloy, CL Smith and A Wozniak (2011), Internal migration in the United States, Journal of Economic Perspectives, Vol 25, pp 173-196.

to find new jobs, also in a different industry, and to suffer virtually no income cuts.[20]

More favourable finding for Germany

In Germany, on the other hand, it appears that globalisation tends to have boosted industrial workers' earnings. The key factor was evidently that new opportunities in the export sector more than offset the dampening effect in the segments competing with imports. But for Germany, too, noticeable distribution effects and dislocations are perceived on the labour market.[21]

Positive effects predominate in other sectors and regions

Such partial analyses, however, disregard potential favourable effects of globalisation. Although a general equilibrium analysis in the context of a dynamic trade model with regional labour markets confirmed the dampening effect of China's integration into the global economy on employment in the US manufacturing sector,[22] it was found that other economic sectors created more extra jobs than were lost in industry. On the whole, the results indicate an increase in US welfare as especially consumers benefited from access to cheaper goods from China. There were, however, large differences in the labour market and welfare effects across regions.[23] This poses a potential danger to the popular acceptance of globalisation and presents policymakers with considerable challenges.[24]

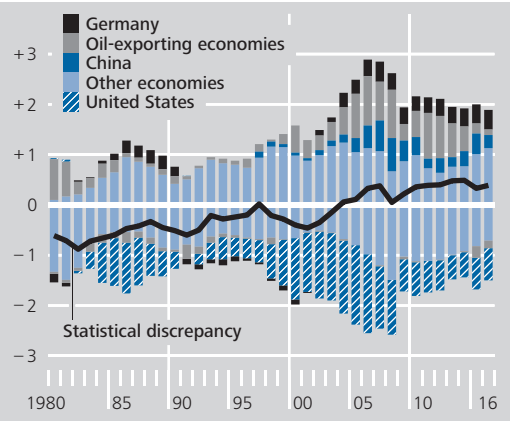
Global imbalances

Opportunities and risks from current account balances

Calls for protectionist measures also point by way of justification to so-called global imbalances. These relate to persistent, large balances on national current accounts.[25] Extensive surplus and deficit positions are sometimes interpreted as a sign of an uneven distribution of the current world trading system's benefits. However, such balances are ultimately the result of an economy's saving and investment decisions, with a deficit indicating the funding shortfall financed by the rest of the world. In the sense of an intertemporal trade analysis, an economy's deficit enables it to take up funds to expand its potential output without having to restrict current consumption accordingly. Conversely, countries with a surplus are able to share in the growth potential of economies with current account deficits. However, extensive balances may also reflect unsound developments (eg of a fiscal nature or in the exchange rate regime) that are not sustainable in the long term. A large deficit, for instance, harbours the risk that financial flows from other countries may suddenly dry up and thereby necessitate a painful adjustment.

Current account balances

As a percentage of global GDP



Sources: IMF World Economic Outlook and Bundesbank calculations.

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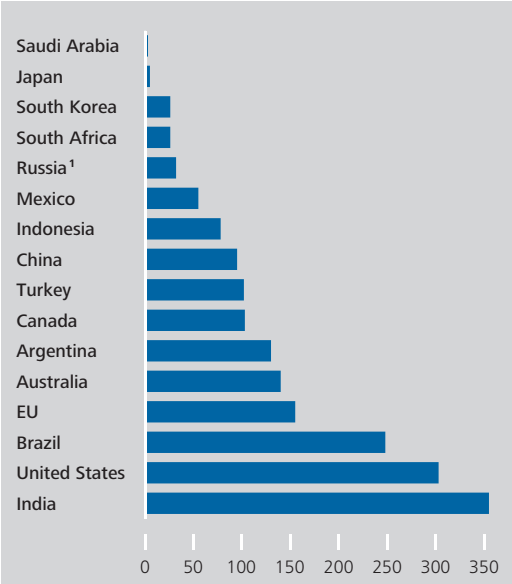
20 See D H Autor, D Dorn, G H Hanson and J Song (2014), Trade adjustment: Worker-level evidence, Quarterly Journal of Economics, Vol 129, pp 1799-1860.
21 See W Dauth, S Findeisen and J Suedekum (2017), Trade and manufacturing jobs in Germany, American Economic Review: Papers & Proceedings 2017, Vol 107, pp 337-342.
22 Caliendo et al (2015) estimate that opening the market to China cost the US manufacturing sector 0.8 million jobs in all between 2000 and 2007. This is equivalent to half of the fall in the sector's share of employment that cannot be explained by a long-term trend. See L Caliendo, M Dvorkin and F Parro, Trade and labor market dynamics, Federal Reserve Bank of St Louis, Working Paper 2015-009C.
23 Furthermore, Caliendo et al (2015) show that opening markets up to China also increased the welfare of other countries, albeit to varying extents. See L Caliendo, M Dvorkin and F Parro (2015), op cit.
24 See also OECD, How to make trade work for all, Economic Outlook, June 2017, pp 63-106; and Bank for International Settlements (2017), Understanding globalisation, 87th Annual Report, Chapter VI.
25 For further information, see Deutsche Bundesbank, The role of trade in goods in the development of global imbalances, Monthly Report, January 2015, pp 13-32.

Initiations of trade remedy* investigations the G20 countries between 2008 and 2016**

Number, cumulated



Sources: OECD, WTO und UNCTAD (Reports on G20 trade and investment measures), WTO Trade Monitoring Database and Bundesbank calculations.* Trade remedies: anti-dumping and countervailing investigations as well as saveguards. ** Some data are based on unofficial sources which were not verified by the WTO. **1** No data available for Russia for 2008.

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Global imbalances contained since the crisis

Prior to the global financial and economic crisis, the US current account deficit, in particular, was therefore deemed a downward risk for the global economy. Measured as the sum of national deficits, the global imbalances rose from around 1% of global economic output in the mid-1990s to 2½% ten years later.[26] Of this amount, the US deficit alone accounted for 1½ percentage points. Yet the feared abrupt adjustment via a sharp depreciation of the US dollar did not materialise. Instead, the imbalances declined in the wake of the global recession and, since then, have held steady at a level of just over 1½% of global output.[27] The US current account deficit fell from 6% of US gross domestic product (GDP) to 2½%.

Adjustment of current account deficit primarily a national task

Given this scale of global imbalances, both the direct threat of an escalating danger for the global economy and the urgency of further adjustments appear rather small. Moreover, individual surplus countries would hardly be able to significantly reduce the US current account deficit by increasing their demand (see the box on pages 83 to 85).[28] This is due first to the order of magnitude involved. Thus the US economy is over five times as large as the German economy. A second obstacle is that increased demand – for instance in Germany – would not just affect the United States. It would also stimulate domestic output and exports from other economies with which Germany has close trade ties and, not least, from those countries that have surpluses themselves.[29] Experience in the past few years in countries that export crude oil has shown that the reduction of individual economies' current account surpluses has neither helped to remove global imbalances nor to eliminate the US deficit.[30] The crucial requirement to achieve the latter would rather be to influence saving and investment decisions in the United States itself, eg by shifting fiscal policy onto a consolidation course.

Caution needed when interpreting bilateral trade balances

Proponents of the hypothesis that the current trading system is unfair frequently refer to balances in the bilateral trade of goods and services. However, it is not easy to interpret such bilateral balances. Even focusing on absolute values can be misleading (see the box on pages 87 and 88). This is because the absolute value depends not least on the scale of the mu-

26 In theory, the national current account balances should sum to zero. In practice, however, a statistical discrepancy is observable. Thus the size of the global imbalances differs slightly depending on whether it is calculated on the basis of the sum of all current account deficits or surpluses.
27 The sum of current account surpluses was slightly higher and fell from just under 3% of global economic output in 2006 to around 2% in recent years.
28 See also Deutsche Bundesbank, On the problems of macroeconomic imbalances in the euro area, Monthly Report, July 2010, pp 17-38.
29 The spillover effects would be limited, even within Europe. See Deutsche Bundesbank, The international spillover effects of an expansion of public investment in Germany, Monthly Report, August 2016, pp 13-17.
30 The group of crude oil-exporting countries (as defined by the International Monetary Fund) reported aggregate current account surpluses of almost 1% of global economic output in 2011. However, these surpluses had been almost entirely eroded by 2016. The fall in oil prices, which is likely to have played a key role in this contraction, concurrently contributed directly to improving the US current account balance.

Possibilities for adjusting the US current account deficit

The US economy's external position has recently become a focus of public debate in connection with potential trade policy measures. Prior to the global financial and economic crisis, a disorderly adjustment of the US current account deficit was considered one of the most significant risks to the global economy.[1] In 2006, the deficit amounted to almost 6% of US gross domestic product (GDP), causing serious questions to be raised as to its sustainability.[2] However, the United States' current account balance then contracted considerably in the wake of the recession of 2008-09 and amounted to merely 2½% of US GDP in 2016, as in 2015. In addition, there was a marked shift in the sectoral structure of the deficit. Thus the current account deficit last year was solely attributable to government borrowing requirements, whereas ten years earlier households (including non-corporate business) had also recorded net borrowing.

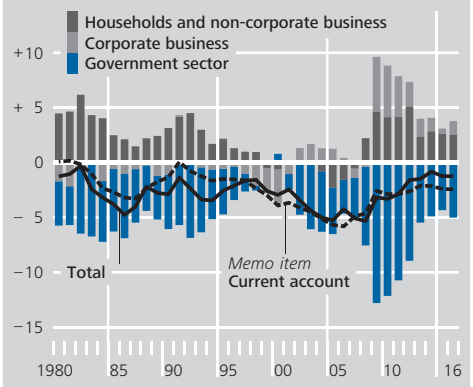
In the light of this change, the adjustment need not only appears smaller than before but also less urgent. In addition, it is probably closely linked to the need to consolidate public finances. Nonetheless, the analysis below outlines possible options which could contribute to further narrowing the US current account deficit. The macroeconomic effects are determined via simulations using NiGEM, the global economic model developed by the National Institute of Economic and Social Research (NIESR).[3]

A current account deficit implies that an economy invests more than it saves; in other words, domestic absorption exceeds GDP. It therefore makes intuitive sense to reduce financing needs vis-à-vis the rest of the world by curbing domestic demand. According to a calculation in NiGEM, a permanent reduction in domestic demand in the United States by 1% of GDP would improve the current account balance by ½ percentage point in the long run.[4] Yet, at the same time, US economic output would be significantly dampened, especially in the short run.[5]

For this reason, there have been numerous calls for adjustment by boosting demand in surplus countries. While a permanent increase in German domestic demand by 1% of domestic GDP would considerably worsen Germany's current account balance (by ¾ percentage point in relation to GDP in the long run), the positive effect on the external position of the United States would be marginal.[6]

Sectoral net lending in the United States

As a percentage of GDP



Sources: Bureau of Economic Analysis and Bundesbank calculations.

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1 See for example International Monetary Fund, Global prospects and policy issues, World Economic Outlook, September 2006, pp 12-16.

2 This figure was equivalent to more than half of global imbalances as measured by the sum of national current account deficits.

3 NiGEM models most OECD countries as well as major emerging markets and their economic interconnectedness via foreign trade and the interest rate-exchange rate nexus. The model has New Keynesian features as well as forward-looking elements on the financial and labour markets. See https://nimodel.niesr.ac.uk.

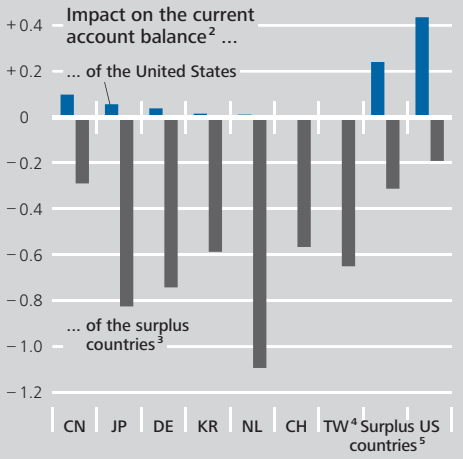
4 To this end, public consumption is reduced exogenously (and with the fiscal rule deactivated) so as not to affect the equations for private demand variables. The scenario can be interpreted as a general decline in demand, as imports are a function of aggregate demand in NiGEM. Monetary policy follows a conventional monetary policy rule here, as in the following simulations.

5 Real GDP would fall by ¾% relative to the baseline in the short term, and by ¼% in the long term.

6 See Deutsche Bundesbank, The international spillover effects of an expansion of public investment in Germany, Monthly Report, August 2016, pp 13-17.

Impact of country-specific changes in demand on current account balances in NiGEM simulations*

Deviation[1] from the baseline in percentage points



* Bundesbank calculations using NiGEM or IMF data. Permanent increase in public consumption or domestic demand by 1% of GDP in the respective surplus country; for the United States an analogous reduction of public consumption. Endogenous monetary policy response in accordance with standard rules. **1** Average over 14 years. **2** As a percentage of GDP. **3** In the case of the United States and the group of countries, impact on aggregate current account balance of the surplus countries listed. **4** Taiwan, province of China. **5** Group of aforementioned countries excluding the United States.

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This is due, not least, to the two economies' relative sizes: measured at market exchange rates, US economic output last year was more than five times as high as that of Germany.

If, alternatively, China were to stimulate domestic demand on the same scale,[7] the impact on the US current account balance would be somewhat larger but still small according to the model simulation. Even if seven major surplus countries were to simultaneously boost their demand by 1% of GDP,[8] the US current account balance would improve by just ¼ percentage point in the longer term. This is because the additional demand would not be confined to goods from the United States. Instead it would also encompass domestic products and goods from other countries, which in some cases likewise have a current account surplus.

In order to be sustainable, the stimulus must also have a permanent impact. If the expansion in demand were generated by fiscal measures, the related costs to public finances would cumulate over time. This means that fiscal sustainability should also be taken into consideration as a limiting factor. Overall, there seems little prospect that the mismatch between savings and investment in the United States could be resolved by steering demand in the surplus countries.

A final option to be considered for reducing the US current account deficit is a gradual financial market-driven depreciation of the US dollar; such an exchange rate shift would occur via a higher risk premium for investments in the US currency.[9] In contrast to the risk scenario of a sudden drying-up of capital flows, financial investors would incrementally realign their portfolios in favour of other countries or currencies and thus enable the economies to adjust with fewer frictions. Even so, the model simulation shows that a gradual nominal depreciation of 10% (in effective terms) in the long term would improve the US current account balance by ¾ percentage point. The shift in relative prices would divert national and international demand and thus contribute to a steep decline in US real imports and a considerable increase in exports.

The rebalancing of the US economy would go much deeper, however, since financing conditions would worsen in the context of the de-

7 In the simulations for China, South Korea, Switzerland and Taiwan (province of China) domestic demand is directly increased on a permanent basis.
8 China, Japan, Germany, South Korea, the Netherlands, Switzerland and Taiwan.
9 The scenario is created in NiGEM by a staggered row of simulations in which within eight quarters a limited risk premium is permanently introduced in each case into the uncovered interest parity between the US dollar and all other currencies such that, conversely, the United States' trading partners' currencies gradually appreciate. To this end the fixed exchange rates outside Europe that are anchored in the model are suspended. See also R Barrell, D Holland and I Hurst, Sustainable adjustment of global imbalances, in A Åslund and M Dabrowski (eds), Challenges of globalization: Macroeconomic imbalances and growth, Peterson Institute for International Economics, July 2008, pp 107-125. For the role that the preferences of international investors play in the US current account deficit and US dollar exchange rate, see also O Blanchard, F Giavazzi, F Sa, International investors, the US current account, and the dollar, Brookings Papers on Economic Activity, Vol 1:2005, pp 1-49.

preciating currency. The real long-term interest rate would be distinctly higher than in the baseline scenario.[10] As a result, investment would plummet. In addition, households would rein in their real consumption significantly on the back of higher import and consumer prices. US GDP would consequently be 2½% lower in the long run. Mirroring the development in the United States, other economies would benefit from the positive effects of appreciation and improved financing terms. Conversely, the simulation illustrates that, from this perspective, the United States could benefit considerably from a strong dollar and its current account deficit. Foreign investors' preference for financial assets in the United States allows US citizens to increase their domestic absorption in excess of their incomes.[11] A dollar depreciation resulting from a shift in risk premiums would not boost US GDP but rather reduce it, albeit not to the same extent as domestic demand.

10 As a result of the United States' position as a net external debtor, the interest rate increase also leads to increased payments to the rest of the world. This dampens the improvement in the US current account balance; it is smaller than the improvement in the trade balance. This implies that a current account adjustment via depreciation would not be as effective today as it would be in the case of a smaller net foreign debt. Nonetheless, the revaluation leads to a considerable improvement in the net international investment position.
11 For the role played by the United States in the international capital markets and the implications for the current account deficit, see also C C Coughlin, M R Pakko and W Poole, How dangerous is the US current account deficit?, Federal Reserve Bank of St Louis, The Regional Economist, April 2006, pp 5-9; P-O Gourinchas und H Rey (2014), External adjustment, global imbalances, valuation effects, in G Gopinath, E Helpman and K Rogoff (eds), Handbook of International Economics, Vol 4, pp 585-645; Y Chien and K Naknoi (2015), The risk premium and long-run global imbalances, Journal of Monetary Economics, Vol 76, pp 299-315.

tual trade links. If, for example, the US deficit in trade in goods with Germany is set in relation to the value of bilateral trade, it is less elevated in international terms than the absolute numbers might suggest. In addition, consumers' specific preferences and product specialisation may be important factors in the bilateral balance in the trade in goods.[31] International production chains mean that the reported amounts also contain value added from other economies.[32] While the respective trade policy may play a role, it is hardly possible to infer the extent of protectionism from the bilateral trade balance alone. According to WTO data, the United States – along with India and Brazil – are among those G20 countries that have initiated the most trade remedy investigations since 2008.[33]

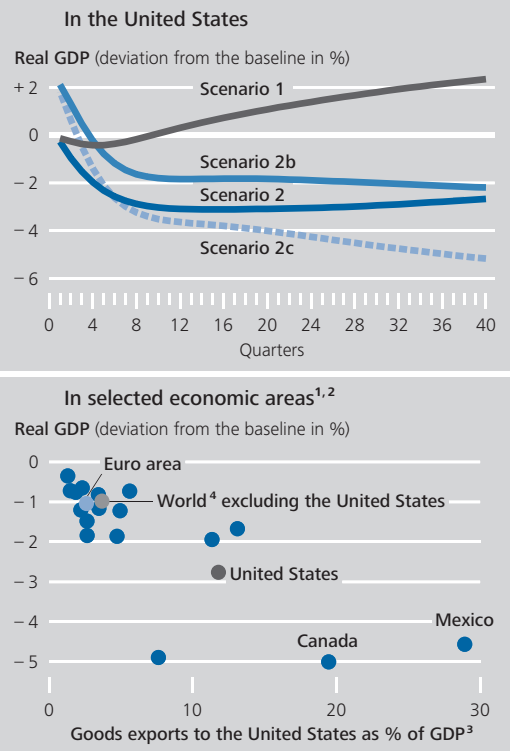
Simulations using macroeconomic models

Various modelling approaches

Advocates of trade restrictions hope that these will increase national welfare, not least by raising output and employment. To estimate the macroeconomic effects of possible protectionist measures, the following section presents simulations using two macroeconomic struc-

31 Balances in the trade in goods are normally the main feature of the current account balance. The trade balances for fuels and motor vehicles are particularly pronounced in relation to the respective trade values. The former may reflect the uneven geographical distribution of natural resources and the latter differentiated product specialisation. See Deutsche Bundesbank, The role of trade in goods in the development of global imbalances, op cit, pp 18-23.
32 See Deutsche Bundesbank, Decomposition of bilateral gross trade balances into direct value added flows and third-country effects, Monthly Report, October 2014, pp 33-36.
33 From the available data it cannot be readily determined which of these measures may have been a legitimate response to unfair trade practices of other countries and which could be deemed protectionism using legal means. The World Bank reports comparatively high average customs duties for Brazil and India.

Output effects of imposing an import duty in the United States in NiGEM scenarios*



Source: Bundesbank calculations using modified NiGEM versions. * Imposition of a permanent price mark-up of 20% on exports of goods (excluding raw materials) to the United States. Monetary policy responses in accordance with standard rules. Scenario 1: endogenous adjustments to deviations of export prices including duty; no fiscal impact. Scenario 2: endogenous adjustments to deviations of export prices excluding duty; no fiscal impact. Scenario 2b: as scenario 2, but duty revenues captured and used to increase public-sector demand. Scenario 2c: as scenario 2b, but partner countries levy retaliatory duty of 20% (no fiscal impact). **1** In Scenario 2. **2** Average of the first ten years. **3** Based on the figures for 2016. For the United States total goods imports. **4** Aggregation power parities.
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tural models that have been adapted for this purpose. The first is NiGEM, the global economic model of the National Institute of Economic and Social Research (NIESR). On the basis of empirically estimated error correction equations, this model aims to show the behaviour of key macroeconomic variables for a plurality of countries.[34] The second is a New Keynesian dynamic stochastic general equilibrium model (DSGE model) designed by the Bundesbank for three global regions (here the United States, the euro area excluding Germany, and Germany). The advantage of this model lies in its detailed microeconomic foundation which also makes it possible to consider welfare aspects.[35] In the examples, it is assumed that the United States permanently imposes a general import duty of 20% on import prices.

NiGEM

Higher prices and lower economic output in the USA …

In NiGEM, the assumed US import duty is depicted as a mark-up on foreign firms' prices of exports to the United States.[36] From the US viewpoint, customs duties would directly result in a rise in import and consumer prices. The resulting appreciation of the US dollar could only mitigate this effect. Higher inflation would depress private consumption, with negative consequences for domestic economic activity. The macroeconomic effects of a general import duty would thus be similar to those of a negative technology shock which inflates prices and constrains economic output. US exports, too, would drop in real terms due to the appreciation of the US dollar and a lower level of demand abroad. Nevertheless, there would be a marked improvement in the US current account balance, not least because real imports would fall at a sharper rate as they would have become more expensive.

34 In NiGEM, most of the OECD countries and major emerging markets are modelled separately and linked to each other via foreign trade as well as the interest rate-exchange rate nexus. The model has New Keynesian features as well as forward-looking elements on the financial and labour markets. For further information on the model structure, see https://nimodel.niesr.ac.uk

35 For an overview of the basic structure of such a model, see Deutsche Bundesbank, Development and application of DSGE models for the Germany economy, Monthly Report, July 2008, pp 31-46.

36 As NiGEM, in the form provided by NIESR, is unable to capture bilateral trade flows, extensive modifications are necessary. The focus on the prices of exports to the USA follows Ebell and Warren (2016) and Ebell et al (2016). However, they consider endogenous shocks, and the persistence of the resulting effects is ultimately pre-specified. By contrast, the approach adopted here makes it possible to study the endogenous adjustment mechanisms in response to permanent exogenous shocks. Overall, the price systems of 18 US trading partners and three regions have been adjusted, which together account for around 90% of US foreign trade. See M Ebell and J Warren (2016), The long-term economic impact of leaving the EU, National Institute Economic Review, Vol 236, pp 121-138; as well as M Ebell, I Hurst and J Warren (2016), Modelling the long-run economic impact of leaving the European Union, Economic Modelling, Vol 59, pp 196-209.

The magnitude of the United States' bilateral trade balances

The political debate surrounding the United States' persistent current account deficits has repeatedly centred on the large trade deficits it runs with individual partner countries. According to one line of argument, these bilateral balances could be seen as an indication of unfair trade practices. In the past, such accusations were levelled mainly at emerging market economies in Asia, but recently a number of other countries have also come under attack. Criticism has centred on China, as well as Mexico, Japan and Germany. In arithmetic terms, these four economies have accounted in recent years for around three-quarters of the United States' overall trade deficit of just over 4% of gross domestic product.

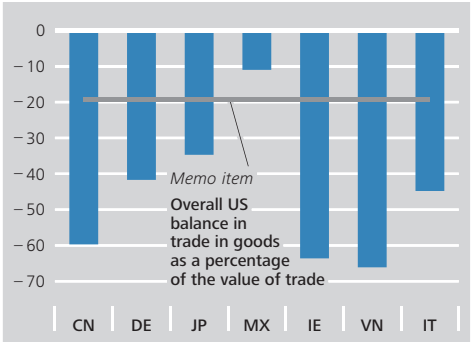
Germany's bilateral current account surplus with the United States amounted to €56 billion in 2016 according to the Bundesbank's balance of payments statistics. In the US balance of payments deficits with Germany are reported as being slightly higher.[1] Such discrepancies, where two countries record the data relating to their bilateral relations somewhat differently, are termed statistical asymmetries and may be caused, for instance, by different data collection methods or data availability. Many of these difficulties result from the existence of third countries which may influence the bilateral current account directly (as a trading partner) or indirectly (as a transit country).[2]

However, bilateral current account balances are of limited meaningfulness not only because they disregard relations with third countries. Even where all countries' current accounts are balanced, there may be considerable positive or negative balances between individual partners, say because of different specialisation patterns.[3] Given that the US balance of trade as a whole is in deficit, the United States can, moreover, be expected to run a large deficit in absolute terms with any partner with which it conducts a large volume of bilateral trade. Individual countries' large surpluses often shrink into perspective once they are compared with the respective trade values. Thus the US trade deficit amounted to nearly 20% of the country's total value of trade in the years 2014 to 2016. The trade deficit with

1 In 2015, the difference totalled €4.6 billion, while it was €8.5 billion in 2016.
2 For example, the United States' large trade surplus with the Netherlands could be seen as an indication that US products reach buyers in Germany via Dutch sea ports.
3 Divergent industrial specialisation patterns are reflected in mismatches in the trading partners' respective export profiles and influence bilateral trade balances, in part via third-country effects. For instance, Germany is heavily reliant on commodity imports, while the United States is rich in natural resources. This means that Germany tends to have trade deficits with countries such as Russia. Even if, hypothetically speaking, Germany's overall trade account were perfectly balanced, these bilateral deficits would have to be offset by trade surpluses with other countries, such as the United States. For this line of reasoning, see P Krugman, On the US-Germany imbalance, blog entry of 31 May 2017, available at https://krugman.blogs.nytimes.com/2017/05/31/on-the-us-germany-imbalance

The United States' bilateral deficits in trade in goods with selected economies*

Mean for 2014-16 as a percentage of the value of trade[1]



Sources: IMF Direction of Trade Statistics and Bundesbank calculations. * Economies with the largest arithmetic contribution to the US trade deficit. **1** Sum of imports and exports.
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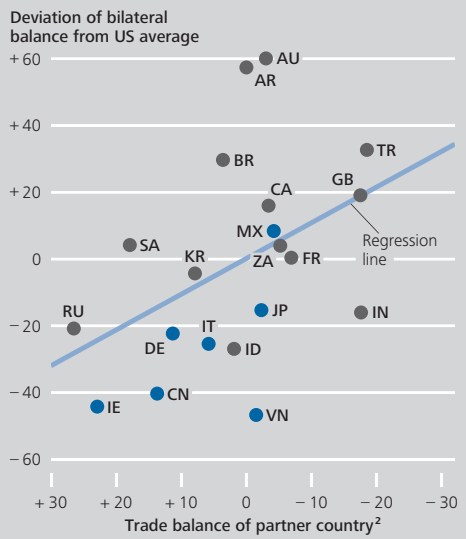
The United States' bilateral deficits and surpluses in trade in goods with selected economies*

As a percentage of the value of trade[1]



Sources: IMF Direction of Trade Statistics and Bundesbank calculations. * G20 states and countries with a large surplus in bilateral trade in goods with the United States; economies with the largest arithmetic contribution to the US deficit are marked in blue. **1** Sum of imports and exports; mean for 2014-16. **2** Axis inverted.

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Mexico, by contrast, was only roughly one-seventh of the bilateral value of trade. While the deficit with Germany was twice as high as the US average percentage, deviations of a similar magnitude are also observed for Japan and Italy. According to this criterion, the deficits with Vietnam, Ireland and China, amongst others, were even more striking.

But in addition to reflecting the value of trade and the US economy's overall deficit, bilateral balances may also be affected by the respective partner country's foreign trade profile. Thus large deficits are likely to accrue especially in trade relations with economies that are net exporters on the global markets. That includes China, Germany, Italy and Ireland. And indeed, the German balance in the transatlantic trade in goods is only slightly larger than one would expect given the opposite signs and relative magnitudes of the national trade balances.[4]

At the macroeconomic level, the gap between exports and imports, as part of the current account, reflects national saving and investment decisions, which, in an open economy, can barely be influenced by trade policy instruments. In any case, the United States' trade balances with individual countries cannot be construed as direct evidence of supposed trade-distorting policy measures in the partner countries. This is also true of US-German trade links, although the euro's current external value does give German exporters comparatively favourable price competitiveness.

All in all, bilateral balances in the cross-border exchange of goods are therefore not a reliable indicator of unfair trade practices. Hence caution is warranted when deriving consequences for economic policy such as the possible imposition of tariffs. There are, moreover, grounds for doubting the proposition that the US foreign trade position could be improved noticeably by introducing import barriers.[5] In actual fact, such steps are likely to weaken not only the partner countries but also the US economy itself and increase the risk of spiralling international trade disputes.

4 Notwithstanding some fairly large forecast errors, the national trade balances have, overall, considerable explanatory power for the sign and the level of the United States' bilateral positions vis-à-vis major trading partners in recent years. For an earlier, more critical assessment of the approach, see D R Davis and D E Weinstein (2002), The mystery of the excess trade (balances), American Economic Review, Vol 92, pp 170-174.

5 In approaches based on New International Macroeconomics and in the New Keynesian model world, the introduction of tariffs may even result in a deterioration of the balance of trade in the short term. See S Reitz and U D Slopek (2005), Macroeconomic effects of tariffs: Insights from a New Open Economy Macroeconomics Model, Schweizerische Zeitschrift für Volkswirtschaft und Statistik, Vol 141, pp 285-311; and G Ganelli and J Tervala (2015), Value of WTO trade agreements in a New Keynesian model, Journal of Macroeconomics, Vol 45, pp 347-362.

… and in other countries

In other countries this would not just adversely affect their exports. The relative depreciation of their currencies would also diminish purchasing power, causing private consumption and GDP to contract. In this model framework, imposing a duty on imports to the United States would therefore trigger symmetric effects both there and in its trading partners. And the closer an economy's trade links with the United States, the greater these effects would tend to be in that partner country. Hence the GDP losses incurred in Canada and Mexico would be especially high. The repercussions for the euro area would be less severe.

Exporters' price-setting behaviour key to scale and persistence of effects

The scale and persistence of the macroeconomic effects would largely hinge on the price-setting behaviour of exporters in the individual trading partner countries. Inasmuch as exporters responded to the imposition of a duty by gradually lowering their net prices, the price shock would gradually wane.[37] The adverse GDP effects in the United States would then be comparatively small from the outset, become less significant over time and ultimately reverse. However, if foreign firms adjusted the (dollar) prices of their exports to the USA only marginally, the macroeconomic damage for the United States would be quite significant and persistent. Real US GDP would remain 3% below the baseline in the third year of the model calculation, with private consumption falling over 4% short. At the same time, aggregate output in the rest of the world would be pushed down by almost 1%. Ultimately, the improvement in the US external trade position would likewise be less pronounced.

Fiscal effects and retaliation

However, a new import duty would not only have a direct impact on prices and an indirect impact on output, it would also lead to a significant increase in revenue for the US Treasury, which could be used to finance additional expenditure. It is thus likely that increased government demand would mitigate the fall in output in the United States in the short to medium term. That said, the contractionary forces at play on the supply side would later predominate. In this scenario, the US current account balance would actually deteriorate. If the USA's trading partners resorted to retaliation, eg by likewise imposing a 20% tariff on imports from the United States, the GDP loss for the US economy would be considerably greater. A major factor in this would be the sharper decline in US exports, which would also be reflected in an initially even larger current account deficit. However, in this model framework retaliation on the part of trading partners would not necessarily put them in a better position.[38]

DSGE model

GDP losses across the globe, …

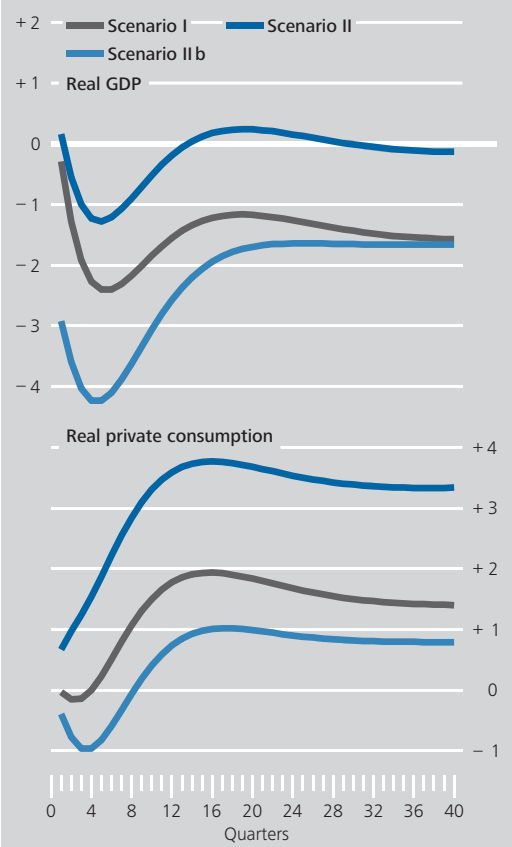
Under the New Keynesian DSGE model, too, real GDP in both the United States and elsewhere would contract upon the introduction of an import tariff owing to similar mechanisms to those operating in NiGEM. On the one hand, the burden imposed on imports by the tariff would likely dampen US demand for foreign goods, generating a drag on output in Europe; on the other hand, the demand for US-produced goods would fall on this side of the Atlantic owing to depressed incomes and higher prices in the wake of an appreciating dollar. In the long term, the economic output of the United States as well as of the world as a whole would shrink by 1½%. In view of the greater importance of foreign trade for the German economy, its GDP losses would be larger in percentage terms than in the rest of the euro area.

37 In turn, exporters' price-setting behaviour would probably depend crucially on how far they factor the demand effects of the import duty into their costing ex ante and how fast they adjust their own prices when these differ from those of their competitors. This is ultimately an empirical question. With respect to a possible border tax adjustment within corporation tax, Buiter (2017) likewise highlights the role of exporters' price-setting behaviour regarding tax inclusion (and currency choice). See W H Buiter (2017), Exchange rate implications of border tax adjustment neutrality, Centre for Economic Policy Research, Discussion Paper, No DP11885.

38 This would at least be the case assuming that exporters barely adjust their net prices and disregarding fiscal aspects of retaliation.

Domestic effects of imposing an import duty in the United States in the context of a DSGE model*

Percentage deviation from the original long-run equilibrium



* Calculations based on a Bundesbank DSGE model for three economic areas. Permanent import duty of 20%. Model adapted to capture United States, Germany and the euro area (excluding Germany). Scenario I: duty revenues transferred in lump sums to households. Scenario II: duty revenues used to reduce wage tax. Scenario II b: imposition of a retaliatory duty of 20% in the rest of the world, with duty revenues used to reduce wage tax.

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… but US consumers would benefit from improvements in the terms of trade

If the revenues from the import duty were transferred in lump sums to US households, the latter's scope for spending would barely be constrained. Moreover, the direct price shock would also be followed by a gradual reduction in the sales prices of foreign goods, and not just because of the appreciation of the US dollar against the euro. Under this model framework, European exporters would also lower their net prices in euro terms with a view to maximising their profits. Consequently, US households could benefit from an improvement in the US economy's terms of trade.[39] In the rest of the world, the shift in relative prices would reduce real consumption options. In the long term, private consumption in Germany might contract by more than 3% according to the model simulations, and in other euro-area economies it could decrease by around 2%, while in the United States it would expand by just over 1%.

Better outcome if wage tax is concurrently reduced, …

If the revenues from the US import duty were used to lower wage tax, the domestic labour supply would increase, and the GDP losses would be smaller. In the long term economic output in the United States would then not be impaired at all and employment could grow somewhat. Households would increase their consumption even more.

… but this would be offset by retaliatory tariffs

However, this benign outcome for the United States would only endure for as long as its trading partner countries refrained from taking retaliatory action. The introduction of an equal retaliatory tariff would significantly reduce the change in the terms of trade in favour of the United States, which would severely curtail the consumption effects in the USA compared with the scenario in which no retaliation occurs. Conversely, euro-area consumers would be placed in a better position. But the DSGE model simulation likewise indicates that, as a result of retaliatory action, global output losses (at almost 2%) would be higher in the long run.

Economic policy implications

Model results should be interpreted with caution

Macroeconomic models simplify the world in many respects, hence the results of such simulations should generally be interpreted with caution. In particular, the models used here are based on representative firms and households, which means that different behaviour and dis-

39 The DSGE model thus confirms the finding of traditional foreign trade theory that a large country stands to benefit from imposing an import duty thanks to improved terms of trade. This was also shown earlier in a similar New Keynesian model framework designed by Reitz and Slopek (2005). See S Reitz and U D Slopek (2005), Macroeconomic effects of tariffs: Insights from a New Open Economy Macroeconomics Model, Schweizerische Zeitschrift für Volkswirtschaft und Statistik, Vol 141, pp 285-311.

tributional effects are ignored. Supply-side linkages via global production chains are likewise not captured, and substitutional effects between products from different countries may be insufficiently taken into account. Longer-term interrelationships between an economy's degree of openness and productivity dynamics are also left out of the equation. Moreover, the financial systems are modelled in only a rudimentary fashion. However, protectionist measures could divert capital flows via their impact on exchange rates, triggering financial dislocations, not least in emerging market economies, with potentially serious macroeconomic consequences. All in all, there are some indications to suggest that the simulations presented here may understate the adverse effects of protectionist measures.

Purchasing power losses and output distortions

Both models point to the possibility of considerable macroeconomic damage caused by the imposition of import duties, including in the imposing country.[40] The aspired objective of reducing global imbalances is not achieved in realistic NiGEM scenarios; the production of tradable goods in the United States is similarly dampened under the DGSE framework.[41] Moreover, the DSGE analyses indicate that, although a clever combination of policy measures may boost domestic wealth at the expense of other countries, retaliatory measures contain those countries' losses and also harm the protectionist country. Similarly to the classic prisoner's dilemma, optimisation strategies on both sides could therefore lead to a situation in which all parties levy tariffs and everybody is worse off in the end. Hence, even large economies cannot assume that they will gain an advantage by erecting trade barriers. Such a scenario would harbour particular dangers for the German economy given its heavy reliance on foreign trade.

Need for a rules-based multilateral trading system

The illustrative and hypothetical focus on the United States in these simulations should not obscure the fact that protectionist tendencies also loom elsewhere in the world. In order to banish the dangers arising from escalating trade conflicts, it is necessary to defend and further develop the rules-based multilateral trading system. This could also generate important expansionary stimuli for the global economy.[42] The confidence-building discussions between representatives of the G20 countries may be conducive to this objective. It was not least the common resolve of this group of nations that prevented a slide into protectionism during the global financial and economic crisis. In order to tackle problems that may emanate from structural change, suitable adjustments should be made, if necessary, to education and economic policies as well as to tax and transfer systems.[43]

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40 The model results presented here are broadly in line with the findings of other studies. For instance, in a simulation using the METRO model, the OECD (2016) finds that increasing trade costs in the United States, the European Union and China by 10 percentage points would markedly dampen GDP, first and foremost in these economies themselves. Using an experimental NiGEM version, Carreras and Ramina (2017) conclude that increasing the prices of Chinese exports to the United States would negatively impact US private consumption and economic output. Anderson et al (2013) find that, using the GIMF model (the International Monetary Fund's DSGE model that incorporates several regions of the world), a permanent increase in US import duties by 10 percentage points leads to a 1% decline in real GDP in the United States in the long run. In addition, deploying its GIMF model, the International Monetary Fund (2016) confirms that partner countries would have an incentive to retaliate and that, ultimately, all parties would lose out. Felbermayr and Steininger (2016), using the ifo trade model, ascertain that a trade war arising from the imposition of import duties by the United States would primarily hurt the US economy itself. See OECD, The impact of changes in global trade costs, Economic Outlook, November 2016, pp 23-25; O Carreras and M Ramina (2017), The risks from increased trade protectionism, National Institute of Economic and Social Research, NiGEM Observations, No 11; D Anderson, B Hunt, M Kortelainen, M Kumhof, D Laxton, D Muir, S Mursula and S Snudden (2013), Getting to know GIMF: The simulation properties of the Global Integrated Monetary and Fiscal Model, International Monetary Fund, Discussion Paper, No WP/13/55; International Monetary Fund, Tariff scenarios, World Economic Outlook, October 2016, Scenario box 1, pp 37-39; as well as G Felbermayr and M Steininger, Wie gefährlich ist die angekündigte Handelspolitik von Donald Trump?, ifo Schnelldienst, No 22/2016, pp 34-41.

41 In the GIMF model, an increase in import duties in the United States would lead to a slight deterioration in the US current account balance. See D Anderson, B Hunt, M Kortelainen, M Kumhof, D Laxton, D Muir, S Mursula and S Snudden (2013), op cit.

42 See International Monetary Fund, The role of trade policies in reinvigorating trade, World Economic Outlook, October 2016, Box 2.2, pp 91-93; as well as International Monetary Fund, Potential gains from jump-starting trade liberalization, ibid., Box 2.3, p 94.

43 See for example: International Monetary Fund, World Bank and WTO, Making trade an engine for growth for all, March 2017.