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A TRANSATLANTIC ZERO AGREEMENT: Estimating the Gains from Transatlantic Free Trade in Goods

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EXECUTIVE SUMMARY

- This study examines the potential gains from a transatlantic zero-tariff agreement on trade in goods. The idea of deeper transatlantic economic integration has become more attractive in recent years. The hopes for an ambitious multilateral trade deal in the Doha Round negotiations have diminished; few countries appear ready to accept ambitious liberalisation on the global level. Leaders have increasingly turned to bilateral or regional trade initiatives, but few of them are capable of delivering sizeable gains to big economies like the European Union and the United States.
- Transatlantic economic integration is not likely to spell the end of the Doha Round or the World Trade Organisation (WTO). In fact, it could have the opposite effect. Like big regional initiatives in the past (e.g. the EU Common Commercial Policy, the EU single market and the NAFTA), a transatlantic free trade accord, properly designed, could give the WTO and its members the jolt they need to get on track again.
- Tariffs between the EU and the US are comparatively low (they average at 5-7 percent). But transatlantic free trade in goods could still deliver sizeable gains. Existing tariffs prevent trade and import competition. The EU and US economies are big, and bilateral trade is to a large degree composed of intra-firm trade. Both these factors suggest potential trade gains of great magnitude. As a significant part of the trade is intra industry, competition could increase as a consequence of liberalised trade.
- The **static** effect on GDP from a transatlantic zero-tariff agreement is estimated to be 0.01 percent for the EU and 0.15 percent for the US. **Dynamic gains** – accounting for improved productivity and reduced trade facilitation costs – are estimated to be **0.32-0.47 percent** for the EU (or $46 to $69billion) and **0.99-1.33 percent** for the US (or $135-$181 billion).
- The estimated **welfare gains** – measured as national income effects – are more evenly distributed between the two economies. The static effect is **$3 billion** for the EU and **$4.5 billion** for the US. The **dynamic welfare gains** are estimated to be **$58-$86 billion** for the EU and **$59-$82 billion** for the US.
- The estimated **change in EU exports** to the US is **7 percent** (or $28 billion) in a static scenario and around **18 percent** (or $69 billion] in the dynamic scenario. The US is estimated to increase exports to the EU by **8 percent** (or $23 billion) in the static scenario and **17 percent** (or $53 billion) in the dynamic scenario.
- The purpose of the study is to examine if the potential gains from a transatlantic trade accord is big enough to motivate such an initiative. Based on the results of the simulations in this study, the answer is Yes.

1. INTRODUCTION

"Nothing is as powerful as an idea whose time has come" said the French author Victor Hugo. There are good reasons to believe that in the world of trade and trade policy, it is deeper transatlantic economic integration, manifested by a trade accord between the two giants of the world economy, which should be that ascending idea.

The idea is not new, nor is it uncontroversial. But it has grown more appealing as problems of world trade policy have sharpened – and as the world trading system is in desperate need of leadership from the big economies. Deeper transatlantic integration is not only a way to advance bilateral trade or address complicated "new generation" issues like nanotechnology, biotechnology and other deep integration trade issues[1]. It could also be a good strategy to jolt the World Trade Organisation (WTO) and its Doha Round in the right direction.

In an ECIPE study last year[2], it was argued that the most common arguments against a transatlantic free trade accord have become less relevant over the past decade. The assertion that a free trade deal between the United States and Europe would knock the Doha Round completely off track, and effectively kill the World Trade Organisation, may have been valid objections in the early noughties but the argument is today unconvincing for two, and possibly three, reasons.

Firstly, the WTO system does not operate in isolation of other trade policy, or international economy trends; if there is no real liberalisation coming by other means (unilaterally and bilaterally), there is not likely to be any real liberalisation in WTO negotiations either. Countries liberalise for reasons of profit and fear; they agree on reducing their trade barriers because they believe it is in their material interest, or because they fear they will miss out on present or future gains because other countries are liberalising. The passion and interest for trade liberalisation has slowed down markedly in all countries in the past 5-10 years. The 1990s saw a finished Uruguay Round, the single market in Europe and NAFTA in North America, and a host of important plurilateral agreements, like the Information Technology Agreement (ITA), being established. The noughties compare badly with this record. Equally disturbing, very few countries believe they are at risk of losing gains because others are advancing their trade agendas. The fear factor has been absent.

The multilateral trading system has often moved in tandem with much broader trade policy developments in the bigger economies, especially Europe and North America. The Kennedy Round of trade negotiations was boosted by Europe's initiative to establish its Common Commercial Policy in the 1960s; the US feared that American firms would lose sales and competitiveness in Europe if external barriers in Europe were not reduced along with the internal tariff reductions. Similarly, the Uruguay Round was knocked *on* track because North America signed the NAFTA agreement and Europe created its single market. The fear factor is important. "When a man knows he will be hanged in a fortnight, it concentrates his mind wonderfully", said Dr. Johnson, the notoriously blunt cynic. This spirit also holds true for trade policy.Fear of missing new or losing old benefits concentrate political minds.

Secondly, despite the profound changes in the world economy in the past decades, Europe and the United States remain the only two actors that can take genuine leadership for world trade. There are others, like China, which should take leadership but will not. Then there are rising middle powers that want to lead but cannot. They are all important for achieving results, but their institutional capacity to lead and show the sort of "visionary generosity" needed is limited.[3]

The conclusion of these observations is this: regardless of the form that multilateral trade policy will take in a future post-Doha world – and it is probably safe to say that the era of big rounds is over – it will to a large extent be laboured by Europe and the United States. It is leadership from them that will define future trade policy advancements. Such leadership could be organised in different ways: plurilateral sectoral agreements negotiated outside, but then brought into, the WTO (like the ITA agreement) and bilateral transatlantic negotiations, combined with an invitation to others to join the agreement, are two options. The point is that the second is not principally different from the first: leadership will be shouldered by the US and Europe, and regardless of the format for negotiations this leadership will inevitably encourage others – for reasons of profit or fear – to move ahead with much-needed liberalisation.

A third factor may be at work: the expansion of the WTO itself, and especially the inclusion of China.The most-favoured-nation principle that underlies the WTO system looks very different when one of the parties is not only an export juggernaut, but one whose competitive advantage parallels that of many developing countries.In this sense, the debates about market access between Washington and Brussels, once the major dynamic in WTO negotiations, are almost irrelevant: New Delhi, Buenos Aires and Jakarta are reluctant to lower barriers not to the developed countries, but to one of their erstwhile "developing country" companions.

As exogenous factors, such as the fear of destroying the WTO, could be discarded, the idea of a transatlantic free trade accord could be considered on its own endogenous merits. There are two aspects that particularly warrant reflection. Firstly, would the economic gains from a transatlantic trade deal be significant enough to motivate such an initiative? Secondly, is it technically possible for the two giants of the world economy to find ways to agree on a meaningful trade deal?

The purpose of this paper is to give a response to the first question. In the previous ECIPE study, the static trade gains from fully eliminating tariffs, and only tariffs, between the United States and the European Union were estimated. The result suggested trade effects to be significant and positive, but not very big. This was a predictable result: in every trade agreement the dynamic effects will be considerably greater than the static effects. Furthermore, tariffs in Europe and the United States are comparatively low, which is why trade is not likely to get an immediate (static) boost of greater magnitude. However, the paper also concludes that the dynamic gains from trade probably would be considerable as the transatlantic economy builds on intra-firm trade and investment, and as the high degree of intra-industry trade helps to increase the competition effect of new trade.

The task set out for this paper is to estimate the size of the potential dynamic effects by full transatlantic tariff elimination.[4] Unsurprisingly, the full dynamic effects of such an agreement would boost trade and Gross Domestic Product (GDP), and the paper attempts to decipher the effects in a way that is readily understandable also to non-economists.

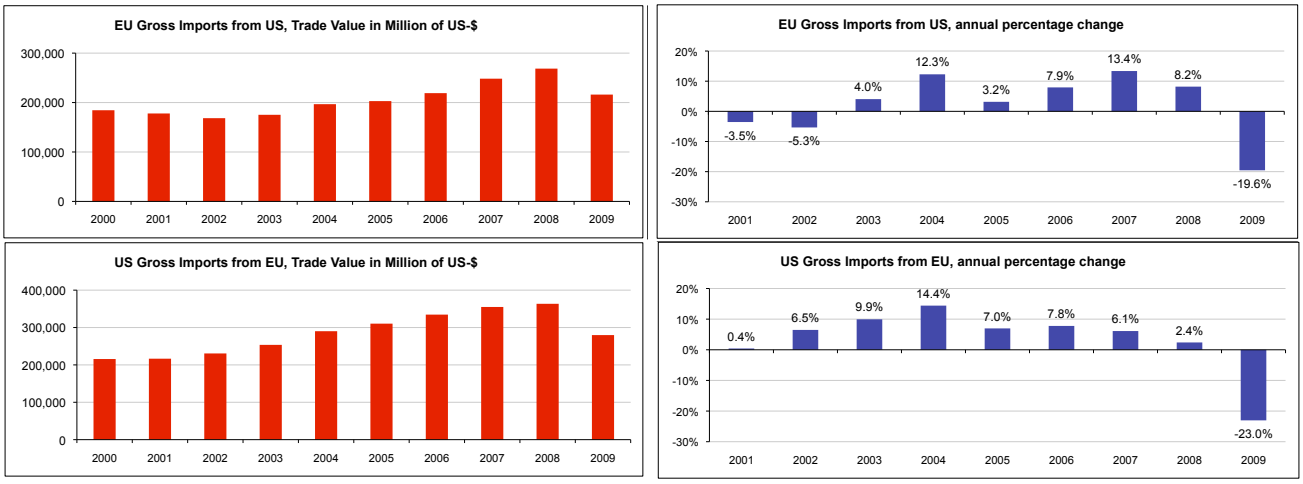
The next chapter will give an overview of key features of transatlantic trade that are important for understanding why the trade and GDP gains from full tariff elimination would be considerable. We will concentrate on aspects such as intra-industry and intra-firm trade. The chapter uses little jargon and is free of quantitative analysis that requires a high degree of technical expertise. Chapter 3 is somewhat different. There we present the methodologies used for our estimation of economic gains. For readers averse to technical concepts and jargon, the recommendation is to jump directly to chapter 4, which presents the main results of the quantitative analysis.

2. PROFILING THE TRANSATLANTIC ECONOMY

THERE ARE THREE aspects in particular that are important to understanding the economic gains from a transatlantic trade deal. The first reason is simple: size matters. Intuitively, free trade between big economies has bigger effects than trade deals between smaller economies, even when – or perhaps because – the two big economies in question are already deeply integrated. Most of the FTAs signed in the past are between two smaller economies, or between a big economy and a small economy. The gains for a big economy in the latter form of agreements are typically small. For instance, an estimate of the GDP effects on the European Union from the EU-Korea Free Trade Agreement put the result at 0.08 percent.[5] According to the United States International Trade Commission, the GDP effect on the US from full tariff elimination in trade with Korea is 0.1 percent.[6] Consequently, EU and US trade deals with economies smaller than the Korean economy have even less meaningful effects on GDP. This is not to say such deals are unimportant or do not provide benefits – only that the size of the effect of an agreement is to a large extent a reflection of the size of the partnering economy.

EU-US trade and investment is significant, and it is easily the largest bilateral economic relationship in the world. From a strict merchandise trade volume perspective, China is now competing with the two at the top. But in bilateral economic relations, trade is only one of the factors behind the extent of cross-border integration. Yet transatlantic trade has increased considerably over the last decade. Prior to the crisis, EU exports to the US grew by an average of nearly 7 percent a year. US exports to the EU reached 5 percent a year. This is a good record, especially as both economies contracted in the wake of 9/11 and saw trade growth go down considerably. In the first two years of the noughties, US exports to the EU fell, which is why US export growth is lower than Europe's in the decade up to the crisis. Like all other trade relations, transatlantic trade has taken a hit during the crisis. EU imports of goods from the US fell by almost 20 percent in 2009, and the contraction in US merchandise imports from Europe was even larger. Despite this fall, bilateral trade in goods remains extensive (see Figure 1).

FIGURE 1: TRANSATLANTIC MERCHANDISE TRADE AT A GLANCE

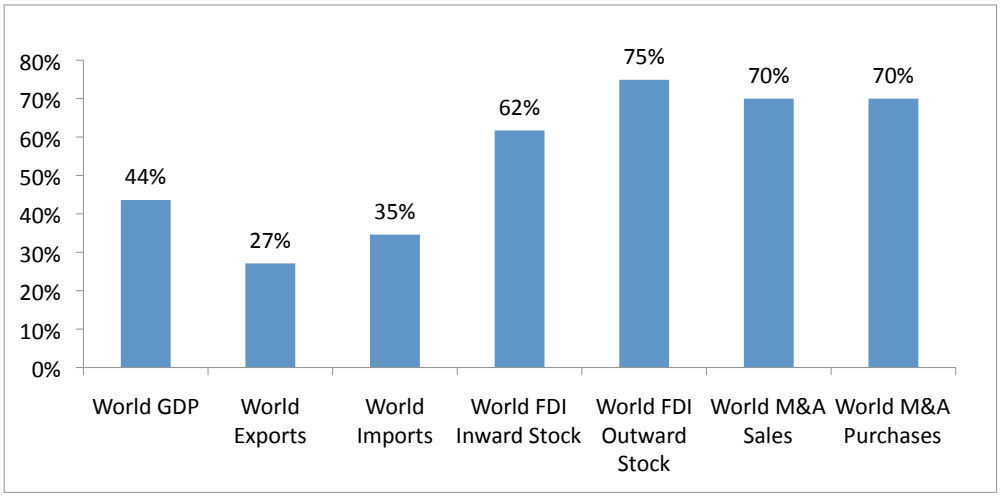


Source: WITS, UN

Figure 2 gives a few other indicators that put the size of transatlantic economic relations in context. The transatlantic economy still represents more than forty percent of total world GDP. Its role in trade is smaller, but the two transatlantic partners represent a vastly bigger share of the world total of FDI and mergers and acquisitions. Hence, the transatlantic econ-

omy has moved beyond trade, and integration today runs deeper. "Investment first, trade second" is a modern dictum for the transatlantic economy.[7]

FIGURE 2: COMPARING THE TRANSATLANTIC ECONOMY WITH THE WORLD (SHARE OF WORLD TOTAL)



Source: Hamilton & Quinlan (2010).

These observations of the transatlantic economy reinforce the point made above: the size of the gains from a Free Trade Agreement reflects the size of the partnering economies. And it matters particularly for the potential effect on productivity from such an agreement. When two of the biggest economies in the world, representing more than 40 percent of global GDP and with $600 billion in total bilateral trade, eliminate tariffs in their bilateral trade, it will have a clear effect on competition. Had they also reduced non-tariff measures ambitiously, the effect would be far higher.[8] But past experiences of big economy trade liberalisation suggest the tariff elimination alone to have a strong effect on productivity performance.

The second aspect central to understanding the transatlantic economy, and the potential gains from eliminating tariffs, is the high degree of intra-firm trade driven by foreign affiliates. Much of the economic integration between the US and the EU is driven by the thousands of affiliates that operate in each other's markets. Table 1 gives us some indicators. Half of all US foreign affiliates are in Europe and 60 percent of the assets held by US foreign affiliates are in Europe. The equivalent figure for EU affiliates in the US is 75 percent. Estimates have suggested intra-firm trade to represent a third of total transatlantic trade.

Why is a high degree of foreign affiliates an important factor for trade? There is a high degree of intra-firm trade between foreign affiliates, and even if tariffs are low they represent an international "tax" on what would otherwise be a normal intra-firm transfer and require administrative costs to manage. We know from several studies that such administrative trade costs can be significant – representing up to four or five percent of the value of trade, if not more.

TABLE 1: US AND EU AFFILIATES AT A GLANCE

US AFFILIATES IN EU IN WHICH INVESTMENT WAS REPORTED, 2008

	No. of affiliates[1]	Millions of dollars				Number of employees (thousands)
		Total assets	Sales	Netincome	Compensation of employees	
All countries	26 548	12 504 725	6 107 864	956 357	490 124	11 879,4
Europe	13 885	7 419 907	3 147 942	525 813	280 524	4 820,1
Europe in %	52%	59%	52%	55%	57%	41%
Austria	237	(D)	(D)	(D)	3 132	44,5
Belgium	619	341 018	148 235	16 071	12 015	140,7
Czech Republic	163	(D)	(D)	(D)	(D)	L
Denmark	244	(D)	(D)	(D)	(D)	L
Finland	150	(D)	(D)	(D)	1 620	24,1
France	1 378	352 752	243 870	13 330	36 206	636,8
Germany	1 656	600 177	388 658	21 984	51 611	671,5
Greece	104	(D)	(D)	(D)	(D)	L
Hungary	171	38 957	23 425	2 687	1 663	63,7
Ireland	560	656 134	252 976	80 900	6 711	91,1
Italy	735	195 708	163 086	11 819	15 395	268,7
Luxembourg	381	918 930	18 732	89 926	1 059	14,3
Netherlands	1 603	1 276 966	318 605	147 566	17 954	244,4
Norway	200	72 870	60 818	8 886	2 933	35,0
Poland	219	35 598	39 734	2 434	3 269	142,5
Portugal	169	(D)	(D)	(D)	(D)	L
Russia	146	(D)	(D)	(D)	(D)	M
Spain	630	173 940	114 266	9 939	12 209	211,7
Sweden	369	(D)	(D)	(D)	(D)	L
Switzerland	639	447 230	280 209	53 398	9 020	95,6
Turkey	115	19 725	30 556	2 217	1 698	48,1
UK	3 048	1 727 600	681 792	9 193	78 920	1 328,0

MAJORITY-OWNED U.S. AFFILIATES BY EU OF ULTIMATE BENEFICIAL OWNER, 2007

	No. of affiliates[1] Total assets	Millions of dollars				Number of employees (thousands)
		Sales	Netincome	Compensation of employees		
All countries		12 012 130	3 277 167	103 301	403 606	5 520
Europe		9 094 374	1 998 241	58 710	267 187	3 595
Europe in %		76%	61%	57%	66%	65%
Belgium	na	112 604	47 014	1 194	5 124	141
Denmark	na	28 518	14 668	483	2 724	24

Finland	na	68 955	17 929	626	2 500	27
France	na	1 262 812	253 627	10 288	39 723	516
Germany	na	1 825 362	442 648	1 844	55 375	654
Ireland	na	60 622	23 942	140	4 786	68
Italy	na	139 378	37 717	790	5 234	115
Netherlands	na	1 000 675	323 524	16 040	28 113	391
Spain	na	233 165	24 916	557	2 599	58
Sweden	na	67 125	48 849	848	8 742	184
Switzerland	na	2 005 325	223 055	-1 044	38 267	397
UK	na	2 216 961	499 412	27 638	70 299	949
Other	na	72 871	40 940	-696	3 702	72

D: Suppressed to avoid disclosure of data of individual companies,L–50,000 to 99,999.
Source: Bureau of Economic Analysis, US Department of Commerce

The third and final aspect that merits special consideration is intra-industry trade (IIT) – that is inward and outward trade in the same sector. Basic trade theory suggests that countries that trade will specialise in different directions – and that the profile of trade will be a factor of different structures of production and resource endowments. This is partly true. However, it is equally true that countries with similar structures of production and resource endowment trade significantly with each other. Transatlantic trade has a very high degree of intra-industry trade – the two parties export to each other similar goods within the same sector. Table 2 shows the 20 sectors that have the highest degree of intra-industry trade.

A high degree of IIT suggests that the competition effect of an elimination of tariffs can be significant. As there is competition between firms in those sectors, the dynamic effect could be considerable once tariffs are eliminated. A higher degree of competition is one of the key dynamic effects from trade liberalisation: liberalisation forces firms to behave more productively. Sectors with a high degree of IIT get another competition boost – and it is such effects that leave a clear imprint on the larger economy.

TABLE 2: TOP 20 INTRA-INDUSTRY-TRADE PRODUCT CATEGORIES

PRODUCT CATEGORY	US-EXPORTS TO EU IN MN EUR (2008)	EU-EXPORTS TO US IN MN EUR (2008)	GRUBEL-LLOYD INDEX EUR
turbojets, turbopropellers etc.	10 791	8 224	0,87
medical, surgical, dental etc. instruments	5 948	4 413	0,85
vaccines,antisera, human blood, etc.	3 897	4 444	0,93
orthopedic appliances, artificial body parts, etc.	2 853	2 469	0,93
hormones, derivatives etc.	1 235	917	0,85
printing machinery	1 086	1 215	0,94
engines and motors (nesoi) and parts thereof	847	802	0,97
machines (nesoi)	797	1 058	0,86
tractors (other than works trucks)	776	835	0,96
lifting, handling, loading & unload machines (nesoi)	627	600	0,98
beauty, make-up & skin-care preparations, etc.	616	742	0,91

insulated wire, cable etc, optical sheath fibre cables	599	553	0,96
articles of plastics (nesoi)	588	654	0,95
instruments to measure or check flow, level etc.	560	595	0,97
automatic regulating or control instruments	490	577	0,92
transmission apparatus for cameras, cordless telephones etc.	445	368	0,91
optical fibres, optical fibre bundles etc.	435	383	0,94
parts for television, radio and radar apparatus	419	417	1,00
cyclic hydrocarbons	411	359	0,93
surveying, hydrographic etc. instruments	409	445	0,96
SUM	**33 829**	**30 071**	

Source: Eurostat.

3. MEASURING DYNAMIC EFFECTS OF TRADE LIBERALISATION

There are various gains due to the removal of tariffs.In simplest terms, the trading firms no longer have to pay those tariffs; these savings essentially go directly to their bottom line. In the highly integrated US-EU context, with substantial intra-firm transatlantic trade, this simple gain, even with low tariffs, can have significant cash flow benefits. In addition, we will see trade effects and gains related to imperfect competition, such as scale economies and increased product varieties. Perhaps most importantly, intermediate and final consumers benefit from lower prices.

In general, estimates of trade liberalisation focus on short-run or "static" effects and long-run or "dynamic" impacts. Static effects usually are the effects resulting from an improvement of allocative efficiency. Dynamic gains are generally linked to expanded capital accumulation, expansions of investment and, probably most essential, productivity effects. Liberalisation of trade (and investment) not only triggers a reorganisation of the allocation of labour and capital, it also changes investment and the returns to factors of production. Changes in the returns to labour and capital affect their supply, and thus the productive capacity of the economy. In computable general equilibrium (CGE) model simulations, the dynamic gains tend to exceed the static gains by a large margin. However, dynamic effects can be negative in the short run.[9] The instantaneous investment effect might be negative because it could lead to a reduction in expenditures. However, the long-term growth effect, accounting for increasing investment (including FDI from third countries) and technological progress, is positive. Moreover, by stimulating productivity and scale economies, greater openness contributes to lower increases in manufacturing prices which in turn moderates measures of aggregate inflation.

The model used in this study is a general equilibrium model. It is well-documented that such models often under-predict economic growth and increases in trade flows that result from trade liberalisation. The reason for under-prediction is that the link between productivity growth, on the one hand, and exports, imports and investment on the other hand, is often neglected in such models. To get a fairer result from economic models, economists compensate for these shortcomings by building further conditions into the model.

Import shocks have a significant impact on next-period productivity growth. This impact is expected to be particularly substantial for sectors that exhibit large concentration ratios.[10] In a recent study, two economists examined the relationship between trade and labour productivity[11] and confirmed what several other studies have found: imports are more important than exports in promoting productivity growth (with Granger causality running from im-

ports to productivity). Their results also support the empirical evidence that imports have a positive effect on long run output growth. Evidence has also been provided for relative productivity advantages of exporters.[12]

In this paper we calculate the dynamic effects of a full elimination of tariffs on goods traded between the EU and the US. In other words, we simulate how the EU and US economies would be profiled after the elimination of tariffs has taken its course through the economy.

The basis for the simulation is the GTAP 7.5 model, which is an acknowledged multi-region and multi-sector CGE model commonly used for trade policy analysis. This applied general equilibrium model accounts for inter-sectoral linkages within regions while capturing inter-regional trade flows, both of which are substantial for studying the effects of Free Trade Agreements. Regional production follows a constant return to scale technology in a perfectly competitive environment. The private demand system is represented by a non-homothetic demand system. The structure of foreign trade is characterised by the so-called Armington assumption that implies imperfect substitutability between domestic and foreign goods.

Like any applied economic model, this model is based on assumptions. Our GTAP 7.5 dataset on the global economy has, first, been extrapolated to 2010 and, in a second step, projected to 2015. The exogenous variables used for the extrapolation are macroeconomic variables, namely total population, labour force endowment (skilled and unskilled labour), and capital endowment. All other model variables, notably GDP and total factor productivity, are endogenous. Preferences and production structure as described by the model's structural parameters have been unmodified.

We apply projections according to the established methodology.[13] We use this set of macroeconomic projections to calculate the "best estimate" of the global economy and trade figures in 2015. The simulation results serve as a reference point. We then use this dataset as the new base for the "EU-US free trade in goods" scenario. The simulation measures the difference between the initial baseline, including tariffs on goods, and the baseline without tariffs on goods.

Trade liberalisation provokes reallocation of resources from less efficient to more efficient firms. The effect is often significant. On an aggregate level economists have found that the average reallocation effect in the US manufacturing sector make up over 40 percent of total factor productivity growth.[14] Increasing trade volumes due to an elimination of tariffs between the EU and the US should therefore have an additional stimulus on productivity.

OECD country data shows that capital-output ratios tend to be relatively strong, while at the same time the capital-labour ratio is increasing. In other words, much of the return to increasing output per hour worked goes to a more productive labour force.[15] To account for expected growth in labour productivity we incorporate sector-specific technological shocks into the baseline. Incorporation of sector-specific technological change affects the resulting growth in technology of the overall economy, which in GTAP is determined endogenously. We focus on those industries where there is the greatest likelihood of pro-competitive effects arising from the elimination of bilateral tariffs on goods. We assume in a scenario (accumulated) labour productivity to increase in the total period of implementation (six years) by 2 percent. In a third scenario we calculate the effects on the assumption of a 3.5 percent accumulated labour productivity growth in sectors that are characterised by high degrees of intra-industry trade and above-average tariffs. The choice of productivity indicator could easily be criticised; for example, it only measures one aspect of productivity. But the choice

is deliberately made to avoid using other and complementary measures with implausibly strong effects on the model and simulation results (e.g. output productivity) or measures that are very difficult to predict in an FTA (e.g. total factor productivity). An overall accumulated labour productivity increase of 2 percent – and 3.5 percent in selected sectors with high IIT – is hence a conservative estimate for all productivity effects.

Finally, it is not only tariffs that hinder trade; regulations and non-tariff measures (NTM's), including trade facilitation and customs clearance procedures, act as barriers to trade and add additional cost to trading partners. This study does not calculate the effects of reducing NTM's or converging regulatory systems. However, an elimination of tariffs is generally accompanied by a reduction in cost of trade facilitation. Generally, exporters and importers can reduce the cost on customs administration through an FTA, provided that Rules of Origin (ROO) regulations will not be onerous. But there are other trade facilitation gains too: some are related to the level of non-tariff measures; others represent savings in the supply chains or the general infrastructure of trade.We follow the literature and apply a 3.0 percent reduction of trade facilitation. However, the cost reduction is limited to non-commodity processed goods, as we do not expect significant trade cost savings to be realised in commodity trade.[16] The effect of trade cost reduction is expected to be significant. As noted by many studies, the effect of trade cost reductions is higher if trade costs initially are comparatively low, which is the case in transatlantic trade.

The scenarios we are using for the simulations are summarised in table 3. The presentations of the results will also follow the three scenarios, allowing for comparisons between the results of different scenarios. It is worth adding the reminder that the model and the scenarios are based on assumptions. The results are simulations, not determinations of what the result should be. In the period used in this study to allow the effects of trade liberalisation to be captured (2010-2015), there will be events and developments that are unknown today, and that in one way or the other can change the result of the simulations.[17] They can heighten or weaken the effect of trade liberalisation. Furthermore, deciding assumptions for the model is not an exact science. At the end these decisions are judgment calls. And among economists there is a debate about what emphasis to put on trade as a contributor to growth: trade economists are typically inclined to believe trade is an important factor of growth, and there are other economists who think trade is desirable but not so important for growth. The authors of this study belong to the first group, and this reflects the choices of assumptions, which build on past experience of big economy trade liberalisation and the extent to which established models can capture these effects. Of the three scenarios, scenario 1 is "extreme" in that it does not capture plausible dynamic gains.

TABLE 3: SCENARIO SPECIFICATIONS

SCENARIO SPECIFICATION	
Scenario 1 (static effects)	Full elimination of tariffs on goods
Scenario 2	Full elimination of tariffs on goods Reduction of trade facilitation costs by an amount equivalent to 3% of the value of trade in non-commodity goods sectors Increase in labour productivity by 2 percent in goods sectors
Scenario 3	Full elimination of tariffs on goods Reduction of trade facilitation costs by an amount equivalent to 3% of the value of trade in non-commodity goods sectors Increase in labour productivity by 3.5 percent in sectors with high levels of intra-industry trade, increase in labour productivity by 2 percent in all other goods sectors

4. RESULTS OF SIMULATIONS

The results of the simulations are presented by various indicators: quantification of potential economic impacts of trade, impacts on the overall level of economic output and welfare, impacts on domestic sectoral output and on trade flows by sector.

EFFECTS ON GDP

The measured gains in GDP are to a large extent consistent with the empirical evidence. The static gains based on the elimination of tariffs on goods only are not very significant whereas the dynamic gains are substantial. Depending on the assumptions of the different scenarios, the EU will increase its GDP by an estimated **$46bn to $69bn** in value, that is, GDP in 2015 would be **0.32-0.47 percent** higher than it would be without the elimination of tariffs. Similarly, the US will benefit from estimated GDP gains by **$135bn to $182bn**, or **0.99-1.33 percent** in the core scenarios. Trade creation between the two trade blocks is responsible for the dynamic gain in the EU and the US. Due to trade diversion as a result of the cut in tariffs between the EU and the US, "third" countries generally face GDP losses. The magnitude of losses is rather insignificant.

TABLE 4: ESTIMATED GDP GAINS

	SCENARIO 1		SCENARIO 2		SCENARIO 3	
	Change in GDP in %	GDP gains in million $	Change in GDP in %	GDP gains in million $	Change in GDP in %	GDP gains in million $
EU-25	0.01	1 644	0.32	46 450	0.47	69 287
USA	0.15	20 470	0.99	135 236	1.33	181 893

WELFARE GAINS[18]

Welfare gains, expressed in national income effects, depend on a mix of allocative efficiency effects, global scale effects, investment and savings effects and terms-of-trade effects. The overall static welfare effects are estimated to be some **$3 billion** for the EU and **$4.5**

billion for the US. Depending on the scenario the dynamic welfare gains reach from **$58bn to $85bn** in the EU and from **$59bn to $82bn** for the US. A "monetary" welfare gain means that the region's overall economy is better off at the final year (after the effects of trade liberalisation and productivity marched through the economy between 2010 and 2015) than it otherwise would have been in the absence of that change in trade policy.

TABLE 5: ESTIMATED WELFARE GAINS: NATIONAL INCOME EFFECTS (EQUIVALENT VARIATION IN MILLION $)

	SCENARIO 1	SCENARIO 2	SCENARIO 3
EU-25	3 179	57 826	85 539
USA	4 595	59 303	82 159

EFFECTS ON SECTORAL OUTPUTS

The model used allows for a more detailed view on what happens on the firm level. However, the results presented here are only an indication of the general effects. The model captures inter-sectoral supply-linkages as well as inter-sectoral reallocation of factors of production, but the model reflects the firm-level effects only at an abstract level. In addition the model cannot anticipate the future reshaping of the international industrial landscape due to macroeconomic trends, exchange rate shifts and technological change. Moreover the model cannot account for the evolution of individual countries' comparative advantage in response to policy changes that affect investment, education and economic policy frameworks.

Given the abstractness of the model, the sectoral impacts that emerge from the analysis are based on *a priori* expectations in the model's equations. For both the EU and the US the patterns of sectoral output are relatively stable across the applied scenarios. The results thus confirm that both regions are similar with respect to their economic structure.

For the EU, the leading sectors in terms of an increase in value of sectoral output are motor vehicles, light manufacturing, textiles, mineral products, transport equipment, electronics and other machinery goods. In the EU the top five tradable goods sectors account for 36 percent in sectoral output growth. The leading tradable goods sectors in the US are motor vehicles, electronics, textiles, transport equipment and light manufacturing. The top five US sectors contribute around 30 percent to total sectoral output growth. In both regions the construction sector will contribute a substantial amount to total sectoral output growth.

Depending on the scenario total sectoral output will rise to up to **$140 billion** in the EU and up to **$93 billion** in the US. Bearing in mind the huge levels of non-tariff barriers applied to agriculture-related products and services, the effect on total output should be significantly higher if non-tariff barriers are removed progressively.

TABLE 6: ESTIMATED EU SECTORAL OUTPUT

	SCENARIO 1		SCENARIO 2		SCENARIO 3	
	in %	in Mn $	in %	in Mn $	in %	in Mn $
Grains	-1.26	-636	-1.15	-577	-1.11	-559
Horticulture	-0.35	-778	-0.12	-261	-0.15	-336
Oil Seeds	0.13	20	-0.07	-11	-0.11	-16
Sugar	0.06	6	0.52	48	0.73	67
Natural Fibres	0.18	17	0.8	75	0.85	79
Dairy Products	-0.26	-174	0.22	146	0.38	254
Livestock and Meat Products	-0.11	-311	0.36	984	0.41	1 133
Fishing	-0.05	-16	0.1	33	0.15	50
Forestry	-0.05	-21	0.3	125	0.3	126
Mining and Extraction	-0.03	-32	0.01	14	-0.03	-40
Oil and Gas	0	-2	-0.05	-36	-0.07	-51
Processed Food	0.07	945	0.56	7 538	0.77	10 444
Textiles and Clothing	0.49	2 474	0.75	3 772	0.99	5 002
Wood Product	-0.03	-74	0.53	1 249	0.47	1 104
Light Manufacturing	0.29	1 325	0.78	3 551	1.06	4 810
Paper and Publishing	-0.03	-193	0.29	1 889	0.55	3 605
Petrochemicals	0.23	942	0.63	2 577	0.75	3 067
Chemicals, Rubber, Plastics	-0.04	-625	0.22	3 398	0.48	7 403
Mineral Products	0.34	1 240	0.86	3 099	1.15	4 141
Iron and Steel	-0.03	-363	0.42	4 614	0.81	8 995
Motor Vehicles	0.11	1 210	0.98	10 800	1.35	14 951
Electrical Machinery	-0.28	-1 401	-0.6	-2 998	-0.34	-1 713
Other Machinery	-0.03	-498	0.44	6 508	0.84	12 364
Transport Equipment	-0.66	-1 537	-0.99	-2 314	-0.66	-1 549
Utilities	0	-11	0.25	1 163	0.41	1 916
Construction	0.05	872	0.63	10 304	0.95	15 575
Trade	0.02	639	0.32	9 782	0.51	15 667
Transport	0.02	338	0.1	1 491	0.14	2 140
Communication	-0.02	-75	0.14	694	0.25	1 213
Insurance	-0.02	-81	0.07	238	0.13	452
Other Business Services	-0.01	-398	0.19	7 707	0.33	12 995
Other Services	-0.01	-343	0.2	10 649	0.31	16 541
SUM		**2 457**		**86 252**		**139 830**

TABLE 7:ESTIMATED US SECTORAL OUTPUT

	SCENARIO 1		SCENARIO 2		SCENARIO 3	
	in %	in Mn $	in %	in Mn $	in %	in Mn $
Grains	0.34	165	0.02	8	-0.24	-121
Horticulture	0.69	664	0.59	576	0.47	452
Oil Seeds	-0.56	-141	-0.5	-125	-0.73	-182
Sugar	0.07	2	0.38	10	0.39	11
Natural Fibres	-0.64	-122	-0.73	-140	-0.81	-154
Dairy Products	0.31	110	0.57	204	0.56	201
Livestock and Meat Products	0.03	70	0.37	1 012	0.31	837
Fishing	0.15	11	0.22	17	0.19	15
Forestry	-0.05	-12	0.05	11	-0.02	-5
Mining and Extraction	-0.06	-58	-0.01	-9	0.01	6
Oil and Gas	-0.05	-72	-0.13	-183	-0.18	-263
Processed Food	0.08	480	0.39	2 345	0.4	2 429
Textiles and Clothing	-0.36	-769	-0.26	-571	0.35	747
Wood Product	-0.08	-225	0.37	1 063	0.37	1 042
Light Manufacturing	-0.27	-263	0.58	573	1.33	1 308
Paper and Publishing	-0.12	-527	0.13	592	0.4	1 805
Petrochemicals	0	-6	0.15	617	0.25	1 010
Chemicals, Rubber, Plastics	0.19	1 655	0.34	2 982	0.52	4 491
Mineral Products	-0.46	-655	-0.31	-440	0.02	25
Iron and Steel	-0.12	-753	-0.13	-817	0.27	1 713
Motor Vehicles	0.36	2 022	0.36	2 036	0.69	3 869
Electrical Machinery	-0.49	-2 245	-1.12	-5 152	-1.57	-7 198
Other Machinery	-0.09	-907	0.3	2 972	0.85	8 501
Transport Equipment	0.48	1 164	2.45	5 928	3.16	7 630
Utilities	0	-23	0.23	1 350	0.37	2 165
Construction	0.13	2 244	0.9	16 127	1.24	22 080
Trade	0.01	176	0.3	8 366	0.44	12 541
Transport	-0.03	-286	-0.02	-234	0.01	63
Communication	-0.02	-95	0.16	793	0.26	1 272
Insurance	-0.05	-246	-0.02	-119	0	18
Other Business Services	-0.04	-765	0.04	801	0.1	2 131
Other Services	-0.01	-938	0.2	16 525	0.29	24 605
SUM		**-346**		**57 117**		**93 046**

EFFECTS ON EU-US BILATERAL TRADE FLOWS

In this section we provide results of the trade impacts arising from the three scenarios. The analysis shows that total EU exports to the US will expand by up to 18 percent in value; US exports to the EU market will expand by roughly the same amount. The results reported here exhibit an interesting pattern: the relative gains from the trade liberalisation applied in the analysis are more or less the same for both trade blocs. On an aggregate level, total EU exports to the US increase by up to **$69 billion** in value, or **18 percent**. US total exports to the EU will rise by up to **$53 billion** in value, or **17 percent**.

In terms of export creation in the EU, textiles, manufacturing and agriculture-related sectors gain most from the tariff elimination. In the US exports from agriculture-related sectors generally gain most from the elimination of tariffs, followed by textiles and manufacturing. Since the highest tariffs are currently applied to agriculture-related sectors and textiles those industries significantly gain from the reduction of tariffs. It is conspicuous that, in absolute terms, the machinery and chemicals industries contribute most to the overall rise in exports for both the EU and the US. In the EU, another substantial contributor to the overall rise in exports is the motor vehicle industry. For the US, it is the transport equipment sector. In the EU, the motor vehicle industry together with the machinery, the chemical industry and textiles account for 65 percent of the total rise in exports to the US. On the other side of the Atlantic, machinery, motor vehicles, electrical machinery, transport equipment and chemicals account for 75 percent in the rise of total exports to the EU.

TABLE 8: ESTIMATED CHANGE IN EU EXPORTS TO THE US

	SCENARIO 1		SCENARIO 2		SCENARIO 3	
	in %	in Mn $	in %	in Mn $	in %	in Mn $
Grains	3	3	17.67	19	17.3	18
Horticulture	25.24	357	36.42	515	36.05	509
Oil Seeds	0.78	0	13.51	1	12.95	1
Sugar	2.06	0	16	0	15.57	0
Natural Fibres	24.79	4	37.75	7	37.62	7
Dairy Products	14.96	4	29.52	7	29.42	7
Livestock and Meat Products	4.9	57	22.47	264	22.22	261
Fishing	0.91	1	4.36	6	3.98	6
Forestry	1.58	1	0.83	1	0.62	1
Mining and Extraction	0.43	4	0.7	7	1.02	10
Oil and Gas	4.36	184	3.9	164	3.95	166
Processed Food	17.18	2 591	25.48	3 844	26.01	3 922
Textiles and Clothing	56.09	3 139	74.06	4 144	74.08	4 145
Wood Product	2.6	143	18.47	1 013	18.26	1 002
Light Manufacturing	20.68	1 903	38.79	3 568	38.9	3 578
Paper and Publishing	-0.13	-7	12.58	649	12.77	659
Petrochemicals	7.25	974	15.11	2 030	15.26	2 051
Chemicals, Rubber, Plastics	7.41	4 659	20.13	12 656	20.46	12 864
Mineral Products	25.65	1 448	37.27	2 105	37.43	2 114
Iron and Steel	10.46	1 530	27.4	4 007	27.94	4 086
Motor Vehicles	10.77	5 131	22.98	10 943	23.59	11 237
Electrical Machinery	2.57	203	25.39	2 008	25.84	2 043
Other Machinery	7.9	4 991	26.33	16 626	26.9	16 988
Transport Equipment	1.32	201	20.35	3 103	20.94	3 193
Utilities	-0.05	0	-0.07	0	0.01	0
Construction	0.26	3	1.42	14	1.89	19
Trade	0.05	1	0.05	1	-0.05	-2
Transport	-0.01	-4	0.01	3	-0.01	-3
Communication	0.04	1	0.21	7	0.24	7
Insurance	0.1	15	0.59	92	0.78	121
Other Business Services	0.07	24	0.34	115	0.41	139
Other Services	0.02	7	0.1	26	0.06	16
SUM	**7**	**27 570**	**17**	**67 945**	**18**	**69 167**

TABLE 9: ESTIMATED CHANGE IN US EXPORTS TO THE EU

	SCENARIO 1		SCENARIO 2		SCENARIO 3	
	in %	in Mn $	in %	in Mn $	in %	in Mn $
Grains	101.89	565	115.45	641	115.63	642
Horticulture	51.62	1 383	60.42	1 619	60.34	1 617
Oil Seeds	-1.41	-20	6.94	101	6.86	99
Sugar	-3.41	0	8.51	0	8.37	0
Natural Fibres	-1.53	-2	8.56	10	8.22	10
Dairy Products	223.41	117	233.38	122	233.01	122
Livestock and Meat Products	64.16	402	80.72	506	79.68	499
Fishing	16.98	47	21.49	60	21.72	60
Forestry	3.12	9	1.36	4	0.76	2
Mining and Extraction	-0.1	-2	-0.95	-23	-1.71	-41
Oil and Gas	0.5	0	0.44	0	0.08	0
Processed Food	50.08	1 981	59.09	2 338	58.15	2 300
Textiles and Clothing	48.14	843	67.1	1 174	68.16	1 193
Wood Product	6.56	101	23.75	366	22.75	350
Light Manufacturing	9.17	487	28.56	1 519	29.91	1 590
Paper and Publishing	-0.59	-25	13.2	569	13.68	590
Petrochemicals	6.94	314	16.22	734	16.23	735
Chemicals, Rubber, Plastics	10.45	5 080	25.2	12 248	25.29	12 293
Mineral Products	17.84	303	31.49	534	31.99	542
Iron and Steel	14.53	1 109	32.01	2 443	32.62	2 490
Motor Vehicles	36.48	4 295	49.55	5 833	49.67	5 848
Electrical Machinery	1.4	299	20.02	4 275	18.93	4 041
Other Machinery	8.98	4 362	27.94	13 572	28.84	14 008
Transport Equipment	6.17	1 854	24.02	7 220	25.24	7 587
Utilities	-0.69	-3	-3.31	-16	-4.36	-21
Construction	-0.48	-7	-2.1	-29	-2.67	-37
Trade	-0.64	-26	-3.11	-126	-4	-163
Transport	-0.35	-81	-1.86	-427	-2.47	-567
Communication	-0.62	-19	-2.92	-88	-3.74	-112
Insurance	-0.62	-15	-3	-75	-3.87	-96
Other Business Services	-0.57	-147	-2.59	-669	-3.3	-850
Other Services	-0.55	-246	-2.49	-1 121	-3.2	-1 437
SUM	**8**	**22 960**	**18**	**53 315**	**17**	**53 297**

5. CONCLUDING REMARKS

The results of the simulation are not surprising. The static gains from a transatlantic free trade accord in goods would not be very significant, especially not for the EU which would record only a 0.1 percent increase in GDP. Bilateral export would increase by 7-8 percent for both the EU and the US in this scenario. The dynamic gains, however, would be sizeable. After the effects of full elimination of tariffs have marched through the economy, GDP would have jumped by 0.32-0.47 percent in the EU, and 0.99-1.33 percent in the US.

Predictably, the potential gains recorded in this study are higher than in most other prefer-

ential trade deals signed by the EU and the US, or agreements currently being negotiated. The gains are not as high as to be comparable with big preferential initiatives like the single market in Europe or NAFTA in North America. But they are big enough to have a clear impact on the transatlantic economy. The static trade effects alone would exceed estimates on the static trade effects on the EU and the US from a Doha Round deal in goods.[19]

The difference in GDP effects can be attributed to several factors in the model, like terms of trade. Yet there are also a few other explanations that warrant consideration.The US economy is smaller than the overall EU economy, which is one reason the equal trade expansion is having a bigger effect on US than EU GDP. Moreover, a greater share of the EU goods sector has previously been exposed to foreign competition (through EU internal liberalisation), which is why the effect of trade liberalisation is greater in the US. Finally, the composition of output changes appears to be more favourable for the US in terms of value added.

The purpose of the paper has been to respond to the question: would the economic gains from a transatlantic trade deal be significant enough to motivate such an initiative by EU and US political leaders? Arguably, the answer is Yes. A transatlantic free trade accord for goods would deliver significant gains to both economies. The effects on trade and welfare would also be similar in size. It is difficult to come up with any other bilateral trade deal that would deliver gains of similar magnitude.

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ENDNOTES

1. Gresser (2009).
2. Erixon & Pehnelt (2009). This study should be read in conjunction with the current report.
3. Sutherland (2010).
4. Dynamic effects are additional to static effects. They accumulate over a longer period of time and may not be measurable in the short run. See Chapter 3 for further specifications of dynamic effects.

5. CEPII/ATLASS (2010). One should bear in mind that Korea is not a small but medium-sized economy.
6. International Trade Commission (2007).
7. Hamilton & Quinlan (2005).
8. A recent study estimates the total static effect on real income to be above $200 billion from reducing NTMs in transatlantic trade by 50 percent in 23 sectors. See Ecorys (2009).
9. Péridy (2009).
10. MacDonald (1994).
11. Thangavelu and Rajaguru (2004).
12. Bernard and Jensen (2001); Bernard and Jensen (1995).
13. Walmsley (2006) and Sandrey et al. (2007).
14. Bernard and Jensen (2004).
15. Scarpetta et al (2000).
16. Hejazi & Francois (2007).
17. One such event is a finished Doha Round, which will affect tariffs in the EU and the US as well as the preference margin in a bilateral agreement. This study is not based on the assumption that there will be a finished Doha Round that is implemented before 2015.
18. Welfare is here measured as the national income effect (equivalent variation). It can be described as the increase in income a household would need in order to substitute the gains derived from a policy change, in this case the elimination of tariffs between the EU and the US.
19. Hufbauer, Schott & Wong (2010).