

TTIP

Challenges and Opportunities for the European Automotive Industry

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Abstract

The European automotive industry is the second largest manufacturer of motor vehicles worldwide (after China) and generates directly and indirectly millions of jobs EU-wide. It is characterized by a high degree of export orientation and the largest share of exports can be ascribed to the US market.

TTIP offers a unique chance to liberalize trade and to push the development of international safety and environmental regulations for products of the automotive industry. Eliminating tariffs on transatlantic trade bears a substantial opportunity for cost reduction and welfare increase. A particular opportunity arises for the EU from the divergence of tariff rates for passenger cars (2.5 per cent in the US and 10 per cent in the EU). From a mercantilist point of view, the EU should use the high EU import tariff rates for passenger cars as a bargaining chip to motivate the US negotiators to agree on trade liberalization, e.g. via elimination of non-tariff barriers.

TTIP should break new ground in regulatory cooperation, but eliminating NTBs and regulatory cooperation as a whole must not compromise the level of existing passenger and environmental safety, the EU's precautionary principle or democratic legitimacy. This can only be achieved based on sound evidence, that technical standards and product regulations lead to the same safety level for cars driven both on the EU and US roads.

1. Introduction

The Transatlantic Trade and Investment Partnership (TTIP) is expected to remove a wide range of tariff and non-tariff trade barriers for the European and the US automotive industry. There is barely another industry where the potential for trade liberalization is as high as in the field of motor vehicles. Although average tariff rates are already relatively low, the expected cost reduction due to tariff elimination ranges in the billions of euros. This will also promote transatlantic trade, raise competition, increase the incentives for innovations and reduce consumer prices. Furthermore, although substantially different, safety regulations often deliver similar outcomes in the EU and US as measured e.g. by the fatality rate in road traffic (Freund/Oliver, 2015). Therefore, mutual recognition of many vehicle safety standards is possible. This will create opportunities to facilitate transatlantic trade with motor vehicles, parts and accessories, which go far beyond tariff elimination.

Although seemingly straightforward, the process of trade liberalization is very challenging in the automotive industry. First, other trade agreements offer hardly a good basis for the TTIP annex on motor vehicles, since the scope for trade liberalization in earlier free trade agreements (FTA) is rather limited. Second, although the outcome of safety regulations is comparable in terms of fatality rates, this does not automatically mean that every safety regulation should be mutually recognized. Some differences in product regulations are the result of different historical developments of two independent regulatory bodies. Others, however, reflect differences in the preferences of the consumers or geographical peculiarities. Furthermore, it is only possible to sustain the high level of consumer protection if trade liberalization and, in particular, the elimination of non-tariff barriers via mutual recognition of safety standards are based on the evidence that the outcome of the particular regulations is sufficiently similar. Third, the best way to liberalize transatlantic trade should be based on existing international standards such as the UNECE safety standards. It is a great challenge since the US has not been involved in the development of many UNECE standards so far. Fourth, even if safety standards deliver similar outcomes in terms of safety, the testing procedures are substantially different in the US and the EU. Whereas conformity with safety standards has to be verified due to a self-certification procedure in the US, the EU applies a compulsory government approval system to assure the safety of motor vehicles in accordance with the prevailing precautionary principle in Europe. Fifth, product regulations do not only differ with regard to passenger safety. Environmental and fuel-efficiency standards are as well substantially different, implying different reference values and different testing cycles, while the approval system is more similar. Sixth, tariff rates for passenger cars differ significantly for both EU imports (10 per cent) and US imports (2.5 per cent). This means that the level of protection of

the automotive industry via tariff rates is asymmetric. This argument could be used by the EU negotiators as a bargaining chip to achieve far reaching trade liberalization in other fields, e.g. to persuade US regulators to be more cooperative with regard to international safety standards.

The present policy paper offers an outline of the scope for trade liberalization in the automotive industry, which could be achieved with TTIP. Section 2 gives an overview of the particular characteristics of the EU automotive industry and the importance of the US as a trading partner. In section 3 trade agreements already achieved as well as other relevant agreements are reviewed. The degree of trade liberalization achieved for the automotive industry is also analyzed. Section 4 presents an overview of barriers to transatlantic trade and a discussion of the scope for trade liberalization. Section 5 contains some concluding remarks.

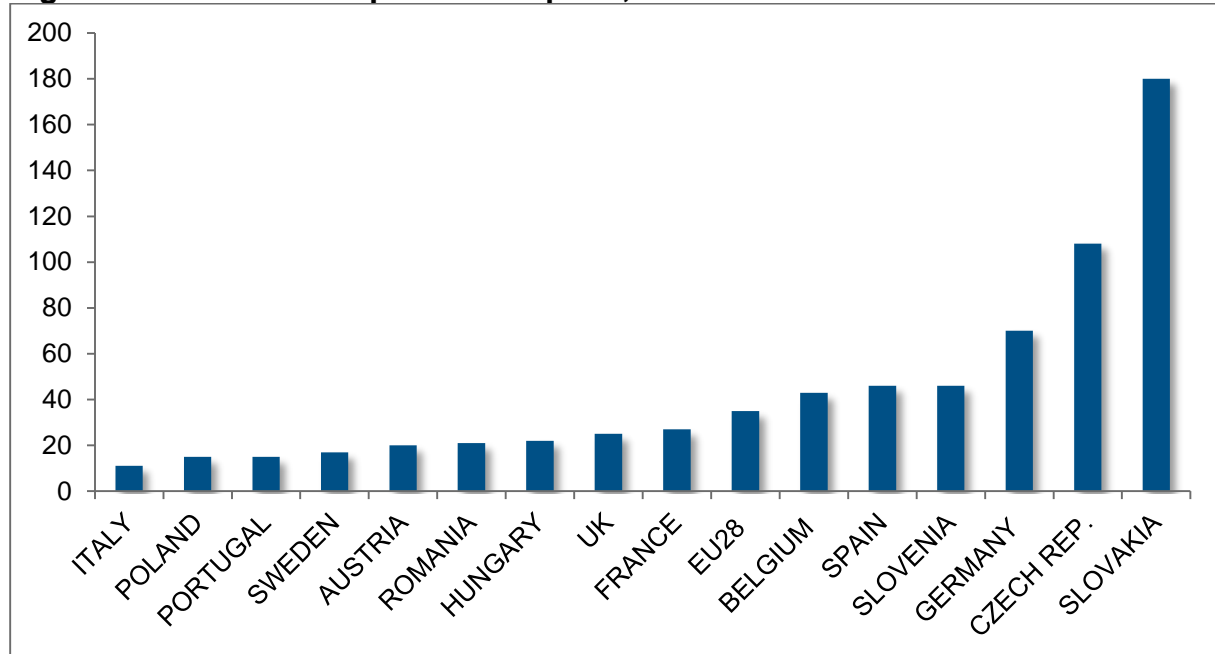
2. Why trade liberalization? The European automotive industry and the role of the US as a trading partner

The European automotive industry is the second largest manufacturer of motor vehicles worldwide (after China) and generates directly and indirectly millions of jobs EU-wide. Almost 23 per cent of the globally produced 90.6 million motor vehicles in 2014 were manufactured in the EU member states (ACEA, 2015). Its largest share can be ascribed to the German automotive industry (a total of 6 million motor vehicles). Nevertheless, the automotive industry is of strategic importance in other EU member states as well, especially in countries in Central and Eastern Europe. In Slovakia, for instance, motor vehicle production per 1,000 inhabitants is more than twice as high as in Germany (Figure 1). In the Czech Republic, Slovenia, Spain and Belgium motor vehicle production per 1,000 inhabitants lies also above the EU average.

The European automotive industry is characterized by a high degree of export orientation. In 2014, the EU exported 6 million motor vehicles, 5.5 million of them being passenger cars. Almost 1 million passenger cars valued at € 29.4 billion were produced for the US market. Thus, the US represents by far the largest market for EU automotive exports (followed by China and Russia). The EU imported 2.4 million motor vehicles in 2014. The EU imports passenger cars from the US at the value of € 4.9 billion. Therefore, the EU runs a huge trade surplus in the transatlantic trade with passenger cars (and also with motor vehicles and parts as a whole). This indicates that European automotive manufacturers should be especially interested in removing tariff and non-tariff trade barriers between the EU and the USA. Indeed, both the EU

and US auto industry call for a comprehensive trade agreement in the field of motor vehicles.¹

Figure 1: Motor vehicle production per 1,000 inhabitants in 2013



Source: ACEA

European car manufacturers often pursue a two-pillar strategy. On international markets, they offer both exported products and products from local production abroad. Data provided by the German Association of the Automotive Industry (VDA) show that the share of automotive sales on the US market has recently shifted towards local production abroad. Exports of German automotive manufacturers increased by 20 per cent between 2004 and 2014, whereas growth of local production in the US increased by about 230 per cent in the same period of time. One of the main reasons to relocate production near the US market are trade barriers, which impede transatlantic trade due to tariff payments and / or regulatory differences. Average tariff rates are relatively low for the automotive industry. However, due to the large trade volume annual tariff payments for transatlantic automotive trade lie in the billions of euros. Non-tariff trade barriers are even more important as a cost-pushing factor. Producers have to cope with different technical standards and product regulations for their export products. As shown by General Motors, the costs for adjusting Opel Adam to the US automotive standards lie in the tens of millions.²

¹ <http://www.acea.be/press-releases/article/eu-and-us-auto-industry-call-for-a-comprehensive-agreement-under-ttip> [28 July 2015].

² Focus, Dec. 8, 2014.

TTIP offers a great opportunity to reduce both tariff and non-tariff trade barriers while respecting EU sovereignty and not giving up safety or environmental standards. In many respects, the negotiations on TTIP are unique in the history of trade policy worldwide. The negotiating parties account for more than one third of global automotive sales and have the potential to establish global standards for products of the automotive industry. Before proceeding with the challenges and opportunities regarding the TTIP negotiations, section 3 offers an overview of the implications of earlier preferential trade and other agreements of the EU for the automotive industry.

3. The effect of major international agreements on the automotive industry

International technical standards and regulations can bear substantial economic benefits for the participating countries. They allow for better utilization of economies of scale since the producers can sell the same product in different countries. The costs of production decrease. Less or even no adjustment of the products is needed for export. Especially small and medium-sized enterprises benefit from the harmonization of technical standards. The costs for adjusting their products to the market in other countries are considerable in relation to the firm size.

Both FTA and agreements regarding international norms and product standards, for instance the UNECE 1958 agreement, have the potential to facilitate international trade.

3.1. UNECE Agreements concerning the adoption of uniform technical prescriptions

UNECE 1958 Agreement

One agreement that has facilitated international trade in the area of the automotive industry is the UNECE³ 1958 Agreement. This agreement is made under UNECE with the objective to establish uniform standards for motor vehicles and components with regard to safety, environment, energy and anti-theft requirements (UNECE, 2005). Originally, it allowed participation only by UNECE members. Since its Revision 2 in 1995 also non-European countries can become members of the agreement. Today, 53 countries have adopted the UNECE 1958 Agreement,

³ United National Economic Commission for Europe.

including among others Japan, South Korea, South Africa and the European Union as a whole. The United States were the most notable non-signatory country of the 1958 UNECE Agreement (Moguen-Toursel, 2007).

The agreement contains almost 140 regulations regarding technical standards and uniform provisions concerning the approval of motor vehicles with regard to different technical features. It regulates for instance the approval regarding the prevention of fire risks, the behavior of the structure of the impacted vehicle in rear-end or head-on collision, the advance-warning triangles or alarm systems. However, the UNECE 1958 Agreement does not prescribe a particular approval system. It recognizes self-certification as an alternative to type approval and, therefore, does not preclude countries whose rules and regulations are implemented through self-certification from becoming contracting parties (UNECE, 2005). The purpose of the Agreement is to facilitate international trade of vehicles and their components. If a component is type-approved by any of the contracting parties in accordance with a UNECE regulation, all other contracting parties who have signed the same regulation will recognize the approval. This saves time and costs by avoiding the repetitive design, manufacture and approval of the particular component. However, the contracting parties are not obliged to sign all UNECE regulations. The mutual recognition of approval is applicable only for the regulations adopted by the contracting party.

Freund and Oliver (2015) have investigated the economic effect of signing the 1958 Agreement on automotive trade. Their econometric analysis confirms that becoming a member of the Agreement has a significantly positive effect on the exports of the particular countries. The estimation shows a trade effect of the Agreement of 23 per cent. As expected, the effect is smaller than that of joining the EU, but still significantly positive and of large magnitude.

UNECE 1998 Agreement

Parallel to the 1958 Agreement there is a second UNECE Agreement regarding the regulation of motor vehicles. The 1998 Agreement established a process of development of UN Global Technical Regulations (UN GTRs) for motor vehicles and components. Under the 1998 Agreement no mutual recognition of the approval of motor vehicles or components by the contracting parties is required. The contracting parties implement the GTRs published in an UN Global Registry using their own regulatory process. The US signed the 1998 Agreement, but not the 1958 agreement in order to avoid the recognition of standards generated outside their regulatory system.

3.2. Free Trade Agreements (FTA)

Besides the UNECE Agreements, automotive trade can be facilitated by the conclusion of FTA. FTA have a long history and their positive effect on the trade flows between the participating countries has been confirmed in various studies (Baier / Bergstrand, 2007, Baier / Bergstrand, 2009). Accounting for potential endogeneity of trade agreements, i.e. the fact that countries are more likely to conclude a FTA the higher the trade volume, Baier and Bergstrand (2007) show that trade flows can be increased by up to 100 per cent after 10 years due to a FTA. Focusing on FTA of the European Union, Bergstrand et al. (2011) find that EU exports to Chile, Tunisia, and Morocco have substantially increased as a result of the FTA. The latter two FTA increased EU exports by 80 per cent, while EU exports to Chile have more than doubled as a result of the FTA.

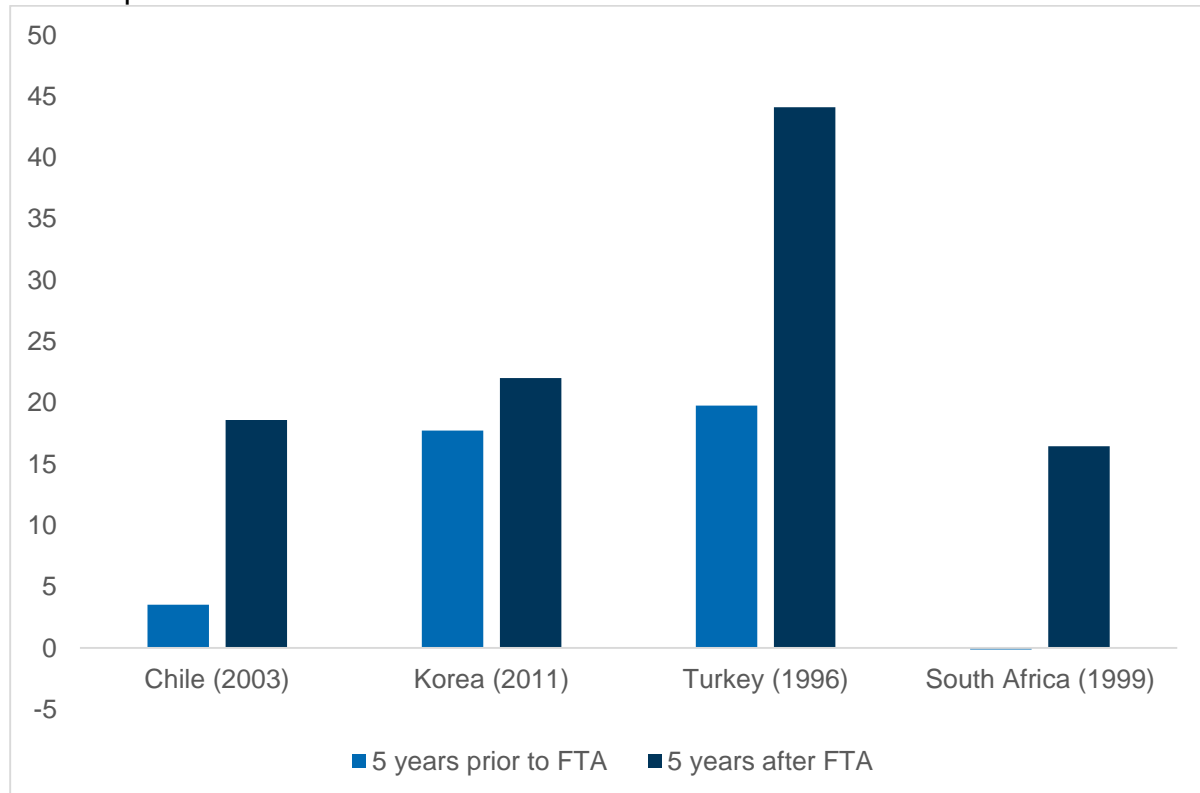
Concerning the effect of recent FTA on the automotive industry the evidence is rather scarce. Figure 2 shows the dynamics of German exports of road vehicles to four countries with which the EU has concluded FTA.⁴ The growth rate of automotive exports to Chile increased from 3.5 per cent on average in the last five years before the FTA entered into force to 18.6 per cent on average in the following five years (growth rates adjusted for real GDP growth in Chile). The dynamics of automotive exports to Turkey and South Africa also increased substantially – growth rates were 19.8 and –0.1 per cent prior to the Customs Union with Turkey and the FTA with South Africa and increased to 44.1 and 16.5 per cent in the five years after entry into force, respectively. Growth rate of automotive exports to South Korea increased as well (see below). Although other factors may have affected the development of international trade besides the conclusion of the FTA, it is very likely that increasing dynamics of German exports can be explained at least partly by trade policy.

The EU trade agreements differ widely regarding the extent and pace of trade liberalization. In the context of TTIP the FTA with Korea and the recently concluded Comprehensive Economic and Trade Agreement (CETA) with Canada are of particular interest, since the scope of trade liberalization goes beyond that in other FTA.

⁴ Due to a structural break in the data on EU trade the present study reports data on exports of the German automotive industry. With regard to Mexico, no positive effect could be observed. However, this is at least partly due to the long transition period agreed for the elimination of tariff rates. Therefore, the FTA with Mexico has not been considered in the present analysis.

Figure 2: Dynamics of German exports of road vehicles

Average growth rate of German exports of road vehicles (SITC 78) in the five years prior to and after entry into force of the particular FTA adjusted for real GDP growth of the particular economy; Korea: four years after entry into force; year of entry into force in parentheses



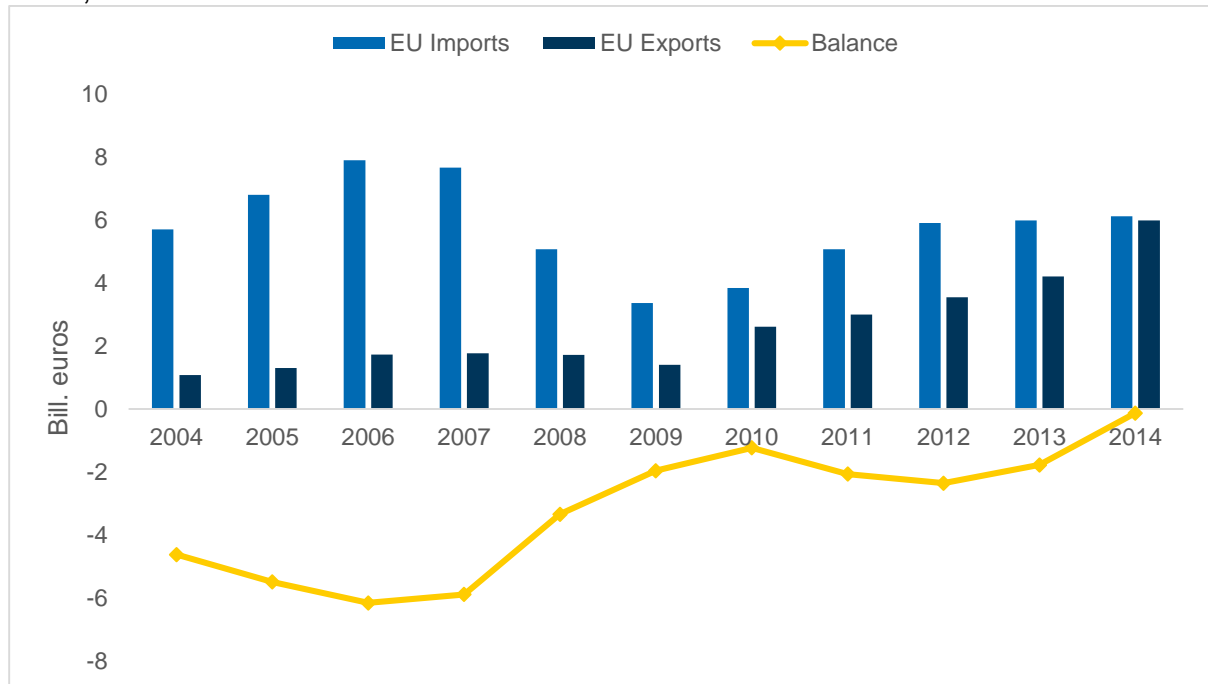
Sources: Eurostat, International Monetary Funds; Cologne Institute for Economic Research

EU-Korea FTA

In 2009, the EU concluded a far-reaching FTA with the Republic of Korea, which entered into force in 2011. During the negotiations the interests of the EU automotive industry were mainly defensive (LSE/Consortium Partners, 2010). The EU trade balance with Korea exhibited huge deficits in the area of automotive in the 2000s (Figure 3). The deficit decreased from 2008 to 2010 due to a weak demand in the EU during the economic crisis as well as Korean FDI in Slovakia and the Czech Republic and increasing production of Korean brands in the EU. Prior to the FTA tariff rates for passenger cars amounted to 8 per cent in Korea and were therefore similar to those of the EU (10 per cent). However, the EU had offensive interests especially regarding the elimination of non-tariff barriers. Non-tariff barriers were estimated to amount to a tariff equivalent between 22 and 59 per cent (CEPII/ATLAS, 2010). Nevertheless, the expected overall effect of the EU-Korea FTA on the automotive industry was negative.

Figure 3: Motor vehicles trade with Korea

SITC, rev. 3 – Division 78 – road vehicles



Sources: Eurostat; Cologne Institute for Economic Research

The FTA brought about an elimination of tariffs on 98.7 per cent of EU-Korea trade within five years (Pollet-Fort et al., 2011). It allows for an adjustment period particularly in sensitive sectors, where the competitiveness of Korean producers is especially high, e.g. in the case of passenger cars with small-sized engines. A special annex (Annex 2-C) is devoted to the automotive industry in order to address non-tariff barriers. The FTA foresees that UNECE core safety standards are considered as equivalent to Korean domestic standards. Furthermore, EU environmental standards (Euro 6 standards) should be recognized by Korean authorities. Korea should align further 29 standards with UNECE standards within five years. Nevertheless, the NTB elimination due to the EU-Korea FTA has been limited and a certain discontentment with the implementation of parts of the agreement has been articulated by ACEA. Furthermore, the agreement has been criticized for the relaxation of rules of origin for motor vehicles from 40 per cent to 45 per cent foreign content (LSE/Consortium Partners, 2010). And finally, the duty drawback mechanism allows an exporter to receive a rebate of any customs duties paid on the imports of parts used in the final exported product (Cooper et al., 2011). Chinese radios assembled in Korean cars can, for instance, enter the EU duty-free when the producer applies the duty drawback mechanism contained in the EU-Korea FTA.

The overall effect of the EU-Korea FTA for the automotive sector (but also for the EU economy as a whole) was largely positive. The EU trade deficit increased in 2011

and 2012 due to revival of EU imports in the course of recovery from the economic crisis (Figure 3). However, the trade deficit declined substantially in 2013 and 2014 as EU exports increased by 18.5 per cent and 42.4 per cent respectively while EU imports of road vehicles remained almost unchanged. The subdued dynamics of EU imports is partly due to the large amount of Korean FDI in the EU automotive industry. Factories established in Slovakia and the Czech Republic are planned with a capacity of 600,000 cars per year (Credit Suisse, 2009) This roughly corresponds to the number of cars imported from Korea in 2007 (ACEA, 2014). Furthermore, the decline in trade deficit can partly be attributed to the appreciation of the Korean won in the last years, which has made automotive products made in the euro area more attractive as compared to Korean cars. Therefore, there are many factors, which have affected the development of EU-Korean trade flows in recent years and it is a hard task to isolate the effect of the FTA. However, the increase of EU exports is very substantial and it is very likely that the effect of the FTA has been positive. According to VDA, the share of imported passenger cars in Korea increased from 7 per cent in 2010 to 14 per cent in 2014.⁵ The sales of German automotive producers have been growing faster than the Korean market as a whole. The share of German brands in total imports of motor vehicles amounts to 73 per cent. This positive development is supported by the elimination of tariff and non-tariff barriers in the course of the implementation of the FTA.

EU-Canada FTA CETA

In 2014, the EU concluded the negotiations on a further FTA, which is of particular interest in the context of the TTIP negotiations. The FTA with Canada, CETA, has been often considered the blueprint for TTIP. For the part concerning automotive trade, however, the achievements in CETA are rather marginal.

The interests of the EU in the CETA negotiations are different from those in the negotiations with Korea. The EU automotive industry runs a large trade surplus with Canada and had mainly offensive interests in the negotiations. The difference in the tariff rates is more pronounced – Canada has a 6.1 per cent tariff rate on imports of finished vehicles from the EU and no tariffs on automotive parts (Stanford, 2014), while the EU tariff rates amount to 10 per cent for passenger cars and up to 5 per cent for parts and accessories. Furthermore, EU-Canada trade with motor vehicles is restrained by non-tariff barriers. The Canadian automotive industry is very well integrated into the US automotive industry and the technical standards as well as regulations are similar. Canada uses a system of self-certification and harmonizes

⁵ <https://www.vda.de/de/presse/Pressemeldungen/20150402-Deutsche-Pkw-Marken-wachsen-in-S-dkorea-deutlich-schneller-als-der-Markt.html> [14 September 2015].

standards, such as vehicle emission standards, with US federal standards as far as possible.⁶

CETA foresees gradual elimination of industrial tariff lines on 99 per cent of the products (Tradejustice, 2015). Regarding automotive trade, duties on motor cars will be eliminated on a linear basis over seven years; those on motor vehicles for the transport of more than ten persons over five years and for the transport of goods over three years.

The Rules of Origin provision included in CETA is exceptionally lax in the field of motor vehicles. The domestic content of passenger cars should be 50 per cent, rising to 55 per cent after seven years. However, a further arrangement allows for an annual quota of 100,000 vehicles per year to be exported to the EU with a domestic content of only 20 per cent, which is more than ten times higher than the current exports of Canada to the EU (Stanford, 2014). This clause should account for the high US content in Canadian exports. It will be replaced by an integrated threshold of 60 per cent US and Canadian content in case the EU and the US reach a FTA.

The elimination of NTBs in CETA is rather limited. Canada has incorporated a small number of UNECE technical regulations into the Canadian Motor Vehicle Safety Regulation (CMVSR) prior to CETA. Further harmonization of technical standards and regulations cannot be expected without TTIP due to the high integration of the Canadian and the US automotive industry. Therefore, the achievements regarding NTB reduction in CETA should not be considered a blueprint for TTIP. It is rather the other way round – with TTIP it will be possible to achieve further harmonization of EU and Canadian standards in the automotive industry.

The CETA parties agreed to cooperate in the development of new technical regulations. They committed to meet at least annually to share information on this topic. They also agreed to contribute jointly to encouraging and promoting greater international harmonization of technical standards. Furthermore, after a successful conclusion of TTIP, the Parties will determine whether the NTB reduction in EU-US trade achieved in TTIP should also be implemented between the EU and Canada.

CETA still has to be ratified and will not enter into force before 2016. Therefore, it is still too early to evaluate the effect of this FTA. Moreover, the effect of CETA depends substantially on the conclusion of TTIP, both because of the strong integration of the US and Canadian automotive industry and because of the fact that

⁶ <http://dieselnet.com/standards/ca/> [11 February 2015].

Canada will be more willing to harmonize technical standards with EU standards hand in hand with the US.

4. Opportunities and challenges of TTIP for the automotive industry

The negotiations on TTIP are unique in the history of international trade policy. Two global players have been negotiating, who share common values and the potential to set international product standards and thus to initiate multilateral harmonization of technical regulations. In the field of the automotive industry, the objective of the TTIP negotiators is to achieve a high degree of trade liberalization while defending the right to regulate and the precautionary principle in the EU.

In May 2014, the EU Commission presented its initial position and recognized the potential for efficiency gains and cost-savings that can be achieved by addressing regulatory divergence in US and EU regulations of motor vehicles. The aim of the EU is to “achieve more compatibility between motor vehicles regulations without lowering standards on either side”.⁷ The industrial associations representing the interests of EU and US automotive producers also articulated their joint position, in which they call for far-reaching harmonization of technical standards and regulations on both sides of the Atlantic.

Reducing tariff and non-tariff barriers to trade is of particular interest for both EU and US companies. An overwhelming share of transatlantic trade takes place within large companies such as General Motors or Ford. Felbermayr et al. (2013) show using US Census data for the trade flows in the automotive industry that 38.8 per cent of German exports to the US, and respectively 80.1 per cent of German imports from the US take place on an intra-firm level. Therefore, producers from the automotive industry at different stages of the value chain will benefit from reducing trade barriers. Automotive suppliers also welcome the initiative to liberalize transatlantic trade. Representatives of the European Association of Automotive Suppliers (CLEPA) stressed the positive effects to be expected from TTIP during the stakeholder event of the eighth round of TTIP negotiations. On behalf of the motor vehicles suppliers in the US and Europe they expressed their support for TTIP to be finalized before the end of 2016.

⁷ http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152467.pdf [15 September 2015].

4.1. Opportunities and challenges regarding the elimination of tariff barriers to transatlantic trade

The first step to be taken to liberalize trade in TTIP is the elimination of tariff barriers to transatlantic trade. Average tariff rates are already relatively low and amount to 3.1 per cent in the US and 4.1 per cent in the EU for transport equipment. However, due to the large trade volume tariff payments still represent a substantial cost factor. According to estimations of VDA the additional costs due to tariff payments amount to about €1 billion for the members of the association. Furthermore, tariff rates differ widely depending on the particular product group (Table 1). Tariff rates on imports in the US range between 0 to 2.5 per cent for the parts and 25 per cent for light trucks and commercial vehicles. For the most important product group, passenger cars, which account for almost 80 per cent of the EU automotive exports in the US, the tariff rates are 2.5 per cent on US imports and 10 per cent on EU imports.

Table 1: Tariff rates for products of the automotive industry

	Tariff rate in per cent		EU-US automotive trade (millions of euros)	
	EU	US	EU exports	EU imports
Passenger cars	10	2.5	29,426	4,901
Light trucks / pick-ups	10	25	208	34
Commercial vehicles	22	25	35	3
Buses	16	2	214	1
Parts	2-5	0–2.5	7,298	1,842

Source: German Association of the Automotive Industry (VDA)

Eliminating tariffs on transatlantic trade bears a substantial opportunity for cost reduction and welfare increase. Furthermore, tariff free trade will raise competition on both the US and the EU market. It will increase the incentives for innovation and lead to lower consumer prices and a greater product variety. A further opportunity arises for the EU from the divergence of tariff rates in particular for passenger cars. From a mercantilist point of view, the EU should use the high EU import tariff rates for passenger cars as a bargaining chip to motivate the US negotiators to agree on the elimination of non-tariff barriers.

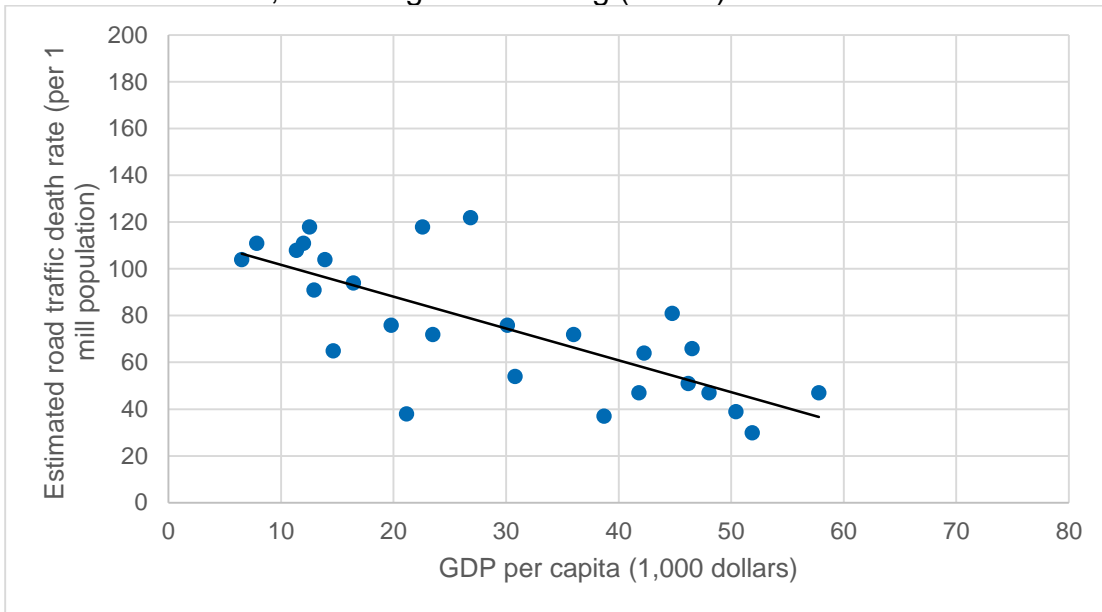
4.2. Opportunities and challenges regarding the elimination of non-tariff barriers to transatlantic trade

The potential scope for trade liberalization that can be achieved with TTIP goes far beyond tariff elimination. Especially non-tariff barriers should be addressed during the negotiations since they represent a very substantial impediment to transatlantic trade. NTBs are mostly the result of the evolution of two independent regulatory regimes for products of the automotive industry. The NTBs are therefore largely due to technical barriers to trade (TBT), i.e. technical standards and regulations as well as testing procedures and conformity assessments. EU automotive companies have to substantially adjust their products in order to meet US technical standards. The products also need to be tested in accordance with US testing procedures to assure the conformity with US regulations and standards. The additional costs arising from NTBs are estimated to be as high as a tariff equivalent of approximately 26 per cent (25.5 per cent in the EU and 26.8 per cent in the US, see Ecorys, 2009). The study by Ecorys (2009) claims a comparatively high potential for NTB elimination of about 42 to 48 per cent for the automotive industry. The reason is that there are many differences regarding the regulation of technical standards for car components in detail. However, the passenger and environmental safety that is the outcome of these regulations is relatively similar. Concerning, for instance, the death ratio in road traffic, the data show that there are considerable differences within the EU and the US, but the overall numbers for the EU and US are comparable (Figure 4; Figure 5). Both in the EU and in the US, the death ratio differs widely and exhibits high correlation with GDP per capita. Within the EU, death ratios are the highest in the member states from Central and Eastern Europe, where per capita income is the lowest (Figure 4). Of course, death ratio depends on many factors beyond GDP per capita. However, higher GDP per capita implies in most of the cases also better infrastructure, better overall state of the motor vehicles in use etc.

Although overall passenger safety is comparable for cars produced in the US and the EU, this does not mean that technical standards and regulations should be fully harmonized on both sides of the Atlantic. Many differences in product standards (not only in the automotive industry) result from a divergence in the preferences of the US and EU consumers. If these different preferences are disregarded, trade liberalization will only be pursued at the cost of lower utility for the consumers. Furthermore, some differences in the technical norms for car components are the result of the overall road conditions in a particular region, including infrastructure or speed limit. Disregarding these differences would mean lowering the level of safety in one party or unnecessary overregulation in the other. Therefore, this part of the agreement is particularly challenging. TTIP should break new ground in regulatory cooperation, but eliminating NTBs and regulatory cooperation as a whole must not compromise the

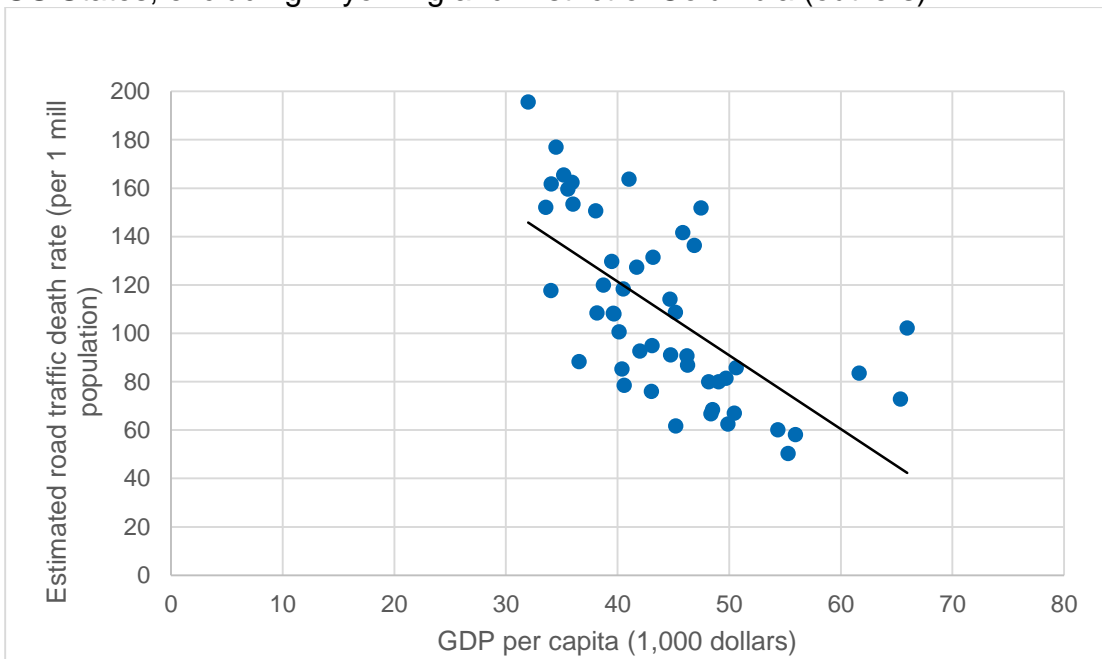
level of existing passenger and environmental safety, the EU's precautionary principle or democratic legitimacy. This can only be achieved based on sound evidence, that technical standards and product regulations lead to the same safety level for cars driven both on EU and US roads.

Figure 4: Road traffic death rate and GDP per capita in 2010
EU member states, excluding Luxembourg (outlier)



Sources: IMF; World Health Organization Global Health Observatory Data Repository; Cologne Institute for Economic Research

Figure 5: Road traffic death rate and GDP per capita in 2010
US States, excluding Wyoming and District of Columbia (outliers)



Sources: World Health Organization Global Health Observatory Data Repository; US National Highway and Traffic Safety Administration, FARS database; US Census Bureau; Cologne Institute for Economic Research

Regulations and technical standards relevant for regulatory cooperation between the US and the EU can be classified into two groups: safety and environmental standards (including emission reference values and fuel economy standards). In the following, a brief overview of the major challenges and opportunities concerning the elimination of NTBs will be given.

Safety regulations and technical standards

In the EU, motor vehicles safety is attested via government approval. The Whole Vehicle Type Approval System has been applied in the EU since 1970. Before a motor vehicle enters the market, production samples of the new model must be approved by national governmental authorities. The approval system of the EU is mandatory and applies to a vehicle as a whole. Since the revision in 2007, the system of EC type-approval was extended to all types of vehicles as well as systems, components and technical units for motor vehicles.⁸ After receiving a formal approval for the new model, car manufacturers issue a certificate of conformity for each vehicle produced from this model and place the vehicle for sale throughout the EU. In 2008 EC type-approval procedures were replaced by national approval procedures. Besides these compulsory EU directives, European regulation of motor vehicles also include UNECE technical standards with optional implementation by member states.

In the US, safety standards are issued by the National Highway Traffic Safety Administration (NHTSA). However, NHTSA neither approves the compliance of motor vehicles and components with the released standards nor collects information about the compliance from a particular manufacturer. Contrary to the EU, manufacturers should “certify to the distributor or dealer at delivery that the vehicle or equipment complies with applicable motor vehicle safety standards”.⁹

The technical standards prescribed by NHTSA and the EU regulations for motor vehicles differ in many ways substantially and lead to high additional costs for exporters. Table 2 shows, for instance, some of the different aspects of regulation of side turn-signal lamps. The differences go far beyond the color of the side turn-signal lamps. A great opportunity of TTIP is to show, to what extent the different technical standards (not only those regarding side turn-signal lamps) lead to different outcomes in terms of passenger safety. However, this is also a big challenge, since identifying regulations and standards which lead to similar passenger safety outcomes are very cumbersome due to the high number and complexity.

⁸ Directive 2007/46/EC.

⁹ P.L. 89-563, 49 U.S.C. §30115.

Furthermore, even after identifying the areas where different technical standards lead to similar levels of passenger safety, i.e. the potential areas where trade liberalization can be achieved, a solution has to be found how to deal with the different approval systems. One possible approach is to apply US technical standards but the EU compulsory government approval system for motor vehicles imported from the US and vice versa. This approach could lead to cost reduction for exporters and still assure that the precautionary principle is maintained in the EU.

Table 2: Differences in regulations between EU and US side turn-signal lamps

Property	EU (UNECE)	US (FMVSS/SAE Standards)	Comparison
Applicability	Optional, option of AM/RM1/RM2 category lamps	Optional	Identical for applicability; The EU permits the use of variable intensity rear end outline marker lamps, while the US prohibits their use.
Number	4–8	2xfront, 2xrear	Number of side marker lamps can range from 4–8 in the EU, but must be 4 in the US.
Colour	Front: white, rear: red	Front: amber, rear: red	Colour must be white at the front and red at the rear in the EU, while the color must be amber at the front and red at the rear in the US.
Height	Front: upper edge not lower than upper edge of wind-screen; rear: at maximum height possible	As near the top as practicable	Minimum height at front is lower in the EU and identical for the rear.
Width	Outer: less than 400mm and as close as possible to the extreme outer edge of the vehicle	Indicate the overall width of the vehicle and symmetric about the vertical center line.	Widths are more prescriptive in the EU, while the US is more subjective.
Length	-	Front: on the front; rear: on the rear; other: any other location to ensure that overall width of vehicle is indicated	Lengths are not defined in the EU, while the US provides subjective length definitions.
Other	Distances must be more than 200 mm vertically from position lamps.	-	Minimum vertical distance from position lamps are prescribed in the EU, while the US does not define these minimum distances.

Further differences regarding geometric and photometric visibility etc.

Sources: European Commission (2015); Freund/Oliver (2015).

Environmental and fuel economy regulations

Car emissions regulations were harmonized in the EU in 1987 under the Single European Act (SEA) whereas EU member states are still allowed to issue measures more stringent than the common EU standards. Current emission standards, known as “Euro 6” standards, set emission limits for compression ignition (diesel) and positive ignition (gasoline, ethanol, etc.) vehicles.¹⁰ Emissions are tested over the New European Driving Cycle (NEDC) chassis dynamometer procedure. The conformity attestation with the EU emission targets is mandatory but required only when the vehicle is produced and not afterwards.

For diesel vehicles CO standards are more stringent, but higher NO_x emissions are allowed. Table 3 offers an overview of the reference values of EU emission standards for passenger cars. The EU does not set explicit fuel economy standards. Fuel economy is indirectly regulated by the CO₂ emission standards. In 2009 these standards were reduced to 130 g/km to be reached in 2015 and the long-term target was set to 95 g/km for 2020. The emissions are measured using the NEDC test cycle and the limits are set in accordance with the mass of the vehicle using a fleet-average limit value curve.

Table 3: EU emission standards for passenger cars

	CO	HC	HC+NO _x	NO _x	PM	PN
	g/km					No/km
EU diesel	0.50	–	0.17	0.08	0.005 ^a	6.0x10 ¹¹
EU gasoline	1.0	0,10 ^b	–	0.06	0.005 ^{a,c}	6.0x10 ^{11 c,d}

a 0.0045 g/km using the PMP measurement procedure.

b And NMHC = 0.068 g/km.

c Applicable only to vehicles using DI engines.

d 6.0x10¹² l/km within first three years from Euro 6 effective dates.

Source: DieselNet

In the US, emission standards are based on the Clean Air Act (CAA) and are issued by the Environmental Protection Agency (EPA). Emission standards are set irrespectively of the fuel their engine uses. In addition to the federal standards, California has its own emission regulations, whereas emission standards in California have been traditionally more stringent (Canis/Lattanzio, 2014). The CAA allows other states to choose between federal or Californian emissions requirements. Current EPA emission standards, known as Tier 3, regulate CO, NO_x, PM and HC emissions

¹⁰ <http://dieselnet.com/standards/eu/ld.php> [18 September 2015].

(Table 4).¹¹ Contrary to passenger safety standards, the compliance with emission standards cannot be attested by self-certification.

Manufacturers must certify vehicles to one of seven available certification Bins.¹² The fleet-average emission standards are expressed using the sum of NMOG+NOx emissions. The Bins are named using their corresponding NMOG-NOx limits in mg/mi. Certification follows the Federal Test Procedure FTP-75 and NMOG+NOx limits must be additionally met over the Highway Fuel Economy Test (HFET) cycle. The fleet average NMOG+NOx values are phased-in starting from 2017 and must reach 30 mg/mi (0.02 g/km) in 2025. Tier 3 standards apply over a useful life of 15 years or 150,000 miles (whichever occurs first).¹³

Table 4: US emission standards for passenger cars classified as Bin 160

	NMOG+NOx	PM	CO	HCHO
mg/mi	160	3	4200	4
g/km	0.1	0.002	2.6	0.002

Source: DieselNet

In the US, besides safety standards NHTSA issues also fuel economy standards. First enacted in 1975, the purpose of the Corporate Average Fuel Economy (CAFE) is to reduce energy consumption.¹⁴

The comparison of EU and US environmental regulation systems shows significant differences regarding reference values, test cycles, fuel efficiency regulations and further details. In terms of stringency, the comparison of emission standards is challenging, since they differ in structure, form and testing methods. Still, there is an opportunity in environmental regulation because the approval systems are more similar than for safety norms as the US does not rely on self-certification. Furthermore, the overall objective of environmental regulation is the same. The large differences in the approach and details of environmental regulations raise the question of whether regulatory cooperation in this field is possible at the moment. Future target emission values tend to converge, thus future cooperation seems to be possible.

¹¹ http://dieselnet.com/standards/us/ld_t3.php [18 September 2015].

¹² Ibid.

¹³ Ibid.

¹⁴ <http://www.nhtsa.gov/fuel-economy> [19 September 2015]

4.3. Potential approaches to the reduction of NTBs and regulatory cooperation

The EU Commission and the TTIP negotiators have recognized the high potential for efficiency gains and cost savings that could be achieved from addressing regulatory divergences in US and EU regulations of motor vehicles. In February 2015, the Commission published its draft textual proposal for the chapter on regulatory cooperation in TTIP. Regarding cooperation on motor vehicles, the EU aims at achieving “more compatibility between motor vehicles regulations without lowering standards on either side”.¹⁵

Regarding the process of elimination of non-tariff barriers, there are three possible approaches that should be considered (Kolev/Matthes, 2015). These approaches can be applied simultaneously and are therefore complementary to each other.

Convergence (harmonization or adoption of international standards)

First, convergence of regulatory approaches can contribute to trade liberalization via harmonization of existing product standards and technical regulations. The best way to achieve convergence is to rely on international standards and to offer the opportunity for a multilateral liberalization of trade. There is hope that enhanced EU-US cooperation in the framework of the UNECE 1998 Agreement will lead to the further development of common GTRs in the near future.

Cooperation on new technologies

Harmonization of *existing* regulations and standards is a very challenging process since the EU and the US have highly developed regulatory systems that have evolved over decades. Regulation and standard setting bodies will not easily embark on a complete change of the systems. A more promising approach is the development of common international standards for *new* products or regulations. In the field of new technologies such as hydrogen and electric vehicles, the cooperation of the EU and the US is already happening. TTIP should support this cooperation and strengthen the role of the EU and the US as worldwide setters of product standards for products of the automotive industry.

¹⁵ The Commission presented the initial EU position on motor vehicles in May 2014. http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152467.pdf [3 February 2015]. The draft proposal for a TTIP chapter on regulatory cooperation which was published in February 2015 can be found here: <http://trade.ec.europa.eu/doclib/html/153121.htm> [23 March 2015]

Mutual recognition of equivalent regulations and standards

A fairly promising approach to achieve regulatory cooperation is the mutual recognition of technical regulations and standards. However, this should only be the case for regulations that lead to a similar outcome in terms of passenger safety or environmental protection. It is a highly complex task to identify the areas, where mutual recognition is possible. A reliable methodological approach has to be developed. It could enable regulators to assess in how far the outcome of the regulations is equivalent.

The associations of automotive producers on both sides of the Atlantic ordered a report focusing on possibilities to determine the equivalence of regulatory outcomes. This report has been conducted in a joint project by the University of Michigan Transportation Research Institute (UMTRI) and the Vehicle and Traffic Safety Centre (SAFER) at the Chalmers University of Technology in Sweden. The representatives of the automotive industry call for a performance and cluster based approach for the different aspects of vehicle safety – instead of a line by line comparison of the multitude of individual regulations and standards. For instance, regulations and standards regarding the safety cluster vision (e.g. front lights, window screen, etc.) should be assessed together in terms of their combined effects on the level of safety.

5. Conclusion

The present analysis shows that trade liberalization in the field of motor vehicles is possible and eligible. The first and most straightforward step to be taken is the elimination of tariffs. Although relatively low on average, tariff payments are a considerable cost factor due to the large trade volume. However, TTIP bears the potential to break new ground in trade liberalization and should go far beyond the achievements of other trade agreements. The US and the EU should use TTIP to support the process of development of international standards in the field of motor vehicles and to confirm their role as standard setters worldwide.

The expected gains from TTIP for the automotive industry depend crucially on the scope of trade liberalization that can be achieved. Francois et al. (2013) estimate that EU exports to the US would increase by 13.7 per cent after ten years even if only tariff barriers are addressed in TTIP and tariff rates are eliminated to 98 per cent. However, in such a case US exports to EU member states would rise by 109.5 per cent and the overall effect on EU automotive output would be negative. This negative effect stems from the asymmetry of current tariff rates. If on the contrary non-tariff barriers are addressed as well, TTIP could lead to an increase of EU output in the automotive industry of about 1.5 per cent after ten years. These estimations should

be taken with caution since they rely on a wide range of assumptions. Still, they show that the overall effect of TTIP would be positive and large if the scope for trade liberalization goes far beyond tariff elimination.

The elimination of non-tariff barriers remains, however, challenging and should be the result of sound evidence on equivalence of the outcome that is produced by the regulations on both sides of the Atlantic. Priority should be given to retaining the high level of passenger safety and environmental standards, the EU's precautionary principle and democratic legitimacy.

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