

**25 Years Single Market:
Which Trade and Growth Effects?**

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The EU Single Market and the Maastricht Treaty are now aged 25. In this short history many events marked the way: the creation of EMU in 1999, the introduction of the euro in 2002, and the great EU enlargement starting in 2004. And lastly – for the first time – with the Brexit a reverse of the process of European integration takes place. The recession of 2009 and the Euro crisis in 2010 led to a setback in the economic development in the EU. A quarter of a century invites to look back about the achievements. How much trade and economic growth could be created by the Single Market plus euro plus EU enlargement? These questions are treated here with the help of a consistent integration model. Embedded into an endogenous growth model approach growth and trade effects for EU and EFTA countries are estimated. It turns out that (taking also into account GATT liberalisation) the European integration added to per-capita GDP 0.5 percentage point to EU 28 countries but only 0.2 percentage point to EFTA countries. Trade openness increased by 0.9 percentage point of GDP in EU 28 and by 0.3 percentage point in EFTA countries.

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Abstract

The EU Single Market and the Maastricht Treaty are aged 25. In this short history many events marked the way: the creation of EMU in 1999 and the introduction of the Euro in 2002; the great EU enlargement starting in 2004. And lastly – for the first time – with the Brexit a reverse of the process of European integration takes place. The great recession of 2009 and the Euro crisis in 2010 led to a setback in the economic development in the EU. A quarter of a century invites to look back about the achievements. How much trade and economic growth could be created by the Single Market plus Euro plus EU enlargement? These questions are treated here with the help of a consistent integration model. Embedded into an endogenous growth model approach growth and trade effects for EU and EFTA countries are estimated. It turns out that (taking also into account GATT liberalization) the European integration added to GDP per capita 0.5 percentage points to EU-28 countries but only 0.2 percentage points to EFTA countries. Trade openness increased by 0.9 percentage points of GDP in EU-28 and by 0.3 percentage points in EFTA countries.

Keywords: European Integration; Single Market; Maastricht Treaty; Model simulations
JEL Classification: C23; C51; F15; O52.

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1. Introduction

2018 marks the 25th anniversary of the start of EU's Single¹ or Internal Market² (at 1 January 1993) and the entry into force of the Maastricht Treaty (at 1 November 1993), the legal base of the Economic and Monetary Union (EMU). In this short history many events marked the way: the creation of EMU in 1999 and the introduction of the Euro in 2002; the great EU enlargement starting in 2004. And lastly – for the first time – with the Brexit a reverse of the process of European integration takes place. The great recession of 2009 and the Euro crisis in 2010 led to a setback in the economic development of the EU. A quarter of a century invites to look back about the achievements. How much trade and economic growth could be created by the Single Market plus Euro plus EU enlargement? These questions are treated here with the help of a consistent model of economic integration. Embedded into an endogenous growth model growth and trade effects for EU and EFTA countries are estimated. It turns out that (taking also into account GATT liberalization) the European integration added 0.5 percentage points to EU-28's real GDP per capita but only 0.2 percentage points to that of EFTA countries. Trade openness could be increased by 0.9 percentage points of GDP in EU-28 and by 0.3 percentage points in EFTA countries.

The first part gives a short review of EU's actual position in the world. Then the expectations and realisation of economic gains through the different phases of European integration (customs union, Single Market, EMU and Euro and EU enlargement) are reviewed. Finally, as the main contribution a consistent (growth) model of economic integration is developed and econometrically estimated. This allows to derive growth and trade effects of the whole process of European integration through three phases of liberalization in Europe: GATT liberalization since 1950, intra-EU trade creation through customs union in the 1960s and Single Market as of 1993, the Euro of 2002 and EU enlargements.

2. EU's position in the world

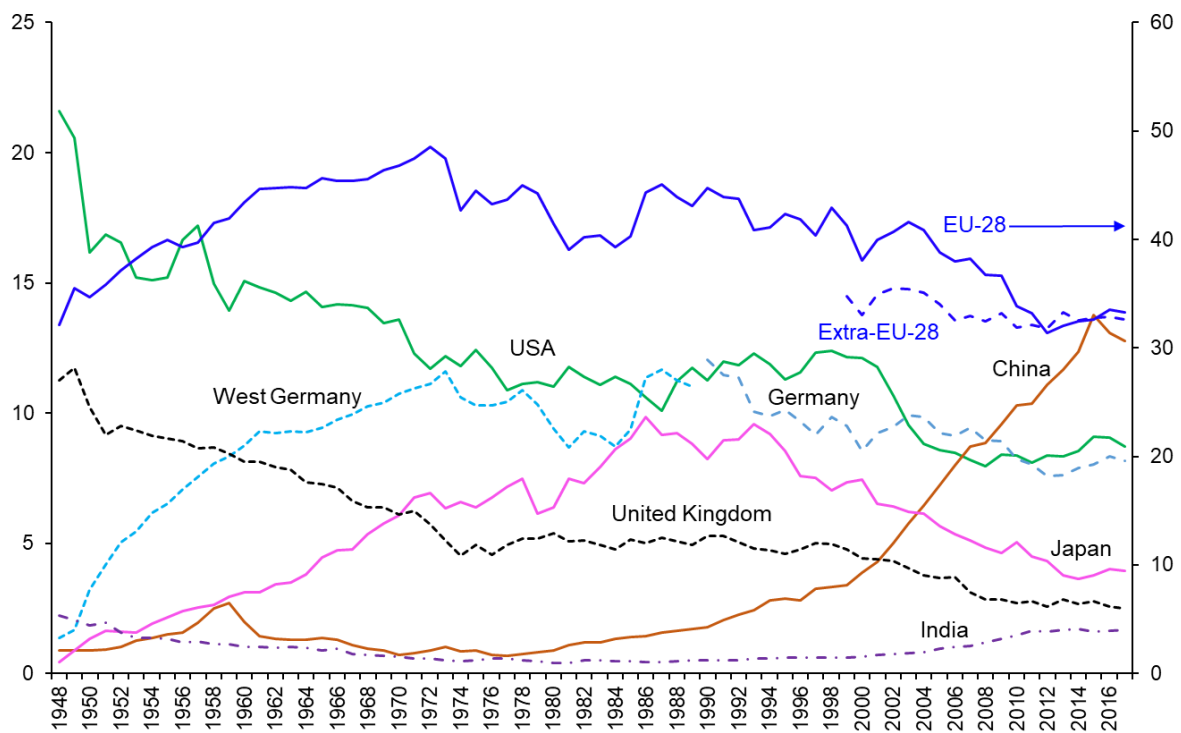
The EU is one of the "big players" in the world, more economically than politically. With about 510 million inhabitants (7% of the world's population), the EU-28 is the third largest

¹ The European Commission talks about "EU's Single Market", when referring to "One market, without borders" (see the websites of the European Union: https://europa.eu/european-union/topics/single-market_en and http://ec.europa.eu/growth/single-market_en)

² The official/legal notion is "Internal Market". See the Treaty on the European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU). In the following we use Single and Internal Market interchangeably.

market in the world after China (19%) and India (18%). With 17% of world economic output (real world GDP at purchasing power parities), it ranks second only to China (18%; see Breuss, 2018C). The US follows with 15% of world GDP. The EU-28 - although its member states differ strongly in GDP per capita - is one of the richest regions in the world. With real GDP per capita at US \$ 36,300, it ranks 33rd out of the 264 countries and regions covered by the UN (see The World Bank Database). The US ranks 13th with US \$ 53,300. China, with GDP per capita of US \$ 14,400, is more likely to be a developing country.

Figure 1: Changes in world trade leaderships– China is the winner
(Share in world exports in %)



Sources: UNCTAD, WTO (EU-28, right scale; all other variables, left scale)

The EU is a "superpower" in international trade³. With 16% of world exports, the EU-28 ranks second after China (17%). The USA follows with 12%. The other nations follow in the far distance. In the trade in services, the supremacy of the EU-28, with an export share in the world service trade of 24%, is impressive; it is followed by the United States with 20%. China is in third place with 5% (see Breuss, 2018C).

Nevertheless, globalization after World War II has changed the structure of world trade dramatically. Since the end of the 1990s, China's world market share has risen steeply. It has

³ In his speech at the 54th Munich Security Conference on 17 February 2018, Jean-Claude Juncker, president of the Commission complained that EU's political power cannot keep up with its economic power. "The fact is that the European Union and the European Economic Community that preceded it were not designed for playing a role in world politics. For a long time we were unable to do so" (lack of world politics ability).

already become a world leader (if one considers only extra-EU trade, see Figure 1). All former "export world champions" (Japan, Germany, the USA) are losing market shares already since the 1970s. In the case of the EU one has to differentiate between total EU-28 exports and only extra-EU exports. In the first case, the world market share of the EU-28 in 2017 was 33,3%, in the second case the EU is closer to China (extra-EU 15,2%: China 16,2%).

The EU-28 is also powerful as an investor. In 2015 EU's foreign direct investment (FDI) accounted for 31% of global FDI. The US was the second most important investor nation with 24% of the world FDI. Even as a business location, the EU-28 is world-class. In 2015, 25% of FDI was made in the EU-28; it was followed by the United States with a share of 22%. Although China is becoming increasingly important as a destination country for FDI. However, their current world share is only 5% (see Breuss, 2018C). The quality of the business location of EU-28 is also underlined by other international rankings. In the World Bank's "Doing Business" ranking (The World Bank, 2018), 22 EU Member States are among the top 50: Denmark (3rd place), Great Britain (7) and Sweden (10) are in the lead. In comparison, the US is in 8th place, China only in 78th place out of 190 covered countries. A similar picture emerges from the report on the international competitiveness of the World Economic Forum (World Economic Forum, 2017). Switzerland (1st place) and the USA (2) are in the lead. In the next 50 ranks, there are 20 EU Member States, led by the Netherlands (4), Germany (5), Sweden (7), the UK (8) and Finland (10). The rankings in World Economic Forum (2018) changes slightly.

After the Second World War, world trade was progressively liberalized through eight successful multilateral tariff reductions under the GATT (tariff reduction from 38% to 2.5%), thus facilitating globalization. Since the 1970s, globalization has also increased steadily through lower transport costs and better communication. It experienced a boost after the collapse of communism in 1989/90 (see the KOF Globalization Index by Gygli et al., 2018). There are some indications that globalization has been on the decline since the Great Recession of 2009. Recently, the gains of globalization seem to be diminishing (UNCTAD, 2018, p. 3), while ancillary costs (uncontrolled migration, terror tourism, loss of control of western states, protectionism) are on the increase. The pattern of a gradual decline of globalization, in particular as a consequence of the Great Recession in 2009 is also exhibited in the KOF Globalization (see Gygli et al., 2018). According to the Bertelsmann study (see Weiss et al., 2018) globalization contributes 0.33% to GDP per capita growth in a country. With a cumulative increase in real GDP per capita of 49730 euros since 1990, Switzerland is the largest globalization winner. Large countries are generally less globalized and therefore

show lower "globalization gains": the USA is with 11575 euros in 25th place, China with 2049 euros in 41st, and thus penultimate place. The IMF (2016 and 2018) has also seen a flattening of globalization since 2009, based on the ratio of real growth of world trade to that of world GDP (world trade elasticity): it fell from 1.6 before the Great Recession to 1.0 after.

From a historical point of view, protectionism has been recurrent: after the recession of 1975 following the first oil price crisis, "new protectionism" became fashionable through the introduction of all types of non-tariff barriers (NTBs); After the Great Recession of 2009 following the global financial crisis, "harmful" interventions in world trade followed. US President Donald Trump, with his new foreign-trade policy ("America First"), is once again pouring oil into the fire of protectionism by stepping out of all international trade agreements and introducing indiscriminate punitive tariffs to reduce the US trade deficit (Breuss, 2018A).

The EU participates in globalization in several ways (see Breuss, 2018B, Eurostat, 2016, 2017A, 2017B). On the one hand, through its constant expansion, it is internally expanding the internal market ("mini-globalization"). On the other hand, it participates in the actual globalization multilaterally within the framework of the WTO or through the conclusion of bilateral and regional free trade agreements (FTAs).

Unfortunately, the last WTO round, the Doha Round (Start in 2001) has so far come to no conclusion. As a replacement for the first-best solution (WTO multilateral tariff dismantling), and as the second-best solution bilateral or regional free trade agreements (FTAs) have since been concluded by the two leading world trade powers, the US and EU. The EU currently has 41 FTAs in force and 13 are under negotiation⁴. The latest comprehensive FTA of the new generation, CETA with Canada, was provisionally put into effect on 21 September 2017. The EU signed a European Partnership Agreement (EPA) with Japan on 8 December 2017. This EU-Japan EPA was signed on 18 July 2018 and is the most ambitious free trade agreement with an Asian state⁵.

3. Prosperity gains through European integration

The deepening of European integration has been increasing steadily, if not continuously, since the sixties. The simple customs union in the 1960s was followed by the internal market and the introduction of the euro in 2002, after a long period of integration. As the complexity of real integration has increased, so has the challenge for science of evaluating the integration effects of each level of integration. The customs union could still be mastered with the simple

⁴ See the website of DG Trade of the European Commission: <http://ec.europa.eu/trade/>

⁵ See the texts of the EU-Japan EPA: <http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684>

customs theory of Viner (1950). The next big step, the single market was a much bigger challenge for integration theory. It was enhanced by the creation of EMU⁶.

3.1 Trade effects of EU's customs union

In the sixties, six EEC countries created a customs union until mid-1968. The gradual abolition of customs duties and the introduction of a common commercial tariff (CCT) favored EEC members (trade creation⁷). The share of trade between the EC partners increased strongly. The other European countries were discriminated against by the EC Customs Union; there was a trade diversion: the share of EC trade with EFTA decreased (see Breuss, 2018C).

Eight non-EC European countries created the EFTA free trade area by the end of 1966 as a counterweight to the EEC. Although customs duties were eliminated, each EFTA country - unlike the EEC Customs Union - introduced its own customs duties vis-à-vis third countries. This, too, stimulated trade between the EFTA members (trade creation) and resulted in trade diversion vis-à-vis the EC countries. However, these shifts were weaker than those of the EC vis-à-vis EFTA. The integration policy parallel action (EC's customs union; free trade area in EFTA) has involved EFTA States, such as Austria in trade with neighboring Germany - forced to redirect its "natural" trade flows (derived from a gravity equation) into the much more distant trade partners in the EFTA (Portugal and Sweden). This misallocation was only eliminated by the EC-EFTA Free Trade Agreement in 1973. From 1973, trade between the EC and EFTA increased again and that within the respective integration communities stagnated. This effect was stronger in EFTA than in the EC.

EU trade has already been stimulated by the customs union in the 1960s but got a major thrust by creating the Single Market, accompanied by the Euro and enlargement. The great EU enlargement from 2004 onwards additionally increased the internal market. As a result, there was a further increase in the trade volume of the EU Member States. This can be seen in the development of the degree of openness (measured by exports plus imports as% of GDP). Openness has risen sharply since the creation of the single market in 1993.

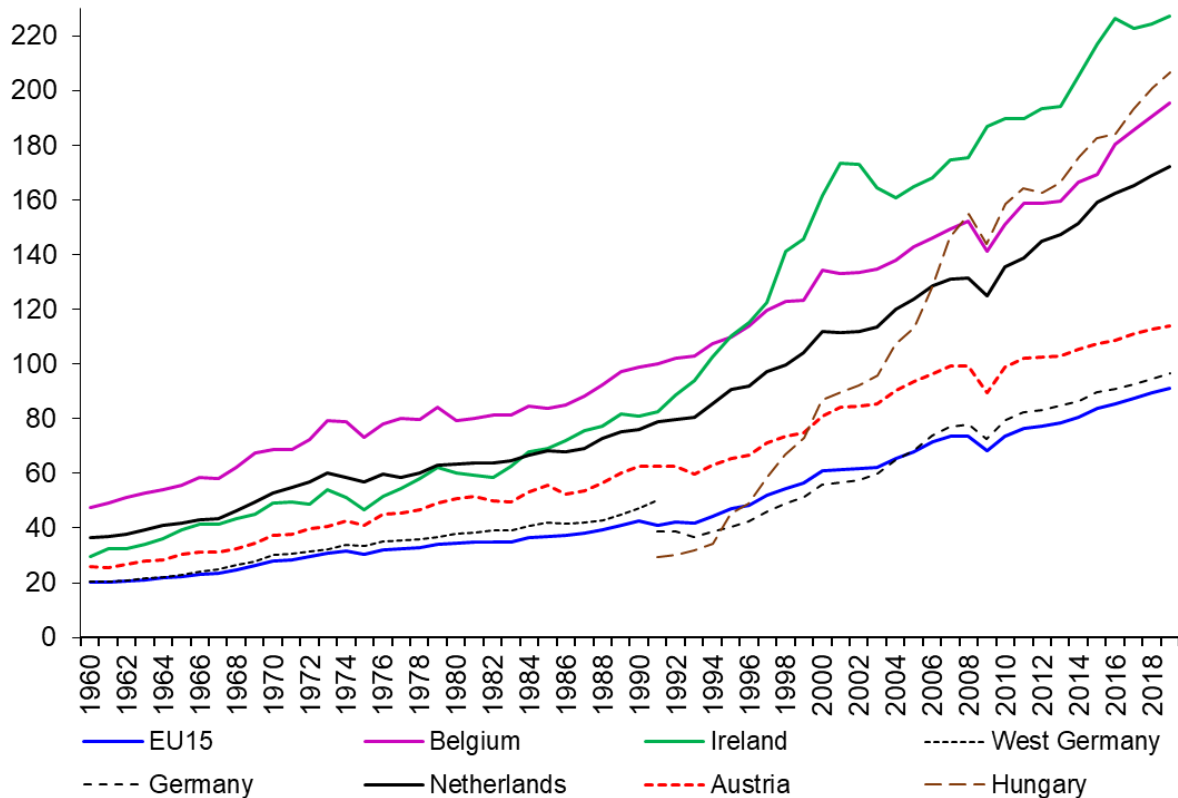
The EU member states differ greatly in their degree of openness. Luxembourg (a statistical outlier) reached a degree of openness of 391% in 2018 (see Figure 2). Ireland is also

⁶ For a survey on the efforts of trade theory to keep up with the development of European integration and for a summary of the theoretical and empirical approaches to explain the effects of EU's Single Market, see Breuss (2003), pp. 370 ff. The respective explanations of the effects of EMU and the Euro can be found in Breuss (2006), pp. 377 ff. and in the basic study on the creation of EMU „*One market, one money*“ by the European Commission (1990).

⁷ First estimates of Viner effects of trade creation (TCI) and trade diversion (tC) of creating the customs union of the European Community (EC) go back to the end of the 1960s. For a respective literature review, see Breuss (2003), pp. 366. The TC effects outweighed the TD effects by 10:1

very open with 224%. Of the new EU Member States, Hungary and Slovakia each approach Ireland by just over 200%. Germany has - statistically - suffered a break from reunification in 1991. West Germany, at 50% in 1991, was more dependent on foreign trade than Germany as a whole (39%). At the lower end of the scale, Italy and Spain are only 62% open. Greece is also not very open at 67%.

Figure 2: Degree of openness for selected EU Member States
(Real exports plus real imports of goods and services in % of real GDP)



Source: AMECO database of the European Commission

Due to the deepening of European integration - above all due to the internal market and the introduction of the euro - the *integration density*⁸ and the *degree of integration*⁹ has greatly increased. This has led to an increase in intra-EU trade across the EU. However, the scale varies greatly between EU Member States. The new member states, Slovakia, the Czech

⁸ König-Ohr (2012) constructed an EU index to quantify the degree of European integration. 25 indicators are grouped by four dimensions of European integration: 1) EU Single Market (for goods, services, capital and labour), 2) EU homogeneity (level of convergence), 3) EU symmetry (how much of a “European business cycle”), 4) EU conformity (implementation of EU law and institutional participation). Belgium and Austria lead the EU index 2010. The Netherlands, France and Germany follow. The least integrated country (rank 14z) is Greece. See also Ohr et al. (2012).

⁹ The Brexit negotiations demonstrated impressively like in a policy-economic lab how complex the EU member states are already interwoven. The rescission of an EU membership is so difficult, because the degree of economic integration of the EU is already very deep. She would be even more complicated would the United Kingdom be a member of the Euro zone.

Republic and Hungary, rank first with 80% to 83% of the total intra-EU share of total exports. Least of all, the UK (49%), Malta (51%) and Greece (55%) trade with their own EU partners. The momentum of intra-EU trade has not increased since 1999, however, since the great recession of 2009 even decreased. Only since 2012 has intra-EU trade recovered slightly.

3.2 Expectations of the Single Market

EU's Single Market (or Internal Market) - the heart of European integration - was launched 25 years ago, coming into effect on 1 January 1993. However, he has remained unfinished until today. At the heart of the single market are the four fundamental freedoms for trade in goods and services and the free movement of capital and labor. For a long time, the Single Market for services has been incomplete and has been strengthened by a separate Services Directive¹⁰. In the meantime, the terms "Internal Market" and "Union" are being used without limits. With the new *Single Market Strategy (SMS)* (see European Commission, 2015), the EU aims at upgrading the Single Market for people and start-ups. The SMS also mentions several new projects, like the Digital Single Market, an Energy Union, the Banking Union, the Capital Markets Union, plus a European Research Area. The SMS is a European Commission's plan *"to unlock the full potential of the Single Market. The Single Market is at the heart of the European project, enabling people, services, goods and capital to move more freely, offering opportunities for European businesses and greater choice and lower prices for consumers. It enables citizens to travel, live, work or study wherever they wish"*¹¹.

There are numerous studies on the effects of the Single Market.¹² The methods applied vary from single to multi-country models with macro models or partial and general equilibrium models. Almost without exception, they predict positive growth effects. From the first companion study to the single market - the "Cecchini Report" (Emerson et al 1988, Catinat et al., 1988) - to the recent major study by London Economics (see Muller et al., 2017), everyone sees in the single market great potential for growth, although different from one Member State to another. The 1988 Cecchini Report predicted that by reducing barriers to

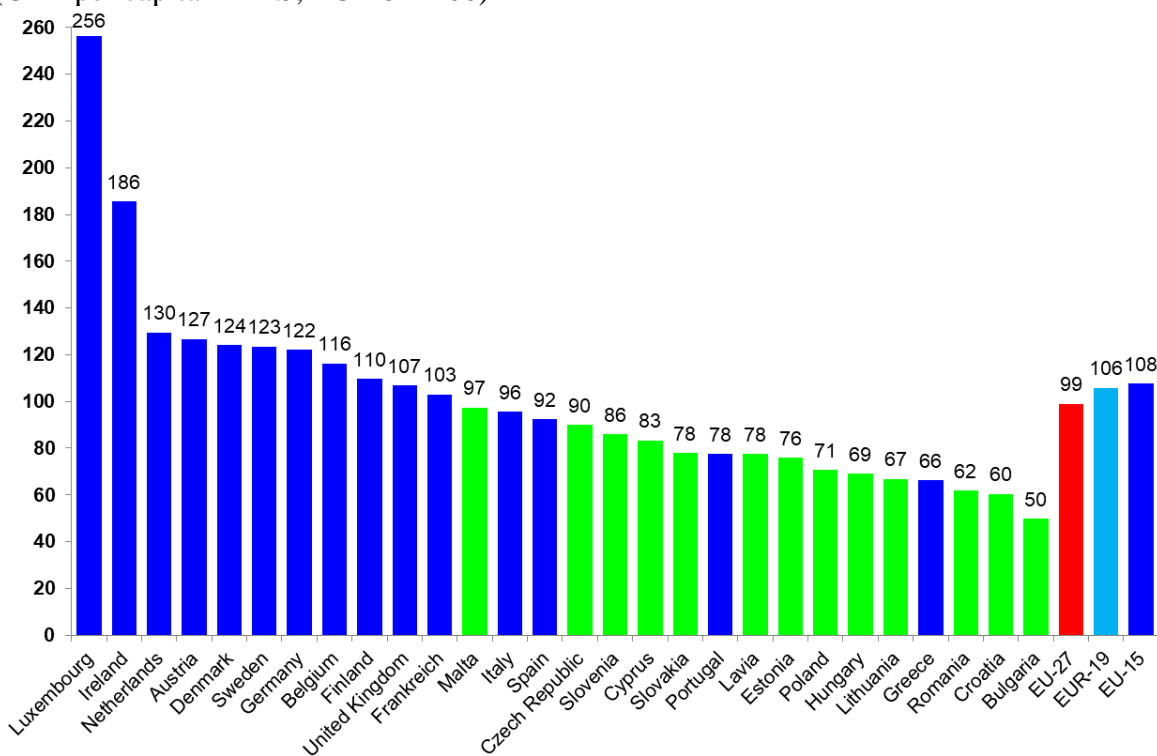
¹⁰ The Services in the Internal Market Directive of the European Parliament and the Council of 12 December 2006 (2006/123/EC) was aimed to be implemented into national law by the end of 2009. However, many EU member states were late in implementing it and were sued by the ECJ. An economic evaluation of the Services Directive can be found in Badinger et al. (2008).

¹¹ See the website "The Single Market Strategy" of the European Commission: https://ec.europa.eu/growth/single-market/strategy_en

¹² An overview of studies to determine the effects of the internal market can be found in Badinger-Breuss (2011), pp. 297-299. A comprehensive study by Friesenbichler (2017) analyzes the single market of 2000-2014 in terms of its diverse asymmetries and competitiveness. The structural differences between the EU Member States are a result of institutional differences and differences in integration into the international division of labor through value chains. The study is supplemented by an analysis with company data.

trade (border controls) and market integration (economies of scale and positive competitive effects) across the EU, there would be a long-term welfare increase of 4½% to 6½%. Catinat et al. (1988) estimated a rise in real EU GDP of 4½% in six years with a macro model. The 2017 London Economics study estimates using a macro model that participation in the single market increased GDP per capita by 0.4 percentage points between 2008 and 2015 in the EU-28. However, the fluctuation range is large: Malta +1.2%, Greece -0.4%, Germany and Austria +0.6% each.

Figure 3: GDP per capital of the enlarged EU-28, 2017
(GDP per capita in PPS; EU-28 = 100)



GDP per capita of some other selected countries: Switzerland 157, Norway 147, USA 143, Iceland 131, Japan 104; Turkey 63, China 25, Montenegro 45, The FYR of Macedonia 38, Serbia 37, Bosnia and Herzegovina 32, Albania 32.

Source: AMECO database of the European Commission.

Despite the considerable increase in prosperity in the EU on average through the deepening and enlargement of European integration, the EU-28 is still characterized by a high degree of heterogeneity. Since the grand enlargement starting in 2004 the EU-28 is split into “rich” and quite homogeneous 15 old member states and “poor” 13 new member states (see Figure 3). The new EU member states, although they are growing continuously faster than the old member states have still to go a long way until the catching-up process leads to a more homogeneous EU. A higher homogeneity in the level of per capita income and also a more

pronounced “European business cycle” of the economies of the Eurozone would be a necessary condition for the ECB to be able execute a single monetary policy which fits to all Euro member states.

3.2.1 Lisbon strategy and Europe 2020

As the early forecasts which the potential welfare gains through the creation of the Single Market did not seem to be realized, the European Council at its Lisbon summit on March 2000 launched a new growth and job strategy. This so-called "Lisbon Strategy" should, seven years after its inception help to foster the economic potential of EU's Single Market. Its aim was to make the EU *"the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"*, by 2010. This strategy, too, has failed to achieve its self-imposed goals (see the Kok Report, 2004). To be fair, the Great Recession in 2009 thwarted the growth targets of the Lisbon Strategy. So, a new attempt was launched with a successor strategy "Europe 2020" (see Europe 2020, 2010¹³). This should finally bring the so far not fully realized growth impulses by means of smart, sustainable and inclusive growth until 2020¹⁴.

3.2.2 EU markets more competitive than US markets

EU's Internal Market project is not only one of the liberalizations of all markets (four freedoms) but secures fairness of doing business on the internal market by a strong and effective competition policy. Strong EU's rules on competition are designed to ensure fair and equal conditions for businesses, while leaving space for innovation, unified standards, and the development of small businesses¹⁵. Forbidden are: fixing prices or carve up markets amongst themselves; abuse a dominant position in a particular market to squeeze out smaller competitors; merge –if doing so would put them in a position to control the market.

The effectiveness of EU's competition policy has been underlined recently in a NBER study by Gutiérrez-Philippon (2018). Until the 1990s, US markets were more competitive than European markets. Today, European markets are less concentrated, their companies have lower profits, and regulatory barriers to entry are lower in the EU than in the US. Gutiérrez-Philippon (2018) explain the surprising development that over time the EU single market has become more market-driven than that of the US with the following arguments:

¹³ See also the Website “Europe 2020 strategy”: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy_en

¹⁴ For a first stocktaking in 2014, see: European Commission (2014).

¹⁵ See the website of the European Commission, DG Competition: http://ec.europa.eu/competition/index_en.html

- (1) While the European Commission (DG Competition) celebrated its 60th anniversary in 2017 as a guardian of EU competition (since the Romans' treaties), competition policy in the EU only became more effective and more efficient after the creation of the single market (DG Competition). , The EU competition authority is more independent and acts harder than the US counterpart (the Department of Justice - DoJ or the Federal Trade Commission - FTC).
- (2) The big US multinationals spend more on lobbying US officials (Congress) and regulators than companies in the EU.
- (3) In the past, the US had a stronger competition policy (anti-trust legislation). Since the beginning of the internal market in 1993, the EU has had a supranational competition authority in the DG Competition, which can act independently of national and entrepreneurial influence.

As the recent cases of competition violations show, international companies (Google, Apple, etc.) also fall under the strict conditions of EU competition regulation.

EU competition policy makes markets work better and brings tangible benefits to Europe's citizens and to European businesses. Stronger competition means. that companies must take the needs of their customers seriously, that they must continually ensure competitive prices and a wider choice, and that they must continually bring to market innovative products that are in demand. All this contributes to increasing consumer welfare.

3.3 EMU and Euro

The greatest and last step in economic integration of the EU was the creation of the Economic and Monetary Union (EMU) with the creation of the Eurozone in 1999 (starting with 12 members; today 19 EU member states use the euro) and the associated introduction of the Euro in 2002. There are also many studies evaluating the consequences of EMU and the Euro¹⁶. Most empirical estimates suggest that the introduction of the euro has greatly boosted intra-EU trade¹⁷. Only Berger-Nitsch (2008) and Mika-Zymek (2017) are the opposite view. Berger-Nitsch think that taking into account the long-term integration trend, the euro no

¹⁶ In 2008 - the year of the global financial crisis - the European Commission published "EMU @ 10", a critical study of the achievements and challenges after 10 years of EMU (see European Commission, 2008). McKinsey Germany (2012) has calculated that the largest aggregate euro-zone profiteers (measured by cumulative real GDP growth in 1999-2010) are: Austria (+ 7.8%), Finland (+ 6.7%), Germany (+ 6.4%), the Netherlands (+ 6.2%). The remaining countries gained between 0.1% (Greece) and 2.7% (Italy). These results coincide with those of Breuss (2016A) in the case of Austria.

¹⁷ For a survey about studies to estimate the trade effects of the Euro, see Badinger-Breuss (2011), pp. 301-303. Badinger-Breuss (2009) find that the introduction of the Euro has amplified slightly the trade bonus of small Euro zone countries in comparison with large members.

longer plays a role. Mika-Zymek had a positive intra-euro zone trade effect of 9% in the period 1992-2002. For the period 1992-2013, however, they conclude that bilateral intra-eurozone trade has even shrunk by 8%. In fact, the share of intra-EU trade in the euro area (EA19) was 64%, two percentage points higher than in the EU15 (62%). However, most of the EU-15 are members of the euro area (except Denmark, the United Kingdom and Sweden).

The global financial crisis of 2008, the following major recession in 2009 and the euro crisis in 2010 exposed the weaknesses of the eurozone's economic architecture (see Breuss, 2016B). Therefore, several steps have been taken to reform EMU's economic governance, which should lead to three unions:

- 1) A *fiscal union* to better coordinate economic policies through the reformed Stability and Growth Pact (Six-Pack, Two-Pack, Fiscal Pact);
- 2) An *economic union* with the internal market as its core (Europe 2020, Euro Plus Pact, Single Market Strategy);
- 3) A *financial union* with new rescue instruments for emergencies (European Banking Union, Capital Markets Union, ESM - further development of a European Monetary Fund).

All new approaches and reforms (Juncker et al., 2015; European Commission, 2017A and 2017B) should help to make EU Member States more involved in all economic areas and to make economic policy design more resilient, especially in the EMU¹⁸.

3.4 EU enlargement

The EEC started in 1958 with six member states. The first (the north) enlargement took place in 1973 to EC-9, taking in Denmark, Ireland and United Kingdom. Then the south enlargement began in 1981 with the accession of Greece and 1986 with those of Portugal and Spain to reach EC-12. In 1995 Austria, Finland and Sweden joined the EU-15. After the breakdown of the Soviet Union and the Comecon, the great enlargement towards the East of Europe took place. The first great wave of new 10 members started in 2004. Eastern enlargement was completed with the accession of Bulgaria and Romania in 2007 and finally, Croatia in 2013. Today the EU-28 is planning the next enlargement toward the Western Balkans. However, the Brexit in 2019 will lead to an unprecedented setback in many respects.

¹⁸ There are also many suggestions for a reform of EMU by academic experts, see for instance: Bénassy-Quéré et al., 2018. Also, French president Emmanuel Macron made far-reaching suggestions for a new EMU at his Sorbonne speech on 26 September 2017 (see Macron, 2017).

About the effects of EU enlargement there exists a vast literature¹⁹. The expected and estimated effects are mostly positive for both sides, more so for the new EU members states than for the old EU-15 members.

However, it must be remembered that the process of European integration has not contributed to the increase of prosperity. Rather, there is a certain ambivalence between deepening and expanding:

- The *deepening of integration* (customs union single market euro) has increased prosperity, because trade and factor migrations became barrier-free. The single market also made it possible to exploit economies of scale and the euro reduced the transaction costs (currency exchange, exchange rate uncertainty) in trade.

- The *EU enlargement*, in particular the great Eastern enlargement starting in 2004 made the EU on average "poorer". The last major enlargement of the EU was practically a kind of "development aid". While the single market grew larger (more consumers and producers), purchasing power in the nine EU Member States was considerably lower than in the old EU-15. The EU-28 was on average "poorer" because poor transition countries joined the EU.

4. A model of economic integration

In the following, the entire integration process in Europe since 1958 (from the EEC-6 to the EU-28 and from the EFTA-8 to the EFTA-4) and globalization through the GATT liberalization will be evaluated in a single integration model. In doing so, we essentially follow the approach of Badinger (2005). We use a consistent approach to identify the effects of integration on both economic growth and trade.

4.1 Integration creates economic growth

The starting point is a Cobb-Douglas-production function with constant returns to scale:

$$(1) \quad Y = AK^\alpha L^{1-\alpha},$$

where Y is output (GDP), A is technical progress or total factor productivity (TFP), K is capital, L is labour, α and $1 - \alpha$ denote the respective output elasticities. Dividing by labour and taking log differences (growth rates) one gets²⁰:

¹⁹ An overview of studies on the effects of EU enlargement since 2004 can be found in Badinger-Breuss (2011), pp. 305-307. The European Commission (2009), p. 31 and Keereman-Szekeley (2010) also provide a summary of the numerous studies on the recent EU enlargement.

²⁰ Cunat-Zymek (2017) extend the production function approach - which in the above Cobb-Douglas form applies only to a closed economy - to international relations through trade and value-added links. This reduces

$$(2) \quad \Delta \ln y_t = \Delta \ln A_t + \alpha \Delta \ln k_t,$$

where $y = Y/L$ and $k = K/L$. Economic integration may affect GDP growth by one of two (supply-side) channels: technology, A , and physical capital (investments), K . Baldwin-Seghezza (1996) distinguish between technology-led and investment-led growth effects of economic integration.

Many authors see in the market expansion (for example, the steadily expanding) single market - in the spirit of Adam Smith, according to which the size of the market limits the division of labor - a way to become more efficient.

Technology-led growth hypothesis: Denoting the level of integration at time t with the integration index INT_t this hypothesis can be written as

$$(3) \quad \Delta \ln A_t = \gamma_{A0} + \gamma_A \Delta INT_t.$$

where γ_{A0} is an exogenous component of technical progress. Equation (3) postulates that economic integration only generates temporary growth, i.e. level effects and a cumulative increase of TFP. Modern endogenous growth theory (e.g., Romer, 1990) postulates that economies of scale lead to a permanent growth effect through integration. In this case, in equation (3), the variable INT would have to be taken in absolute changes (ΔINT_t) but in levels, INT_t (see equation (6)). This theory implies that larger countries grow faster than smaller ones. Doubling the size of an economy (or doubling the size of the single market) would therefore double the steady-state GDP growth rate. This approach has been harshly criticized by Jones (1995) and others. Following Badinger (2005) we estimate the variant from equation (3).

Investment-led growth hypothesis: European integration can create a more favourable environment for entrepreneurial activities because less uncertainty reduces the risk for investments and (in the Euro zone) lowers the cost of capital as a result of more efficient financial markets. Hence, economic integration stimulates investments. In the neoclassical framework the postulated effects on the growth rate are only temporary. This hypothesis can be written as

$$(4) \quad \Delta \ln k_t = \gamma_{k0} + \gamma_k \Delta INT_t.$$

the large dispersion of TFPs, which in international comparisons is generally held responsible for the large differences in per capita income between countries.

Combining both growth hypotheses, the overall growth effect of economic integration is obtained by substituting (3) and (4) into (2), yielding

$$(5) \quad \Delta \ln y_t = \gamma_0 + \gamma_1 \Delta INT_t,$$

where $\gamma_0 = \gamma_{A0} + \alpha \gamma_{k0}$, and $\gamma_1 = \gamma_A + \alpha \gamma_k$.

The hypothesis of a permanent growth effect could be tested with the following equation:

$$(6) \quad \Delta \ln y_t = \gamma_0^P + \gamma_1^P INT_t.$$

When estimating this variant turned out to be insignificant and is therefore not used in the following.

4.2 Integration variable

In contrast to Badinger (2005), in Equation (5) we use not only one INT variable but three to isolate the different levels of integration. Therefore, to estimate the impact of three different levels of integration (liberalization through GATT, through intra-EU trade and through Single Market, Euro and EU enlargement) we use the following equation:

$$(7) \quad \Delta \ln y_t = \gamma_0 + \gamma_1 \Delta INT_{G,t} + \gamma_2 \Delta INT_{GZT,t} + \gamma_3 \Delta INT_{BM\epsilon,t}$$

The first two variables INT_G (GATT liberalization) and INT_{GZT} (intra-EU liberalization) represent tariff reductions both vis-à-vis third countries and within the EU. This differs from the variable $INT_{BM\epsilon}$ (internal market liberalization with the four freedoms plus the introduction of the euro and enlargement) because it reflects the reduction of non-tariff barriers in the broadest sense.

The starting point

The starting point of the integration variable is a protectionism variable (or index) $PROT_i$ ($i =$ three levels of integration) with different trade costs (TC):

- $PROT_G = TC_{Gatt}$ – Tariff reduction through 8 world trade rounds of the GATT (growth effect through “globalization“).
- $PROT_{GZT} = TC_{EU-GZTatt}$ – here, tariffs reduction in the context of EU integration is categorized into three categories:

- 1) Establishment of the EEC Customs Union (1958-1968) between the EEC Member States and the establishment of a Common Customs Tariff (CCT) vis-à-vis third countries.

Each new EU member eliminates its tariffs on imports from the other EU partners and joins the CCT.

- 2) The EC-EFTA Free Trade Agreement of 1973 eliminated tariffs until mid-1977 in trade between the EC and EFTA countries for industrial goods (with the exception of agricultural products).
 - 3) Europe Agreement (EA) between the EU and the EU accession candidates from 2004 onwards. Asymmetric tariff dismantling - from 1997 elimination of tariffs on EU imports from the potential new Member States; from 2002 tariff dismantling of the new on imports from the old EU.
- $PROT_{BM\epsilon} = TC_{BM-\epsilon-EU_{Erw}}$ – The removal of all non-tariff barriers to trade through the internal market, the removal of transaction costs through the introduction of the euro and the extension of the single market through EU enlargement. It is assumed that the TCs before entry into the EU totaled 10%. For non-members of the internal market, these are 5% (border controls 2.5%, uniform competition law 2.5%); for non-euro members (TC = exchange rate): 3%; for EU enlargement = Enlargement of the internal market: TC 2%. It is assumed that the reduction of TCs by the internal market is gradual (2% per year and until the introduction of the euro). TC-Euro: reduction from 2002 until the EU enlargement 2004.

In the case of the EFTA States, a three-quarters participation in the internal market is taken into account through the EEA Agreement from 1994 onwards (in the case of Switzerland's bilateral agreements with the EU from 2002 onwards).

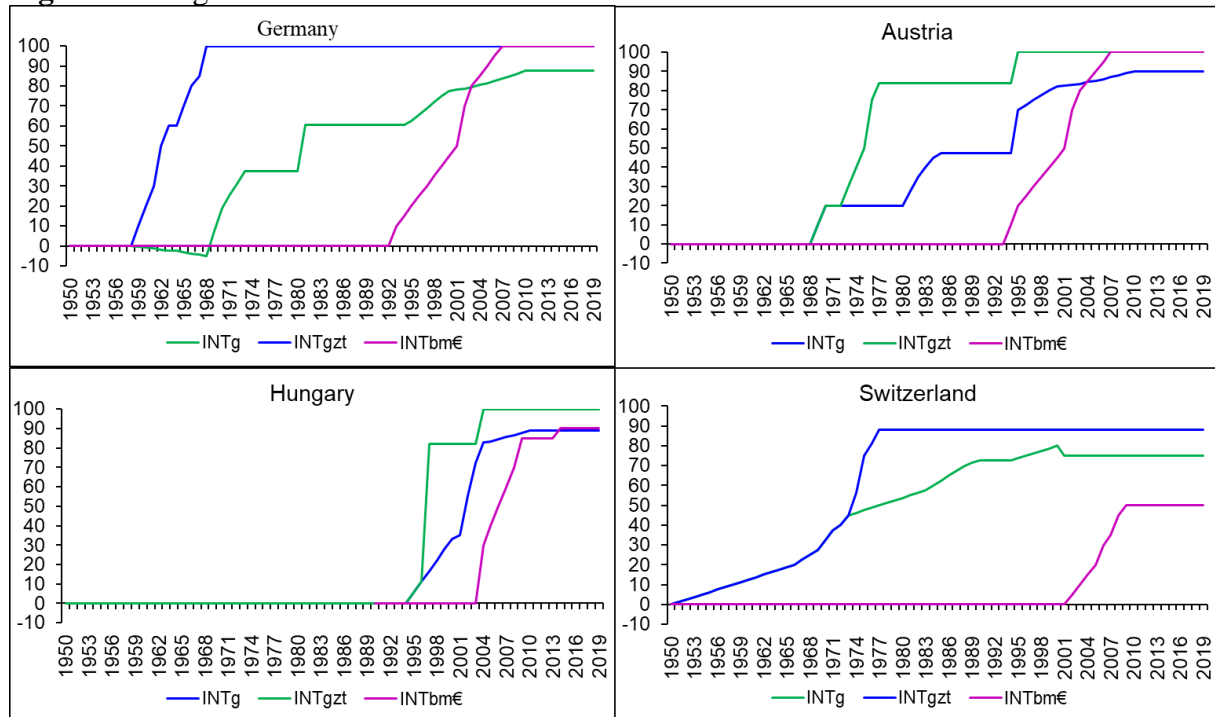
Out of these three protectionist variables, three integration variables are formed (for all EU and EFTA countries):

- $INT_G = (PROT_{G,1950} - PROT_{G,t}) / PROT_{G,1950}$ – GATT liberalization
- $INT_{GZT} = (PROT_{GZT,1950} - PROT_{GZT,t}) / PROT_{GZT,1950}$ – Intra-EU liberalization
- $INT_{BM\epsilon} = (PROT_{BM\epsilon,1950} - PROT_{BM\epsilon,t}) / PROT_{BM\epsilon,1950}$ – Single/Internal Market, Euro and EU enlargement.

Figure 4 shows an example of four countries with different integration histories based on the INT variables. Following the gradual establishment of the EEC Customs Union in 1968, Germany profited from free trade with the EEC partners (the variable INT_{GZT} reached a value of 100 in 1968: full customs integration in the EEC/EC). Since then, in the context of EC's Common Commercial Policy there exists a single Common Customs Tariff (CCT) of EC Member States vis-à-vis third countries. The value of the variable for the GATT liberalization (INT_G) has steadily increased until today: It reached not yet the value 100 since

there is no complete free trade worldwide. The value of the integration variable ($INT_{BM\text{€}}$) for Single Market plus euro plus EU enlargement from 2004 onwards reached 100 in 2013 after Croatia's accession to the EU.

Figure 4: Integration variable – INT – for selected countries



INT_g = Gatt liberalization; INT_{gzt} = Intra-EU liberalization; $INT_{bm\text{€}}$ = Single Market, Euro and EU enlargement.

In Austria, which became a member of the EU only in 1995, EU integration lagged behind the old EU member Germany. The variable for the GATT tariff dismantling developed similar to that of Germany (the differences always refer to the slightly different levels of the MFN duties at the starting point of the individual countries). As an EFTA member, Austria benefited from the EU-EFTA tariff dismantling under the 1973 Free Trade Agreement even before its accession to the EU (1995). Thus, customs duties on industrial goods were eliminated by mid-1977, except for agricultural products. Therefore, the variable INT_{GZT} already started to increase in 1977. With EU accession, the variable INT_{GZT} (intra-EU liberalization) jumps to 100, because Austria has since adopted the EU's CCT. In Hungary - an example of a typical new EU member since 2004 - EU integration started even later than in Austria. Hungary has also benefited from tariff reduction with the EU since 1997 because of the asymmetrical tariff reductions under the Europe Agreements with the EU: from 1997, the EU eliminated tariffs on imports from Hungary (and the other EU accession candidates); Hungary did not eliminate tariffs on imports from the EU until 2002. However, Hungary has

been a member of GATT only since 1973 and became a WTO member in 1995. Austria, as also the other old EU member states, has been a member of GATT already since 1951.

As a comparison, the remaining EFTA states (Iceland, Norway and Switzerland) were modeled. As in the case of Austria, the EFTA states have already benefited from the 1973 EU-EFTA Free Trade Agreement. The example of Switzerland shows that the GZT integration was effective from 1973 until mid-1977 but has since stagnated. The bilateral agreements between Switzerland and the EU enabled Switzerland to participate in part in EU's internal market. The other EFTA States - Iceland, Liechtenstein and Norway - participated (legally) in the Single Market through the EEA Agreement by about ¾. GATT liberalization is flatter than in other countries due to Switzerland's very low customs tariff at the start.

4.3 The EU integration puzzle

The EU integration puzzle says the following. According to all theoretical predictions, the EU through a steady process of deepening of integration and enlargement should have had a stronger economic momentum than, for example, the USA, which did not actually make any steps towards integration in post-war history (see Breuss, 2014). In fact, the EU economy as a whole has been growing at a slower pace than that of the US for some time. Particularly since the US-led Great Recession of 2009, the EU, and especially the Eurozone, has lagged strongly behind the US in growth (see Breuss, 2017). It is only recently that the European economy has picked up again (see European Commission, 2018B).

In order to take into account the ambivalence of European integration (deepening of integration stimulates prosperity and enlargement can dampen it), two variables are taken into account for estimating GDP per capita: INT (deepening) and (y_{EU28}/y_{USA}) (the ratio GDP per capita of the EU expanding since 1973 to that of the US):

$$(8) \quad \Delta \ln y_t = \gamma_0 + \gamma_{1,i} \Delta INT_{i,t} + \gamma_2 \Delta \ln (y_{EU28}/y_{USA})_t.$$

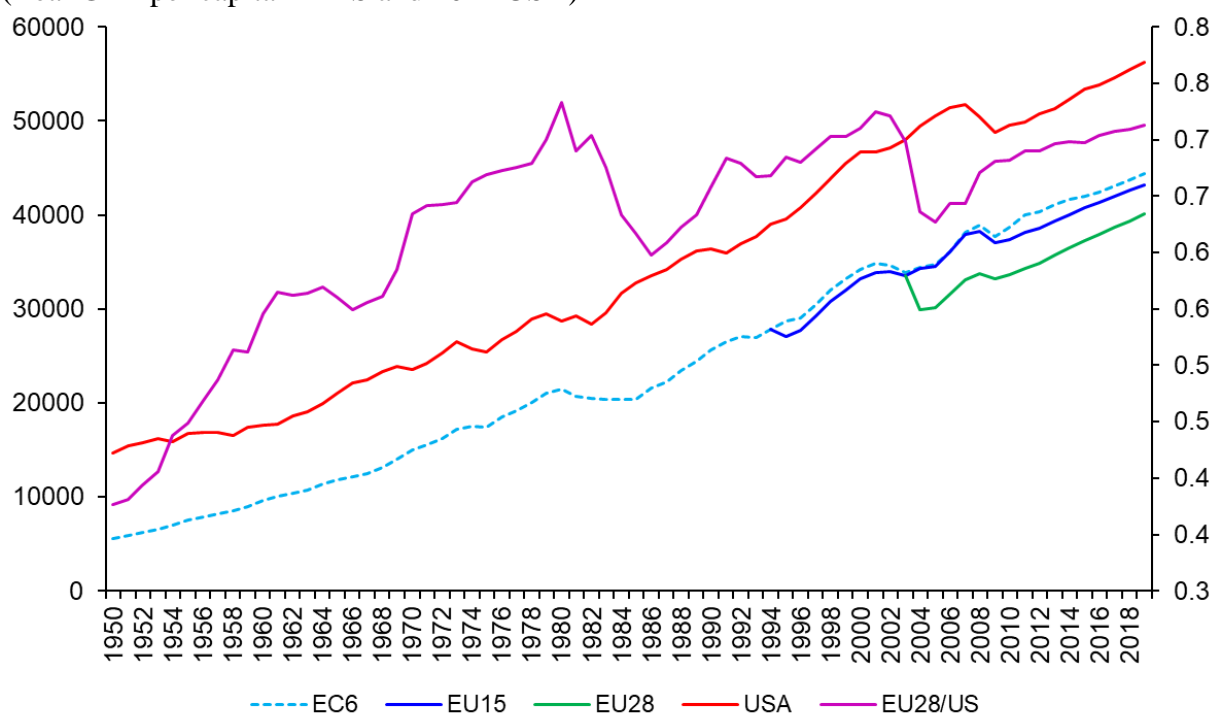
The estimation of this equation is an alternative to the main equation (7) in column (2) of Table 1.

Figure 5 (left-hand scale) shows the development of total EU's GDP per capita in the course of the various enlargement steps compared to that of the USA. On the right-hand scale, the evolution the ratio of EU's GDP per capita since 1950 of the EG6, EG15 and EU28 compared to the development in the US (EU28/US) is shown. The picture shows that the

income gap EU-US has increased significantly as a result of EU enlargement, especially since 2004.

After the EU's northern enlargement to include Denmark, the United Kingdom and Ireland in 1973, EU's real GDP per capita declined slightly, with the EU's southern enlargement to Greece (1981) and to Portugal and Spain (1986) the decrease was strong. The 1995 enlargement of Finland, Austria and Sweden - all rich economies - has again led to an increase in EU's GDP per capita. A further slump in EU's average GDP per capita then took place in 2004 with the start of the major EU enlargements ("Eastern enlargement"). This setback in prosperity could in part explain the so-called "EU integration puzzle".

Figure 5: Change in EU's prosperity through enlargement
(Real GDP per capita in PPS and 2011 USD)

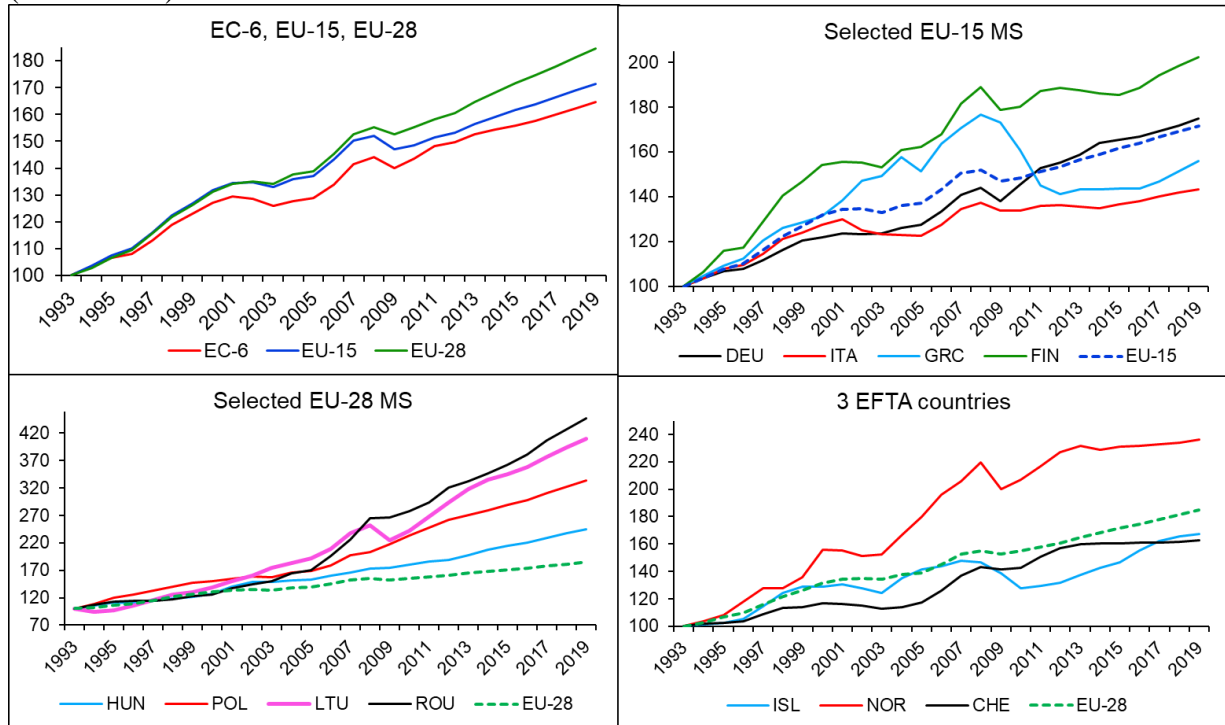


EU28/US = real GDP per capita of the expanding EU relative to that of the USA (right scale).
Sources: Penn World Table, Version 9.0 and AMECO-database of the European Commission.

Real GDP per capita of all EU member states has expanded since the inception of the Single Market in 1993, although with different speeds (see Figure 6). Some countries, in particular the periphery countries of the Eurozone were hit hardest by the Great Recession in 2009 and the following Euro crisis in 2010. Greece exhibited a dramatic setback since 2009 with a fall in GDP per capita by around 20 percentage points. Italy had a similar bad performance since the 2009 recession. On the other hand, Finland developed superb. Due to a urgent catching-up, real GDP per capital of most new EU member states picked up more rapidly than that of the old EU member states. An exceptional upturn experienced Romania

and Lithuania. Poland was the only member state of EU-28 which during the Great Recession had no decline in real GDP. Within the group of the three EFTA countries, Norway – the oil-rich country – stands out with an exceptional performance in real GDP per capita.

Figure 6: Development of real GDP per capita of selected EU and EFTA MS since 1993 (1993 = 100)



Sources: Penn World Table, Version 9.0 and AMECO-database of the European Commission.

4.4 Data and estimation

Our integration model uses only three variables. Firstly, the integration variable INT (created in section 4.2), real GDP per capita (y_t) and a variable for openness ($Open$). GDP per capita is taken from the Penn World Table, Version 9.0. This variable is updated with data from the AMECO database of the European Commission. For the new EU member states, real GDP per capita data is only available since 1970 or sometimes only since 1990 (in case of the Baltic states). Income data for the old EU member states and the EFTA countries are available back to 1950. Forecast data by the European Commission are used to update the income data up to 2019. The degree of openness (real exports and imports of goods and services in % of real GDP) is constructed from data by the AMECO database of the European Commission.

Table 1: Panel estimates of the integration model for EU and EFTA countries, 1951-2019

Dependent variables	$\Delta \ln y_t$ GDP per capita (1)	$\Delta \ln y_t$ GDP per capita (2)	$Open_t$ Degree of Openness (3)	$\Delta \ln y_t$ GDP per capita (4)
Intercept	3.868*** (21.17)	2.039*** (17.93)	0.116 (0.46)	1.071*** (11.29)
ΔINT_G	0.065*** (3.63)	0.061*** (3.16)	0.031* (1.53)	
ΔINT_{GZT}	0.029*** (2.60)	0.043*** (3.60)	0.022* (1.75)	
$\Delta INT_{BM\text{€}}$	0.093*** (4.53)	0.060*** (2.67)	0.131*** (5.61)	
D_1991			-2.178*** (-2.60)	-1.570*** (-2.61)
D_73_20	-2.164*** (-10.14)			
D_2009	-8.170*** (-13.12)		-11.123*** (-15.62)	
$\Delta \ln(y_{EU28}/y_{USA})$		0.096*** (2.80)		
$Open_{t-1}$			1.021*** (329.94)	
$\Delta \ln Open_t$				0.199*** (12.79)
$\Delta \ln y_{t-1}$				0.410*** (19.62)
<i>Regression statistics</i>				
SEE	3.418	3.709	3.882	2.658
R^2	0.18	0.04	1.00	0.30
Adj. R^2	0.17	0.02	1.00	0.29
Period	1951-2019	1951-2019	1951-2019	1951-2019

*, **, *** indicate significance at 10, 5 and 1 percent; t-values in parenthesis. Panel regression (pooled least squares) for 28 EU Member States and 3 EFTA states with fixed country effects (not shown here).

$\Delta \ln y_t$ = real GDP per capita (in PPS and 2011 US \$)

$Open$ = real exports plus real imports of goods and services in % of real GDP.

The estimation results are reported in Table 1. The econometric estimations are executed with EViews 8.0. The panel regressions are done for 28 EU Member States and 3 EFTA countries over the period 1951-2019 with fixed country effects (not shown in the table). As some income data are not reaching back to 1951, we use an unbalanced (adjusted) panel regression. Table 1 contains four estimates. The column (1) contains as the main variant of the integration model an estimate for the growth of real GDP ($\Delta \ln y_t$) according to equation (7). The estimated coefficient for the variable $INT_{BM\text{€}}$ (internal market plus euro and enlargement) has the highest value. Of the other two coefficients, that for GATT liberalization is the largest. All three coefficients add up to 0.19 and thus have a slightly lower order of

magnitude than the coefficient estimated by Badinger (2005) as 0.28 for the single variable INT_t for the 1950-2000 estimation period.

In order to explain the "EU integration puzzle", in addition to the three INT variables, column (2) also adds a damping factor according to equation (8) as a determinant for the growth of real GDP per capita. The estimated coefficient for the damping variable (y_{EU28}/y_{USA}) in Table 1 (column 2) states that the reduction of GDP per capita relative to that of the US by one percentage point leads to a reduction of GDP per capita in the EU of 0.1 percentage points. With this "damping factor" one can explain at least partly the "EU integration puzzle".

Columns (3) and (4) contain equations to explain trade effects through integration and the explanation of GDP per capita growth through trade (degree and openness²¹). In addition, dummy variables were used for breaks or special effects (for example, German Reunification in 1991, Great Recession in 2009, trend flattening of economic growth since 1973).

Table 2: Results of simulations with the integration model: growth effects
(Deviations of real GDP per capital from the baseline scenario in percentage points)

			GATT	GZT Intra- EU- Tariff cuts	BM€ Single Market, Euro, enlargement	GZT+ BM€ EU inte- gration	Total GATT + EU inte- gration
			Liberali- zation				
EU-15	cumu- lative	1958-2019	5.57	2.90	9.75	12.65	18.22
		1993-2019	2.10	0.08	9.00	9.08	11.18
	per year	1958-2019	0.09	0.05	0.37	0.21	0.30
		1993-2019	0.08	0.00	0.35	0.35	0.43
New EU-MS	cumu- lative	1958-2019	5.10	2.76	9.28	12.04	17.14
		1993-2019	5.10	2.76	9.28	12.04	17.14
	per year	1958-2019	0.08	0.05	0.36	0.20	0.28
		1993-2019	0.20	0.11	0.36	0.46	0.66
EU-28	cumu- lative	1958-2019	5.35	2.84	9.53	12.37	17.72
		1993-2019	3.49	1.33	9.13	10.45	13.95
	per year	1958-2019	0.09	0.05	0.37	0.20	0.29
		1993-2019	0.13	0.05	0.35	0.40	0.54
EFTA-3	cumu- lative	1958-2019	5.28	2.49	4.76	7.25	12.53
		1993-2019	0.82	0.00	4.76	4.76	5.58
	per year	1958-2019	0.09	0.04	0.18	0.12	0.21
		1993-2019	0.03	0.00	0.18	0.18	0.21

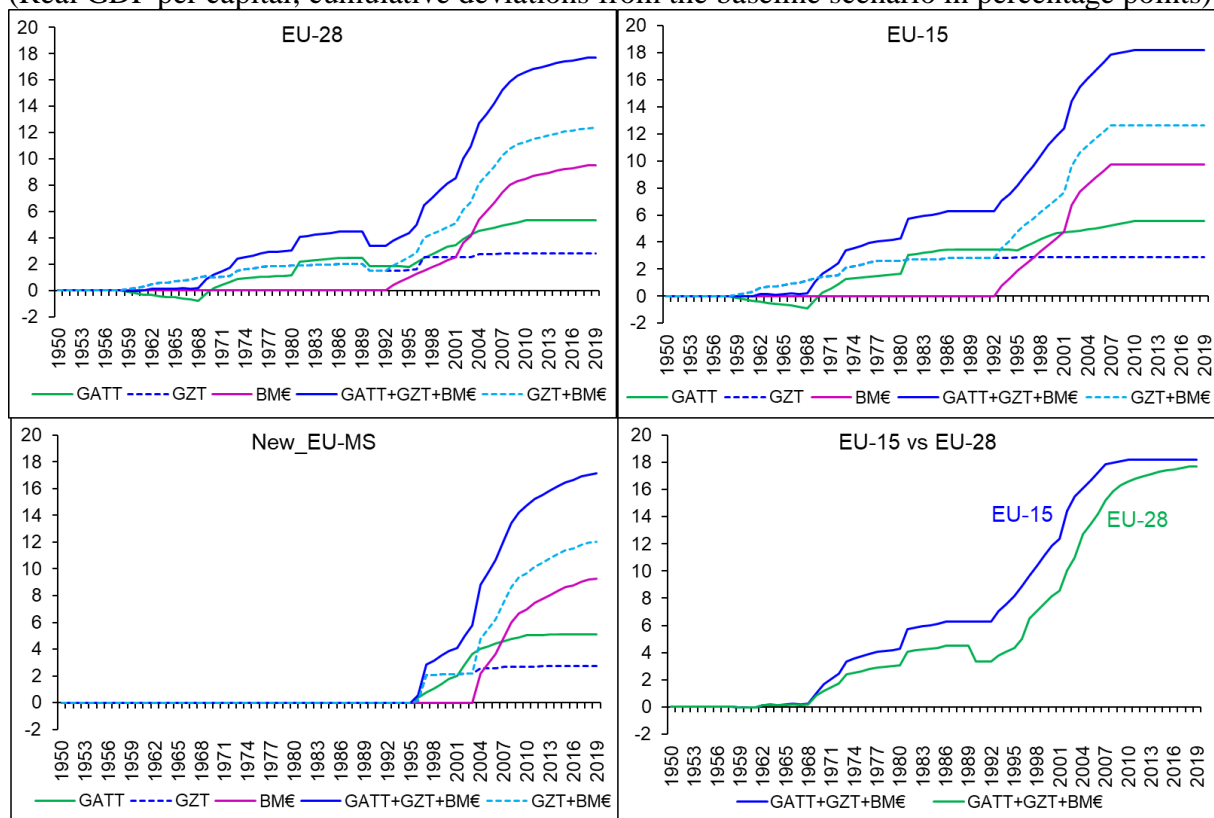
Baseline = without GATT liberalization and without European integration; MS = member state.

²¹ Weyerstraß (2018) uses – besides other factors (like R&D expenditures, patents etc.) – also the degree of openness as explaining factor for the development of TFP:

4.5 Growth effects of integration

With the estimated integration model, we simulate how much GATT liberalization and EU integration since the Second World War has contributed to real per capita GDP growth (see Table 2 and Figure 7). Accordingly, the ongoing European integration plus GATT liberalization has so far resulted in a cumulative increase in real GDP per capita in the EU-15 of 18 percentage points (or +0.3% per year, last columns in Table 2). As the EU-15 Member States have started integration earlier, the cumulative effect of integration was also higher than that for the new EU Member States. In all cases, European integration has shown the strongest impact since the deepening of the EU through the creation of the Single Market in 1993 and the introduction of the euro in 2002, leading to a sharp increase in per capital income.

Figure 7: Growth effects of EU membership: EU-15, New EU-MS and EU-28
(Real GDP per capital; cumulative deviations from the baseline scenario in percentage points)



GATT = GATT liberalization; GZT = Intra-EU liberalization; BM€ = Single Market, Euro and EU enlargement. GATT+GZT+BM\$ =total integration effects; GZT+BM€ = EU integration effects.

The logistic shape of the curve of real GDP per capita in Figure 7 suggests that the integration process (or its deepening) is more or less complete with the single market and the introduction of the euro. Additional impetus can only come from the next EU enlargement and the expansion of the Eurozone. However, with the inclusion of the rest of the Western

Balkans (all very poor states), the negative impact of integration is likely to dominate the positive effects of the extension of the Single Market. A differentiation of the integration effects by Member State are, firstly, the results of acceding the EU (and hence the Single Market) at different points in time and, secondly, whether a country has introduced the Euro.

The three EFTA countries (Iceland, Norway and Switzerland) benefited from the EU-EFTA Free Trade Agreements of 1973 already from mid-1977 from the elimination of customs duties on industrial goods in the EU-EFTA trade. The EFTA countries participated at the internal market by around 3/4, either by the EEA Agreement from 1994 or, in the case of Switzerland, through bilateral agreements. Therefore, their integration effects are modest compared to those of the EU.

Table 3: Results of simulations with the integration model: trade effects
(Degree of openness in % of GDP; deviations from baseline in percentage points)

			GATT	GZT	BM€	GZT+	Total
			Liberali-	Intra-	Single	BM€	GATT +
			zation	EU-	Market,	EU inte-	EU inte-
				Tariff	Euro,	gration	gration
				cuts	enlargement		
EU-15	cumu-	1958-2019	5.04	5.99	19.30	25.29	30.33
	lative	1993-2019	2.89	2.51	18.26	20.77	23.66
	per	1958-2019	0.08	0.10	0.74	0.41	0.50
	year	1993-2019	0.11	0.10	0.70	0.80	0.91
New EU-MS	cumu-	1958-2019	3.39	3.18	15.65	18.83	22.22
	lative	1993-2019	3.39	3.18	15.65	18.83	22.22
	per	1958-2019	0.06	0.05	0.60	0.31	0.36
	year	1993-2019	0.13	0.12	0.60	0.72	0.85
EU-28	cumu-	1958-2019	4.27	4.68	17.61	22.29	26.57
	lative	1993-2019	2.81	2.32	16.89	19.21	22.02
	per	1958-2019	0.07	0.08	0.68	0.37	0.44
	year	1993-2019	0.11	0.09	0.65	0.74	0.85
EFTA-3	cumu-	1958-2019	6.26	5.27	9.37	14.64	20.90
	lative	1993-2019	2.89	2.16	9.37	11.53	14.42
	per	1958-2019	0.11	0.08	0.36	0.44	0.55
	year	1993-2019	0.10	0.09	0.36	0.24	0.34

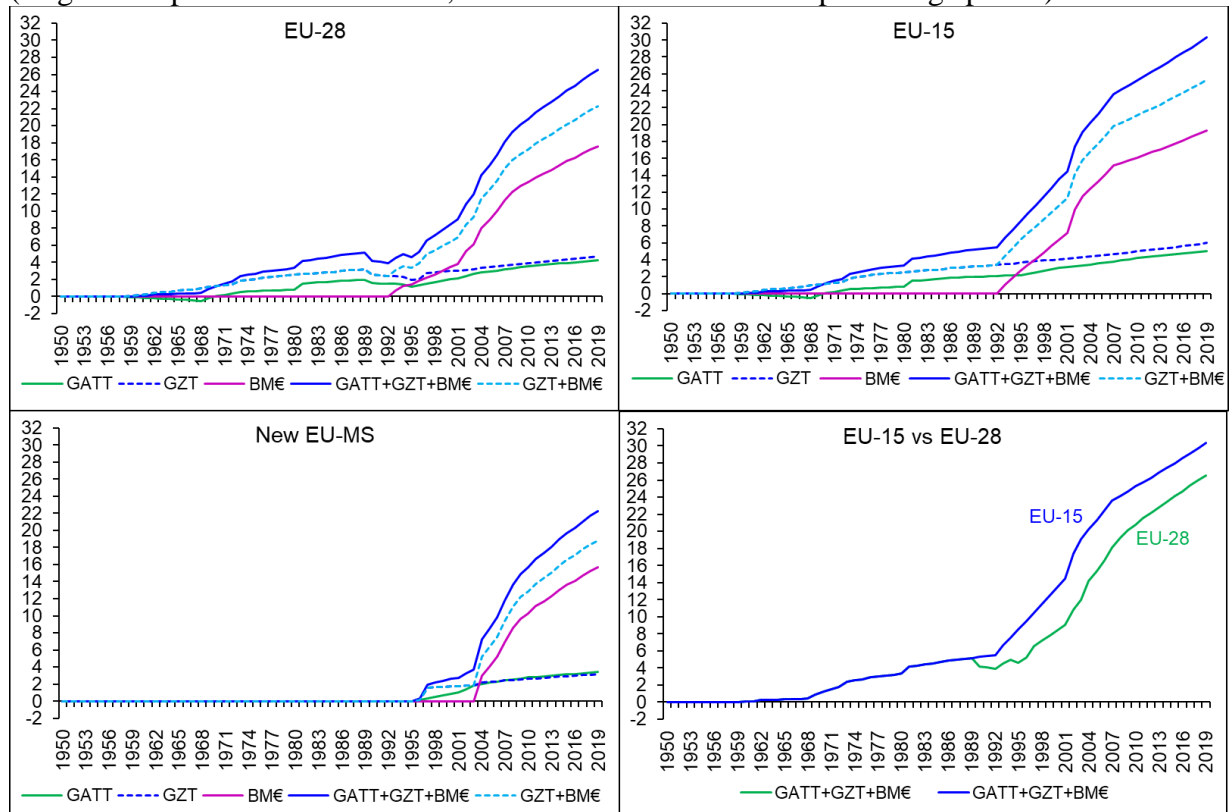
Baseline = without GATT liberalization and without European integration; MS = member state.

4.6 Trade effects of integration

The trade effects (measured by the degree of openness) are estimated using the same factors as those estimation for the growth effects (column (3) in Table 1. Again, the three *INT* variables are used as explanatory variables. Also, here the estimated coefficient for the single-market integration variable (Single Market+Euro+enlargement) $INT_{BM€}$ has the largest value.

Hence, this variable can best explain the strong increase of trade of EU member states since the inception of the Single Market in 1993. The simulated trade effects are summarized in Table 3 and shown in Figure 8. Furthermore, it can be seen that the Member States of the EU-15 have recorded the same increase since the beginning of the 1990s as the new EU Member States, but the cumulative values are far higher than those of the new Member States.

Figure 8: Trade effects of EU membership: EU-15, New EU-MS and EU-28
(Degree of openness in % of GDP; deviations from baseline in percentage points)



Degree of openness = real exports plus real imports of goods and services in % of real GDP.
GATT = GATT liberalization; GZT = Intra-EU liberalization; BM€ = Single Market, Euro and EU enlargement. GATT+GZT+BM€ = total integration effects; GZT+BM€ = EU integration effects.

Due to all three phases of European integration, the EU-15 Member States have cumulatively increased their level of openness since the 1950s by around 30 percentage points of GDP (last columns in Table 3). This corresponds to an increase of 0.5 percentage points per year. The new EU Member States - because they later participated in the GATT liberalization and the EU internal market - were able to cumulatively increase the level of openness by 22 percentage points (or 0.4 percentage points per year). As a result, the development of EU-28's trade growth was lower than that of EU-15 (see Table 3).

The three EFTA states were early on involved in the GATT liberalization and benefited from the liberalization of EU-EFTA trade through the Free Trade Agreements of 1973. In the

internal market, they were only partially involved through the EEA or the bilateral agreements in the case of Switzerland. Overall, EFTA Member States have cumulatively increased their trade by 21 percentage points (or 0.6 percentage points) of GDP since the 1950s (see Table 3).

Lewer and Van den Berg (2003) have found the following robust rule of thumb in an extensive literature review of the relationship between trade (exports) and economic growth²²: A 1% rise in real trade (exports) leads to an increase in real GDP growth of 0.22%. In column (4) of Table 4, we found a similar result with our dataset for the 28 EU Member States and three EFTA States. A one percentage point change in openness increases real GDP per capita growth by 0.2%.

5. Conclusions

The EU is still a mighty player in international trade, although China has taken over the lead recently. The most significant impulse for European integration came through the creation of the Single Market 25 years ago. Although still unfinished it is the heart of European integration and has contributed to EU's prosperity. Each new member state must take part in the Single Market. EU's Single Market, however would only be as powerful as those of the United States if also each member state would introduce the euro. Many old and new obstacles prevent a full exploitation of the potentials of the Single Market plus a common currency for all. The Great Recession of 2009 and the following Euro crisis in 2010 revealed the many weaknesses of the Eurozone and urgently requires reforms. Many suggestions and proposals have been made. They still wait for implementation.

Until recently, the integration of the EU knew only one direction: enlargement. With the Brexit, the EU, for the first time uses the reverse gear. This will not only shrink and weaken the EU economically (see Felbermayr et al., 2017), but it will also weakens its political influence in the world. As a countermovement to Brexit, the EU developed a Strategy for the Western Balkans (European Commission (2018A) with the aim of enlarging the EU around these countries. This however will increase the already existing income heterogeneity in the EU (a rich West versus a poor East) and will lead to a further reduction in EU's GDP per capita. Already since the last great enlargement in 2004, average GDP per capita of the EU melted down.

²² New insights into the relationship between trade (and the measurement problem of the "degree of openness") and economic growth are offered by Huchet-Bourdon et al. (2018). Crespo Cuaresma-Wörz (2005) investigate the relationship between export structure and economic growth.

Despite growing tensions within the EU (economically after the euro crisis since 2010 and politically after the migration shock in 2015²³), the EU seems to be "happy". In the 2017 World Happiness Report (see Helliwell et al., 2017), 17 EU Member States are among the top 50 "happiest" countries. The ranking is led by Denmark (rank 2), Finland (5), the Netherlands (6) and Sweden (10). Even happier are obviously the citizens of Norway (1st place), Iceland (3) and Switzerland (4).

The EU takes part on several stages in the process of globalization²⁴. On the one hand through a steady enlargement – from six to 28 members – it enlarged its customs union and since 1993 its Single Market and hence lead to an internal, a “mini globalization”. However, as a major player in the last eight GATT liberalization rounds it takes also part in the world-wide globalization. Its primary aim is a multilateral trade liberalization within the WTO. However, as the Doha Round is stagnating since 2001, as a second-best solution it concludes bilateral and regional free trade agreements (FTAs).

Our model of economic integration is able to quantify the growth and trade effects of globalization in the broad sense (GATT liberalization) and EU integration in the narrower sense (intra-EU tariff elimination through the customs union and through the Single Market plus Euro and enlargement). Taking EU-28, GATT liberalization resulted in an annual growth effect of real GDP per capita of 0.10 percentage points; Intra-EU tariff elimination (customs union) contributed to income growth per year of 0.05 percentage points. The largest income effect was caused by the Single Market (plus Euro and enlargement): real GDP per capita was stimulated by 0.40 percentage points per year. In total, European integration contributed to income growth in EU-28 by 0.50 percentage points per year.

6. References

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²³ While the European Commission's 2050 study on the future of the EU in 2050 did suggest possible scenarios, they were unable to foresee the 2015 wave of migration and its huge political implications in the EU just three years after its publication (see European Commission, 2012).

²⁴ Although the EU and its member states are heavenly involved in globalization, income inequality has risen much less in Europe than in other parts of the world (see Alvaredo et al., 2017, Fig. E2b). Nevertheless, globalization and EU's enlargement to the east in particular (the "mini-globalization") has led to a fall of wage shares (see Breuss, 2010).

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