



THE ECONOMIC IMPORTANCE OF GETTING DATA PROTECTION RIGHT:

Protecting Privacy, Transmitting Data, Moving Commerce





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The Economic Importance of Getting Data Protection Right: Protecting Privacy, Transmitting Data, Moving Commerce

A trade impact assessment of the General Data Privacy Regulation (GDPR) by the European Centre for International Political Economy (ECIPE) for the U.S. Chamber of Commerce

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European Centre for International Political Economy (ECIPE)
Rue Belliard 4-6
1040 Brussels, Belgium
info@ecipe.org

ECIPE project group

Matthias Bauer
Fredrik Erixon
Michal Krol
Hosuk Lee-Makiyama
Assisted by Bert Verschelde

Executive Summary

- This study assesses the potential external trade impact of the EU's proposed General Data Privacy Regulation (GDPR), using the well-established GTAP 8 model to estimate the potential trade effects on GDP, general welfare, services sector output and trade. The assessment of the impact is associated with many uncertain assumptions due to ambiguity and unclear propositions in the proposed regulation itself, especially the controversial proposal of 'right to be forgotten'.
- The results from the modeling show that EU GDP shrinks as the degree of trade disruptions increase. The magnitude of the effects varies in accordance with the disruptions and could under some modest assumptions eradicate the estimated economic recovery for 2014, or all the estimated growth contribution from the proposed EU-U.S. Free Trade Agreement. This result holds even if GDPR comes into force in its most conservative form.
- If services trade and cross-border data flows are seriously disrupted (assuming that binding corporate rules, model contract clauses and EU-U.S. Safe Harbor framework are no longer recognized), the negative impact on EU GDP could reach -0.8% to -1.3%. EU services exports to the United States drop by -6.7% due to loss of competitiveness. As goods exports are highly dependent on efficient provision of services (up to 30% of manufacturing input values come from services), EU manufacturing exports to the United States could decrease by up to -11%, depending on the industry. In such case, the export benefits produced by the EU-U.S. FTA are eradicated by a good margin.
- The direct negative welfare effect (under the same assumptions) of the regulation could reach up to 1,353 USD (1041 euro) per year for a household of four people.
- If the 'right to be forgotten' rule is added, the regulation could cause a GDP decrease for the EU of -1.5% to -3.9%, and welfare loss of or 4,566 USD (3,512 euro) per household. This rule, however, is contested and considered by experts to be 'technically impossible' to implement.
- To offset the potential negative effects from trade and productivity losses under the assumption that the 'right to be forgotten' rule is not implemented, final private consumption in the EU would have to be boosted by 13% on all goods and services.
- The study clearly illustrates the importance of choosing the least restrictive measures for the objectives sought. Disrupting services supply chains and cross border flow of data has a serious detrimental impact on the economy and is likely to hurt the domestic economy more than foreign trading partners.

1. Introduction

The General Data Privacy Regulation (GDPR)

Every day, consumers in the EU provide businesses with their personal data on numerous occasions: when using their credit cards, when accessing medical care, or whilst interacting with business and friends through social media. Since the introduction of the first EU regulatory framework on data protection in 1995¹, business and technological developments on the Internet have changed how personal data is used in the interaction between consumers and business.

These developments have also challenged the existing legislation, and data privacy protection is now a part of the EU Charter on Fundamental Rights (art. 8), and also protected by the Treaty of Lisbon (art. 16). In addition, differing implementation by the Member States could lead to regulatory divergences. With the objective to consolidate and update the European legal framework on data privacy, the European Commission proposed the General Data Protection Regulation (GDPR) in January 2012 in order to harmonize existing Member State rules and introduce new obligations for any processing of personal data by an establishment in the EU. Importantly, the Commission's proposal, if turned into law, also applies extraterritorially to controllers and processors outside the EU for products and services offered to EU citizens.

Under the regulation, almost all types of data and private entities would be covered through a 'one-size-fits-all approach'. The individual would have to give their explicit consent before any processing of their data, while they would also be given easier access to any data stored. If the data protection rules are breached, citizens would be able to address the data protection authority in their country, even when the business is based outside the EU. Furthermore, a controversial 'right to be forgotten' rule will be implemented, allowing citizens to have their data deleted if there are no 'legitimate' reasons for retaining it.

While protecting citizens' data is a commendable objective, the current proposal raises questions about efficacy and feasibility. The GDPR would also add new requirements and liabilities on business and consumers both inside and outside the EU. It will restrict interactions with foreign economic operators, thereby limiting trade, competition and efficient sourcing of data processing. Designing policies to achieve a societal goal is always subject to a debate on their efficacy and proportionality - finding a balance between the professed objectives and the costs entailed in reaching them. The proposed overhaul of EU privacy rules is no exception. The question of whether the European regulatory model on privacy is disproportionate and potentially protectionist has become one of the most controversial political debates within the EU at this time, and perhaps rightly so.

This study is narrowly focused on the *external* trade or cross-border aspects of the GDPR. It attempts to estimate effects visited upon consumers and producers that engage in cross-border transactions covered by the GDPR. Two observations are critical to this paper. First, it is close to impossible to do the subject justice in quantitative estimates. All modeling efforts to estimate effects of a potential regulation suffer from the inability of mankind to predict the future, but the GDPR has proven an even greater challenge because there are many uncertainties and confused propositions in the actual proposal. Anyone who cares about predictability

in regulations, or cherishes the concept of smart regulations, will instantly spot profound flaws in the current design. Consequently, the quantitative assessments in this paper are built on conservative assumptions and estimates. Depending on the actual and detailed design of the GDPR if implemented, including many subsequent delegated acts that are currently unknown and unpredictable, it is likely that areas covered in our estimates would be more severely affected than what this paper suggests.

Second, the European Commission's own estimates on the costs and benefits of the GDPR suffer from the same problems, but its impact assessment preferred the opposite direction by underestimating costs and exaggerating benefits.² The impact assessment is incomplete – examining for the most part only administrative costs. Consequences for trade and cross-border transactions are absent. The effects from the most drastic parts of the proposed regulation – e.g. the 'right to be forgotten' rule – have not been seriously studied at all. And the estimates on administrative costs simply do not give appropriate accounts of current costs for data protection or new costs stemming from the GDPR.

The UK government has already done its own impact assessment and some other governments will finish their assessments in due course. Ideally, they will help to give a much more realistic account of the costs and benefits of the GDPR, enabling European lawmakers to make a decision based on an appropriate understanding of full economic effects. This study aims to make a contribution to this necessary effort by studying the *external* trade effects of the GDPR – and, by consequence, how it is likely to affect Europe's participation in the modern, global digital economy.

The role of cross-border data flows and transatlantic trade

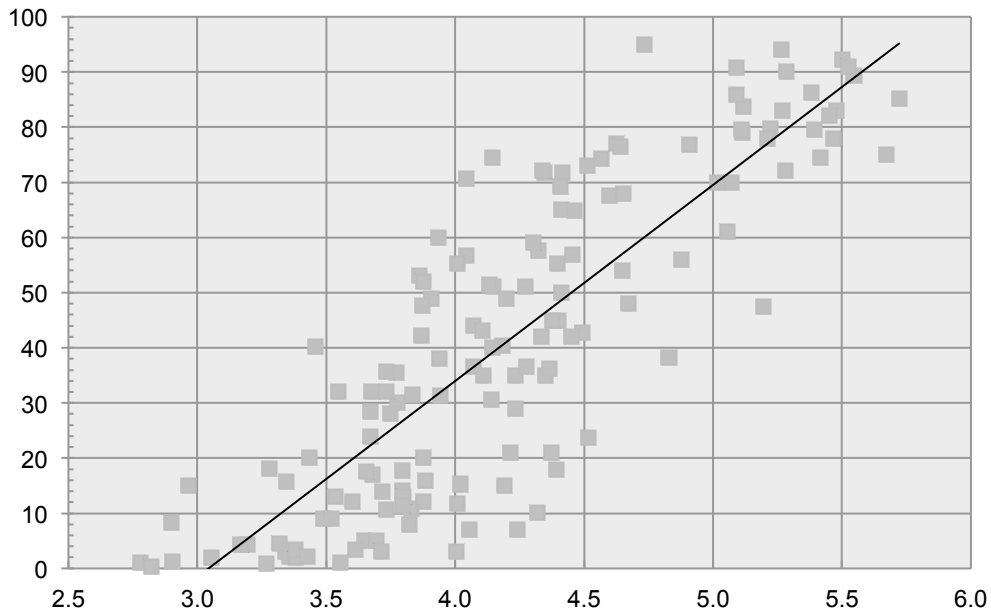
While few doubt the impact the Internet has on everyday life, the multiplier effect from cross-border data flows and services sectors for productivity and growth is rarely highlighted. The invention of the Internet and the free flow of data that it has enabled is the biggest advancement in trade facilitation since air travel. Cross-border data flows and the Internet serving as a marketplace or a distribution channel have enabled more cross-border trade, competition and innovation. Some studies attribute more than one-fifth of EU GDP growth in the past five years to the Internet.³

Practically every industry sector has been affected by the new data-driven economy, which has also created a dependency on a supply-chain of services. For example, a purchase made in a store requires access to card processing and other financial services backed by data transmission and hosting services to process the transaction. The vendor needs leasing, distribution, logistics, and facility management services to deliver the good. Likely, a number of different services, such as utilities, consulting, engineering or creative were needed to produce the good in the first place. In fact, 15% to 30% of the inputs in European manufacturing come from the services sector, making it the most important "raw material" of the manufacturing process.⁴ In turn, many services depend on customer and employee data being accessible across borders.

This increasing dependency on services for global commerce and manufacturing (a phenomenon called "servification") is ever increasing thanks to improved market access, the Internet, and e-commerce. In turn, the EU received substantial benefits to jobs and growth. The EU is the world-leading trader of services and all sub-sectors thereof without any exception. It accounts for 24% of world trade in services. The UN Conference on Trade and Development (UNCTAD) estimates that about half of all

services trade is enabled by the ICT sector,⁵ including cross-border flow of data – which applied to the EU would mean about 600 bn USD (465 bn euro) could depend on the openness of the digital economy (representing nearly six times the total EU export of cars). The strong correlation between Internet usage and competitiveness is also evident in various indicators, such as the World Economic Forum’s Global Competitiveness Index (see below).

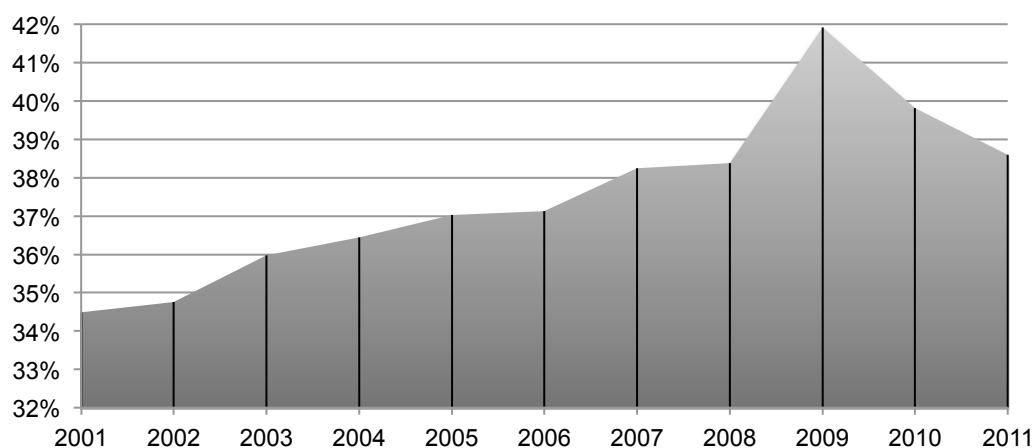
Correlation between competitiveness and Internet usage
(Global Competitiveness Index [x-axis] vs. Internet usage as % of population [y axis])



Source: World Economic Forum, Global Competitiveness Index, 2011-2013

In this context, the transatlantic exchange between the EU and the United States remains the most important economic link in the world. The transatlantic marketplace consisting of the EU and the United States together accounts for half of world GDP and 3 trillion USD (2.4 trillion euro) in bilateral investments. The United States is the largest investor in the EU economy and also the largest importer from the EU, while the share of services in transatlantic trade has steadily increased over the past ten years, peaking at 42% of EU-US trade before the crisis.⁶

Growing share (%) of services in EU-U.S. trade, 2001-2011



Source: Eurostat, 2012

Finally, a free trade and investment agreement between the EU and the U.S. (the TTIP, or so-called Transatlantic Trade and Investment Partnership) could, according to estimates, achieve a growth above 0.27% of EU GDP while services liberalization could contribute between a 0.69% to 1.4% increase in total EU exports.⁷ The FTA, which is the largest ever to be attempted, would ideally set the new de facto global standards for openness of the digital economy, and other issues that the World Trade Organization is unable to deliver in its current state.

What the EU data privacy regulation means in the current trade policy climate

It is undeniable that commerce and online services produce an unprecedented amount of personal data. The proliferation of data has generated some legitimate concerns. Despite the news reports of data leaks and some companies recording intrusive data about their customers in the EU and elsewhere, few would doubt the importance of international trade for the European economy and recovery, and there are few actual cases of data privacy violations to date that would qualify as a transgression of human rights.

The challenge for any new legislation is therefore to find the right balance of efficacy and proportionality. According to the European Commission, the GDPR is estimated to lead to net savings compared to today's directive (but only by assuming that today's Data Privacy Directive has an administrative cost of 5.3 bn euro),⁸ by replacing the current patchwork of national rules in the Member States, and enabling companies to deal only with the data protection authority (DPA) in the EU country of their head office.

However, we will see that the new data privacy regulation also introduces further additional costs and negative implications from disrupting international trade – uncertainties regarding its implementation, and extraterritorial applications on non-EU based entities could become serious trade barriers that disrupt services supply-

chains between the EU and the rest of the world. As the EU is a major world economy, such disruptions risk affecting the entire global trading system.

Share of world trade in services

World top 15 Services traders (80% of world trade)	Share of world services trade	'Adequate' privacy legislation
EU27	23.5%	
United States	15.1%	No*
China	6.9%	No
Japan	4.9%	No
India	4.7%	No
Singapore	3.8%	No
Korea, Republic of	3.2%	No
China, Hong Kong SAR	3.1%	No
Canada	2.9%	Yes
Switzerland	2.4%	Yes
Russian Federation	2.2%	No
Australia	2.0%	No*
Brazil	1.7%	No
Norway	1.6%	EEA country
Thailand	1.5%	No

Source: IMF EBOP 2011; European Commission, DG Justice
(* Recognized as adequate for air carrier PNR data only)

To date, all transfer of personal data to third countries outside the European Economic Area (EEA) is by default forbidden. However, to maintain interoperability, the EU has acknowledged some countries to have privacy legislation that is 'adequate' – Andorra, Argentina, Canada, Faroe Islands, Guernsey, Isle of Man, Israel, Jersey, New Zealand, Switzerland and Uruguay.⁹ These countries (referred to as 'EU equivalents' to follow the language of 1995 Data Privacy Directive) represent less than 6% of global services trade. Furthermore, 'adequate' is often interpreted as 'equivalent' to the EU model of privacy legislation, with little regard for whether the privacy rules are effectively enforced. The equivalency criteria is also explicitly stated in the new regulation, and therefore, we will refer to these countries as 'EU equivalents' for the sake of clarity. Meanwhile, many other countries (including major trading partners or FTA counterparts like the United States, Japan, India, Singapore and Korea) may have privacy legislations that adequately protect EU personal data, but are still not recognized as safe destination for personal data from the EU.

Given the importance of the transatlantic trade, Safe Harbor framework, a voluntary and enforceable code of good data protection practice established by the US Department of Commerce, has also been approved. In practice, the Safe Harbor arrangement binds U.S. companies to EU data protection rules. Furthermore, non-U.S. and U.S. firms alike may use EU-approved 'model contracts' containing clauses (model contract clauses, or MCCs) based on EU standards,¹⁰ or 'binding corporate

rules' (BCRs) for data transfer between subsidiaries.¹¹ Whether these practices should still be acknowledged under GDPR is subject to much debate and amendments in the European Parliament. Nonetheless, transatlantic data flows are still restricted despite today's exemptions. BCRs are often costly to implement, barring many SMEs from using them and the Safe Harbor framework is only open to entities that are subject to the jurisdiction of Federal Trade Commission (FTC), excluding key sectors like banking, insurance, and many intra-company transfers and back office functions.

While there are many critics against the GDPR's 'one-size-fits-all approach' and its shift of power from the Member States to Brussels (just to name a few examples of criticism leveled at the Commission's proposal), the European non-recognition of other models of privacy regulation is very much at the heart for the economic debate. While data privacy is generally not seen as a trade issue in Brussels (indeed, the International Trade Committee (INTA) of the European Parliament is yet to be even consulted on the matter), critics have deemed GDPR as excessive and disproportionate, with direct and indirect protectionist implications, especially for services. However, import restrictive policies often cause more damage to the local economy more than that of foreign trading partners. This is particularly true for the digital economy, which often depends on economies of scale, openness, and efficient sourcing from throughout the world.

The question is whether the conflict between the current political momentum in favor of far-reaching privacy legislation and EU's role as the leading trading bloc can be reconciled. The openness of the digital economy and a non-discriminatory global trading system depend on the EU taking a central role. The EU has embarked on negotiations for the TTIP with the United States and presented ambitious requests on financial and business services in its negotiations with India without acknowledge regulatory standards in either country as adequate.

2. Methodology

Assumptions of the study

The new regulation could impact trade and EU production in several ways. To begin, all legislation that introduces additional obligations, uncertainties and liabilities on EU-based business will make the economic production more expensive relative to the rest of the world, thereby rendering it less competitive. Also, by increasing the cost of imports, hampering foreign investments and restricting the possibility to use of non-EU data processors, final prices inside the EU on goods services will increase, which will affect consumers.

The impact ought to be most notable in services sectors as the majority of them handle personal data, and thereby function as controllers or processors. But as we have noted, various services are important components of the manufacturing process as well. This study models administrative burden on services sectors only; while most services sectors make use of personal data of its customers and staff in one way or the other, trying to assess the extent various manufacturing or agricultural sectors make use of personal data is beyond the scope of this study. Instead, manufacturing and agriculture is only affected through indirect effects as local cost of production increases for those using services as inputs.

Finally, these costs could be offset by cost reduction from harmonization as envisaged by the European Commission in its estimates on administrative harmonization, and increase demand (and competitiveness) and consumer confidence thanks to a safer and consistent regulation. This study does not contest that there are such effects following the implementation of GDPR, but does not consider them as they are outside the narrow focus of external trade and cross-border effects in this study.

Scenarios in the study

Following the architecture of the proposal, the analysis is based on three aspects or potential aspects of GDPR. We have constructed three different scenarios that increasingly raise the level of potential regulatory disruption of cross-border trade and transactions.

1. Scenario 1 builds on the impact assessments by the Commission and the UK government by adding the administrative burden extraterritorially to all U.S. based firms that export services to the EU. The possibility to use binding corporate rules (BCRs) or model contract clauses (MCCs) to transfer data within a group of subsidiaries or suppliers is maintained as per today.
2. Scenario 2 builds on the previous scenario by adding that BCRs and MCCs are no longer accepted for all non-EEA countries (except those deemed as 'equivalent' countries) in addition to all previous restrictions.
3. Scenario 3 builds on previous scenarios but, finally, adds the impact from the 'right to be forgotten' rule. This scenario also takes into account effects on EU entities if they become subject to such a rule.

The GTAP Model and the definitions used

The model used in this study is GTAP 8, a computable general equilibrium model (CGE).¹² GTAP is a well-acknowledged multi-region and multi-sector framework. It is frequently used for international trade policy analysis by academia and policy makers in the EU and elsewhere. As outlined, the new EU regulation on data protection causes distortions in both trade in goods and services and on factors of production. Generally, the new regulation works as a non-tariff barrier (NTB), which raises the costs for importers and consequently induces an import-restrictive effect in the EU. In addition to negative impact on foreign services suppliers, the new regulation causes prices of services production to rise for EU-based suppliers. The model is further explained in the annex.

The regression is based on firm-level costs translated into restrictiveness applied to production or cross-border trade and other so-called ad valorem equivalents (AVEs) that are tariff or tax equivalents (expressed in percentage of sales price) on economic activities. Increased administrative burden, regulatory restrictiveness as well as business liability form the basis of the internal costs. Calculations are primarily based on firm-level cost estimates made by the European Commission and the UK government.

We aggregate regions and commodities for this experiment as follows: the 129 regions of GTAP 8 are combined into 4 aggregates: EU27, the US, the list of 'adequate' (EU equivalent) countries,¹³ and rest of world (ROW). The 57 GTAP commodities are aggregated into groups of agriculture, manufacturing and services, while the services sectors are further disaggregated into utilities and construction, transportation services, communication services, financial services, business services and health services.

The dataset is constructed in USD with cost calculations converted to USD, leading the model results to be presented primarily in USD.¹⁴

Scenario 1: Extraterritorial Application of Costs on U.S. Firms

The first scenario builds on the cost estimates in the impact assessments by the Commission and the UK Ministry of Justice.¹⁵ These costs have been translated into ad-valorem equivalents for U.S. exports to the EU. Hence, this scenario assumes that data protection costs in the EU can be translated into what in trade parlance is called non-tariff barriers and are now applied to U.S. firms when they export to the EU. As explained in the introduction, the regulation introduces elements of extraterritoriality as firms based outside the EU may fall under its scope if they target or monitor EU citizens. Currently, the EU-U.S. Safe Harbor Framework gives the participating U.S. exporters the same status as a company operating from a EU equivalent legislation. Hence, if GDPR is not applied extraterritorially the economic effects of the GDPR would only apply to EU entities. However, the EU could request that U.S. exporters under the Safe Harbor should comply with the new regulation in order to keep their certification, or, in a more restrictive scenario, the EU-U.S. Safe Harbor framework could be revoked all together, leaving only BCRs and MCCs as the only remaining options.

In either case we make an approximation on the assumption that U.S. firms exporting to the EU have to undertake the same administrative burden and liability as the EU firms. This is applied to U.S. exports to the EU in the form of a services trade barrier, leading to price increases on U.S. services exports to the EU, especially as the BCR and MCCs still apply, and data still can move freely within these rules regimes.

Direct price increases on US exports to EU due to increased costs on trade
(Weighted by EU/US trade volumes)

	Existing tariff barriers	GDPR costs, Low	GDPR costs, High
Utilities, incl. construction	4.6%	+0.00%	+0.01%
Transport, distribution and retail	2-8%	+0.35%	+0.59%
Communication	11.7%	+0.01%	+0.01%
Financial services	10.8-11.3%	+0.18%	+0.29%
Business services	14.9%	+0.07%	+0.11%
Health, recreation and other	4.4%	+0.12%	+0.19%

Source: Francois, 2013; own calculations

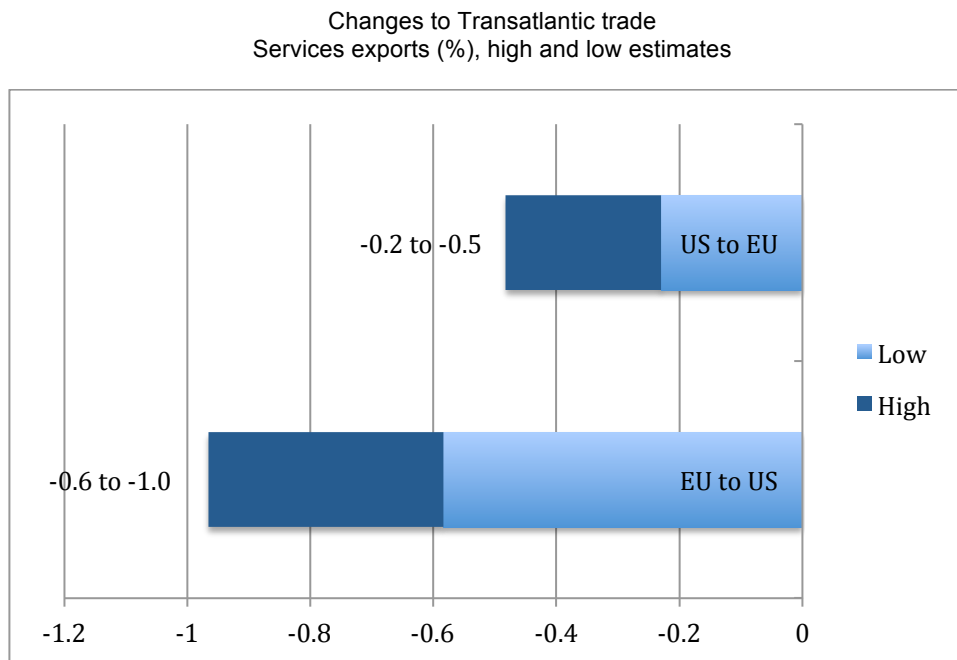
Results of Scenario 1

The impact of increased duties on U.S. exports to the EU has no additional impact on EU GDP or welfare with essentially the same level of effects as if only EU entities would be subject to the GDPR.

As expected, US services exports to the EU would be affected under this scenario and drop by -0.2% to -0.5%. The negative impact represents most likely SMEs who become displaced from the market due to increased trade barriers while they have little means to establish subsidiaries inside the EU or establish costly BCRs or MCCs.

However, EU exports to the United States are also severely affected due to loss of competitiveness, with an expected decrease of between -0.6% to -1%. In comparison, the TTIP is expected to increase bilateral trade by approximately 0.7% with reasonable assumptions on services liberalization.¹⁶ A significant share of the benefits expected from the TTIP is thereby lost through the GDPR.

As both the EU and the United States face a loss, there is no significant import substitution effect, where EU firms replace lost exports from United States.



Source: Own calculations

Scenario 2: Cross-border Data Flows Limited to EU Equivalent Countries

The second scenario incorporates further price increases on all exports by non-‘equivalent’ countries (the United States and the Rest of the World) to the EU. In this scenario, we will assume that MCCs or BCRs are no longer applicable and multinational companies cannot make an intra-organizational transfer of personal data. This leads to complete stoppage of data flows between the EU and non-EU equivalent countries unless exporters acquire data processing capacities inside the EU or in an EU equivalent country, with the cost increase being passed on to the consumer. In order to measure the additional cost burden non-EU services suppliers face due to the prohibition of cross-border data processing, we calculate the additional cost these suppliers have to bear if data processing must take place in the EU.

We first use data provided by Jorgenson et al (2005) to provide estimates for the input of IT services in manufacturing and services sectors. These numbers are applied to the services sectors mainly affected by the new EU regulation. In the next step, we multiply these numbers by the additional cost burden caused by additional labor costs in the EU. On average, skilled labor is 30% more expensive in the EU than in the United States and 60% more expensive in ‘rest of the world’ than in the EU (mainly due to India being prominent data processing destination).¹⁷ In order to account for discrepancies in the data we apply a range of estimates: 25%-35% increase on data processing in the US, 50%-70% for services originating from all other non-EU equivalent countries. This results in price increases between 4-13% on services originating from the United States, or 7%-26% from other non-EU equivalent countries.

Effective price increases due to lack of data portability to U.S. and non-safe harbor countries

	Share of data processing as an input in production	Effective price increase on US services (low, 25%)	Effective price increase on US services (high 35%)	Effective price increase on RoW services (low, 50%)	Effective price increase on RoW services (high, 70%)
Utilities, incl construction	15%	4%	5%	7%	10%
Transport services	58%	14%	20%	29%	41%
Communication services	57%	14%	20%	28%	40%
Financial services	49%	12%	17%	24%	34%
Business services	53%	13%	19%	27%	37%
Other services	37%	9%	13%	19%	26%

The result of scenario 2

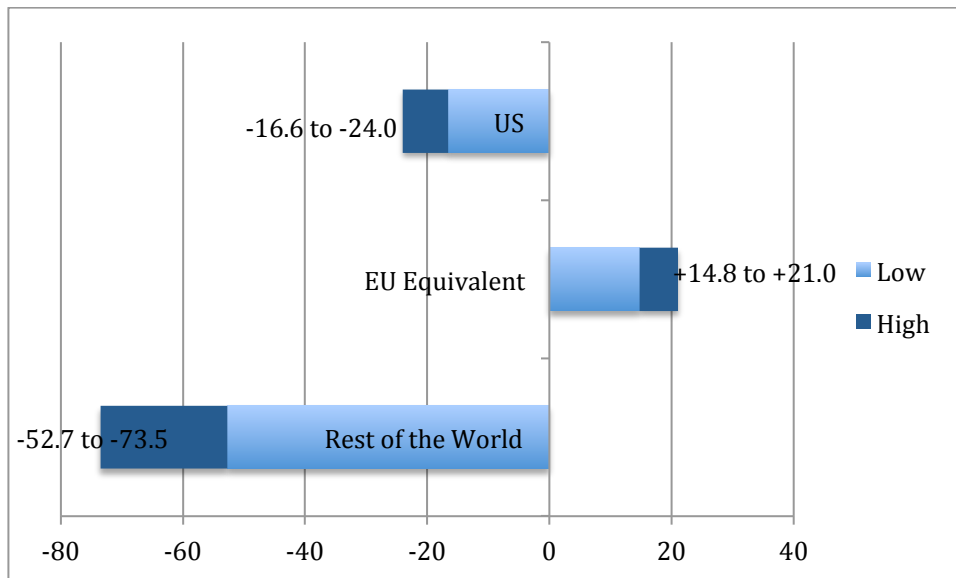
In this scenario, foreign and multinational companies have to establish businesses in compliance with GDPR rules in order to handle EU citizen’s data transfers. The scenario leads to a substantial decrease in EU GDP, between -0.8% to -1.3%, which is roughly equivalent to 3-4 times the economic decline in 2012 under the euro crisis.

This disruption of services supply-chains comes at a very high price for the consumers. The direct welfare effects are equivalent to a loss of 102-170 bn USD (78-131 bn euro), which is up to 338 USD (260 bn euro) per European, or 1353 USD (1041 euro) for a household of four people.

Due to relocation of production to the EU by exporters abroad, services output levels could be restored to today’s levels while various manufacturing sectors decrease their outputs by -0.7% to -4.2% as services represent a significant share of manufacturing inputs.

Furthermore, EU services imports from the United States decrease by -16.6% to -24%. Exporters from other non-EU equivalent countries see an even larger decrease of services export to the EU, up to -80%.

Changes to EU services imports by origin (%), low and high estimates

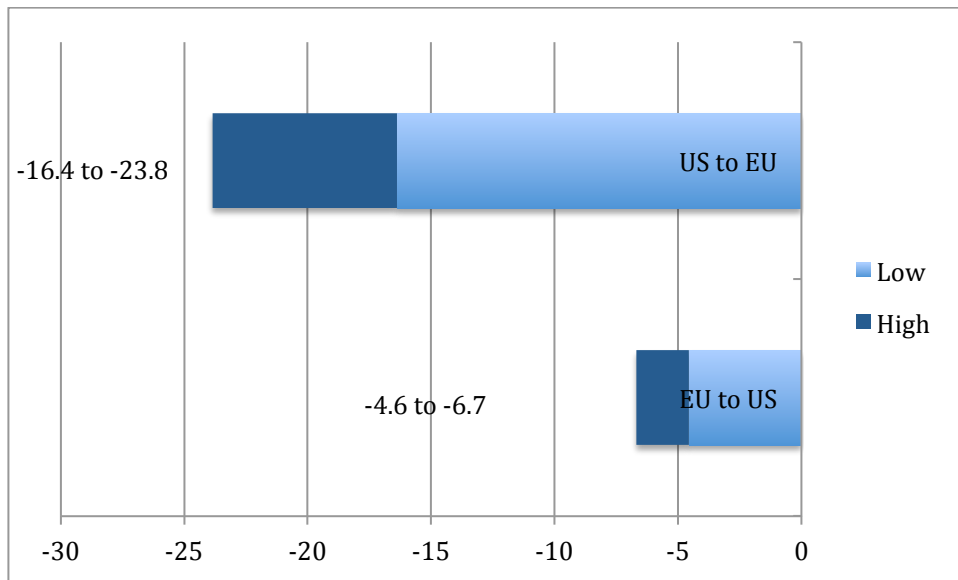


Source: Own calculations

However, lower imports into the Single Markets do not necessarily translate to increased global competitiveness for those who are based in the EU. Restricting cross-border data flows and services supply-chains seriously affect Europe’s ability to export outside its borders. European exports to the United States are significantly hampered compared to previous scenarios and drop by -4.6% to -6.7%, and EU

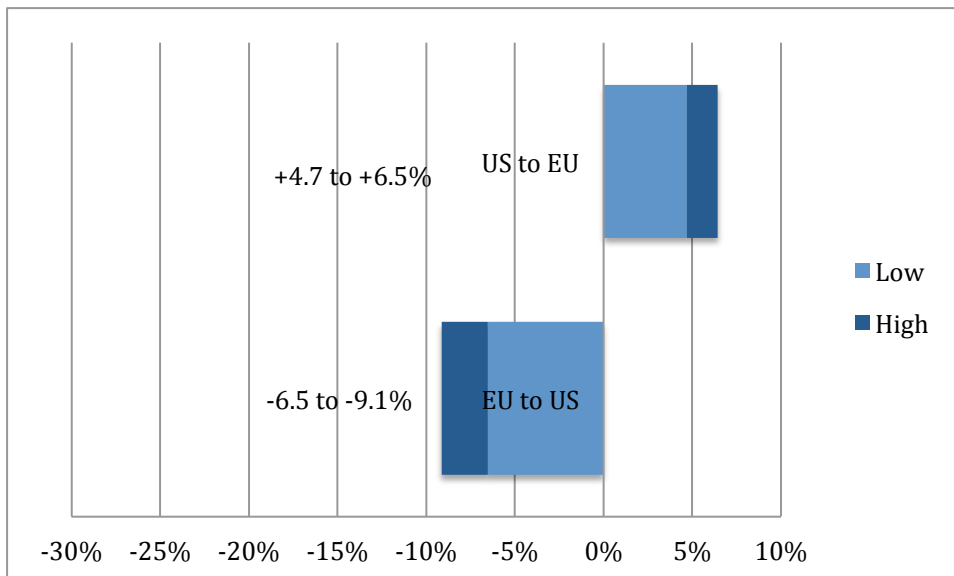
exports to the EU equivalent countries and the rest of the world also see similar losses. As described in the onset, our models only affects the manufacturing sectors through indirect effects from higher input costs. However, these indirect effects are sufficient enough to reduce EU goods exports to the United States by -6.5% to -9.1% with the biggest impact on light and heavy manufacturing.

Changes to Transatlantic trade
Services exports (%), low and high estimates



Source: Own calculations

Changes to Transatlantic trade
Goods exports (%), low and high estimates



Source: Own calculations

Scenario 3: Right to be Forgotten

Scenario 3 builds on the previous scenarios by adding the 'right to be forgotten' requirement, which is an obligation for data processors to remove all personal information upon requests from data subjects. Whether implementation is even feasibility is contested: the European Network and Information Security Agency (Enisa) points out in a study that a full implementation is "technically impossible",¹⁸ as completely removing data sometimes goes beyond the reach of individual company's ability, especially if the Internet and open networks are involved. The scope of businesses covered by this right is unclear, given conflicting legal obligation in some cases to preserve data, e.g. in financial and telecommunication sectors.

The number of potential data subjects who may exercise this right is also unclear. Thus, the measurement of its costs is susceptible to many uncertainties, just like the proposal itself, and "technically impossible" policy changes produce unpredictable economic results.

The methodology of calculating the impact from the 'right to be forgotten' requirement is dependent on several assumptions and very few have attempted to quantify its costs.¹⁹ One study suggests that compliance could cost a global data processor up to 500,000 GBP, and 110,000 GBP for a services provider to the retail sector. Given that there are 82,000 data processors in the EU,²⁰ the cost can range between 9 bn to 41 bn EUR. A simple assumption that implementation is going to cost EU services companies one percent of their annual turnover leads to an estimate of more than 9 bn EUR.

The 'right to be forgotten' negatively affects production factors of capital and skilled labor by productivity losses on EU-based producers. In this scenario we consider the effects from the 'right to be forgotten' rule applied on entities inside the EU.

Factor productivity losses from 'right to be forgotten'

	Low	High
Utilities, including construction services	2.15%	7.98%
Transport services	1.32%	4.89%
Communication services	1.15%	4.27%
Financial services	0.64%	2.37%
Business services	1.24%	4.60%
Health, recreation and other services	1.29%	4.80%

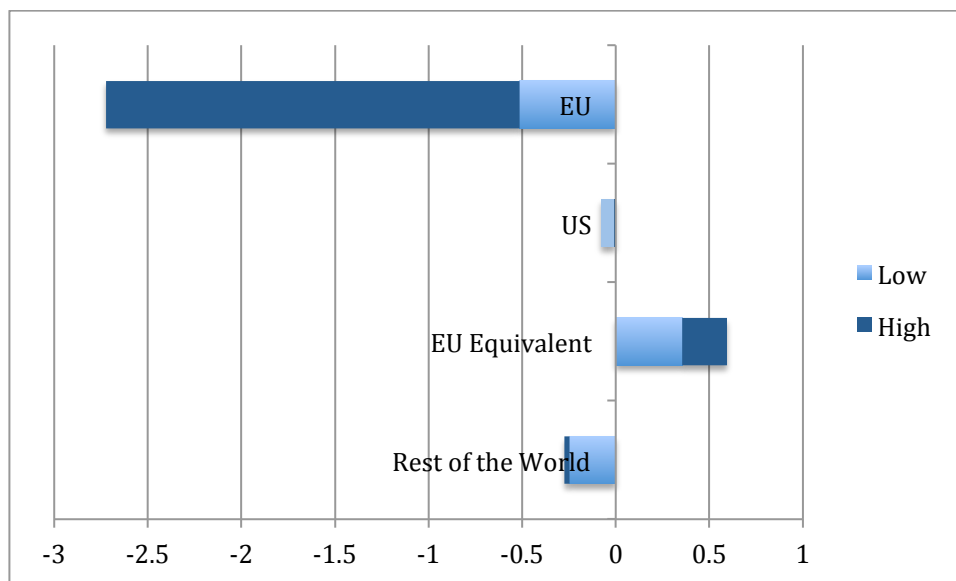
Results of scenario 3

Under the assumptions above, this scenario could lead to a GDP decrease for the EU of -1.5% to -3.9%, bearing in mind that this is a “technically impossible” scenario.

The direct welfare effects are equivalent to a loss of 212 bn to 575 bn USD (163 bn to 442 bn euro), which is up to 1142 USD (878 euro) per European, or 4566 USD (3512 euro) for a household of four people.

There is a severe impact on output on services sectors worldwide. While the biggest effects are on EU production, but EU imports from abroad also drops as demand decreases in the EU. EU manufacturing output could drop by -0.9% to -5.4%. EU equivalent countries manage to sustain or increase the current levels of services production, as it is assumed that they are not required to introduce the ‘right to be forgotten’ (and thereby enjoy a comparative advantage) while being able to transfer without any restrictions.

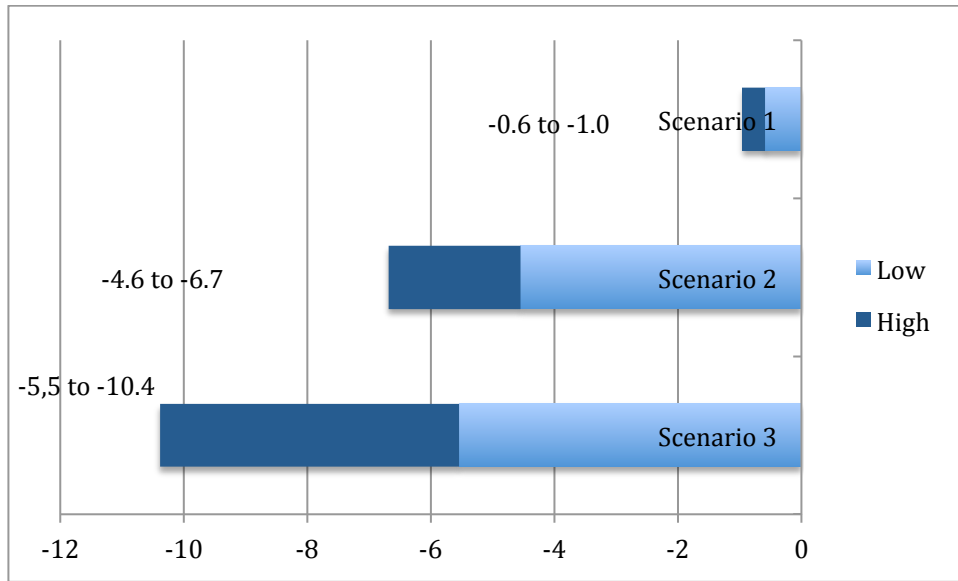
Changes to services output (%), low and high estimates



Source: Own calculations

While there are no significant changes to US exports to the EU, the opposite direction suffers major reduction compared to previous scenarios, from -4.4% to -18.6%.

Changes to Transatlantic trade
Services exports (%), low and high estimates

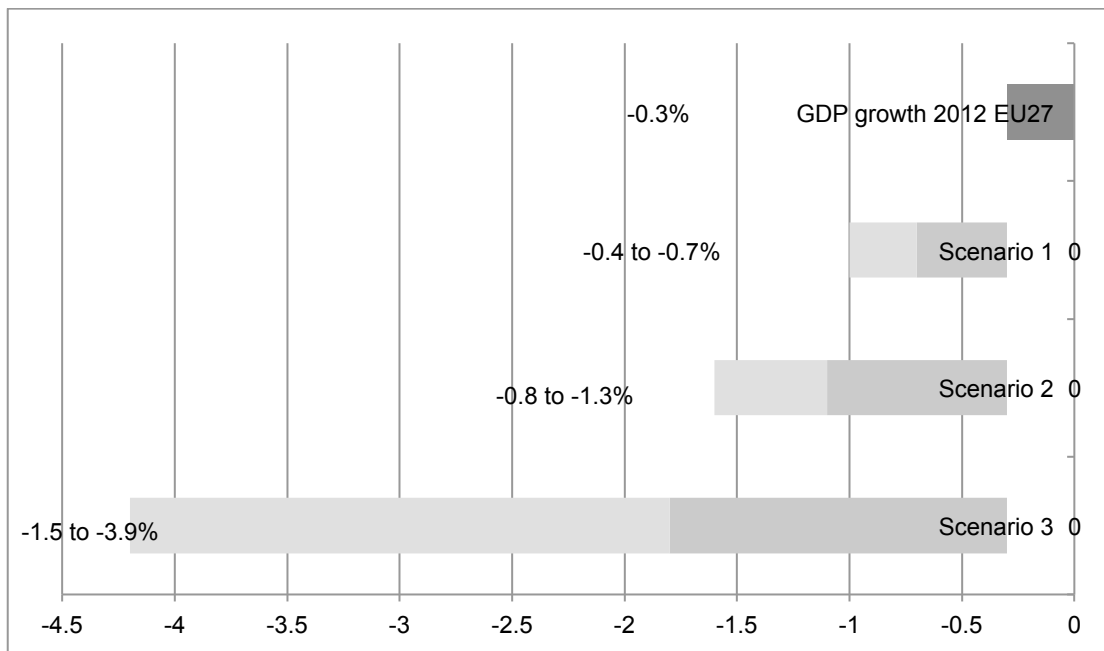


Source: Own calculations

Conclusions

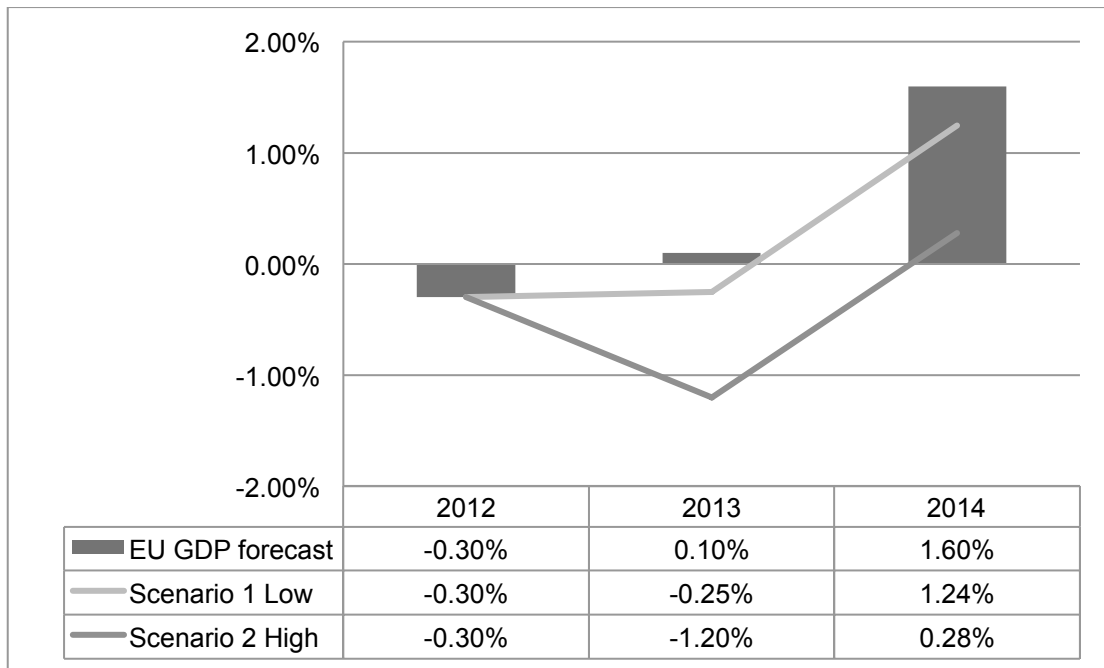
In this analysis, we have gradually increased the level of trade barriers. There are larger economic effects from productivity losses than loss of trade – this is a consequence of the low trade dependencies of major economies relative to their domestic markets. However, some EU member states or U.S. geographic clusters with very high trade-to-GDP ratio and with dynamic services trade could be disproportionately hit by both a slowdown of the domestic economy and loss of trade. The losses in GDP and welfare are significant. Even in the most conservative scenario there are significant negative effects on GDP. The welfare cost is up to a thousand euro per year for a household of four people, even if the ‘right to be forgotten’ rule is not implemented.

Effects on GDP by scenario (%)



What can the size of the potential effects be compared to? If these potential economic effects are applied to the current trajectory of real GDP growth, the economic recovery envisaged by the Commission (that would take in 2013-2014),²¹ could be dispersed altogether (assuming scenario 2, high estimates). To contextualize, the EU has never experienced such a drop in GDP except 1975 and 2009 – and the GDP effect is not a one-time loss but applied year to year.²² GDPR would also effectively eradicate the growth created by the EU-US FTA, as the GDP loss in all scenarios exceeds the GDP increase from a comprehensive FTA, which is estimated to +0.27%.²³ As this clearly proves, disrupting services supply-chains and cross border flow of data has a serious detrimental impact on the economy, even for competitive and large-scale economies like the EU.

EU real GDP growth projection 2013-2014



Source: European Commission; own calculations

This study has considered the effects on trade and cross-border transactions – and, by consequence, the effect on EU GDP – from GDPR. The study has focused on the external trade aspects, with the view of complementing estimates done on the costs and benefits internally in Europe. In order to offset the negative effects from productivity and trade losses, harmonization must lead to cost savings of at least 9.5 bn euro – or final private consumption in the EU would have to be boosted by 13% on all goods and services – to compensate for GDP losses, even when the effects from ‘right to be forgotten’ is omitted.

To conclude, under the assumptions of this study, the GDPR is most likely to have a detrimental impact on the economy and hurts the domestic EU economy more than foreign exporters, showing the importance of getting data privacy right. As the proposal inhabits many uncertainties, any result of quantitative modeling should be interpreted carefully. They give guidance on potential effects, but cannot predict the future, especially in a technically complicated area like data protection. The main takeaway point of this analysis stress the need to evaluate the economic implications and the importance of seeking the least trade-restrictive measure for the objective sought. Regulations with severely trade-distorting effects often begin with the pursuit of legitimate goals, but they get clouded by a disregard for a balance between objectives sought and restrictiveness imposed.

Annex

Further description of the GTAP 8 model

The GTAP 8 model distinguishes five factors of production: land, natural resources, capital, skilled and unskilled labor. Labor and capital are set to be mobile across all sectors of production, though the mobility of labor is restricted by international borders. In addition, the GTAP framework accounts for inter-sectoral linkages within regions thereby capturing inter-regional trade flows, which are important for studying the effects of both trade liberalization and trade restricting measures.

The underlying GTAP 8 dataset is based on national input-output tables, trade data, protection data and demand structures, which essentially describe the 2007 economy. Like all applied economic models, this model is based on certain assumptions. Based on the calculations of Fouré et al (2012), the GTAP 8 dataset on the global economy is extrapolated to 2013. The exogenous variables used for the extrapolation are macroeconomic variables, i.e. total population, capital endowment and changes in total factor productivity. These variables are applied in order to calculate the “best estimate” of the global economy in 2013. All other model variables, in particular the development of regional GDP, are assumed to be endogenous. Preferences and production structure as described by the model’s structural parameters have been left unmodified. Regional production is characterized by constant returns to scale and perfect competition. Private demand is represented by non-homothetic consumer demands. The structure of foreign trade is based on the so-called Armington assumption that implies imperfect substitutability between domestic and foreign goods.

The economic effects of the new regulation are integrated into GTAP as an efficiency-deteriorating reform, i.e. it effectively decreases productivity in the sectors that are particularly affected. In this study, we focus on the effects on the supply of services, where this efficiency loss will cause prices to rise.

Non-EU companies exporting to the EU market will incur higher costs, either by complying with the EU regulations if their customer base includes private entities in the EU, or by being unable to freely move data associated with their EU customers or staff. Some costs are either one-off costs or marginal in nature (e.g. gathering information about the respective regulation) while most costs stem from new and permanent burden on economic activities or barriers to trade.

In order to account for the effects mentioned above, we apply the following methodology:

First, like tariffs, NTBs push a wedge between the world price and the price in the domestic market. Since the EU’s new data protection law causes prices of affected services to rise, these NTBs would induce efficiency losses and scarcity in the EU market. In order to account for these effects in the GTAP framework, we apply a methodology proposed by Andriamananjara et al (2003). Contrary to tariffs, the authors model NTBs as frictions in international trade that do not create any

economic rents. Instead these NTBs are modeled as “sand-in-the wheels” of trade, which only cause efficiency losses.

The approach of Andriamananjara et al is very well suited to measuring the efficiency losses caused by the new EU regulation. For instance, new administrative requirements increase the costs of services production for non-EU countries thereby producing harassment effects that discourage services imports to EU. Accordingly, the price differential is assumed to be entirely explained by efficiency losses due to NTBs. The proposed methodology builds on the insight that institutional frictions create economic efficiency losses without generating economic rents. Thus imposing the calculated efficiency losses of the new EU regulation on trade of services would cause a deterioration of the allocation of economic resources.

In GTAP, the imposition of additional frictions on services trade can be modeled by implementing a negative import-augmenting tech change variable. This approach reflects the sand-in-the-wheels-approach by taking into consideration cost inefficiencies due to additional services sector regulations. The applied shock causes effective import prices of certain services exports to the EU to rise.

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Endnotes

¹ Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data

² Commission Staff Working Paper, SEC (2012) 72 final

³ McKinsey Global Institute, Internet matters: The Net's sweeping impact on growth, jobs, and prosperity, (2011)

⁴ Estimate based on World Input-Output Database, 2013

⁵ UNCTAD Information Economy Report 2009

⁶ Eurostat, 2013

⁷ Francois, Reducing Transatlantic Barriers to Trade and Investment – An Economic Assessment, CEPR, 2013

⁸ See note 2

⁹ Transfer to Australia and the US are approved for flight passenger data

¹⁰ By incorporating certain standard contractual clauses into a contract, personal data can flow from a Data Controller established in any of the 27 EU MS and three EEA member countries (Norway, Liechtenstein and Iceland) to a Data Controller or to data processors established in a country not ensuring an adequate level of data protection. These standard clauses are called Model Contract Clauses.

¹¹ Binding Corporate Rules ("BCR") are internal rules (such as a Code of Conduct) adopted by a multinational group of companies, which define its global policy with regard to the international transfers of personal data within the same corporate group to entities located in countries that do not provide an adequate level of protection.

¹² See Narayanan et al, 2012, as well as Hertel and Tsigas, 1997

¹³ Note that Andorra, Faeroe Island, Guernsey, Isle of Man and Jersey are missing from the model

¹⁴ EUR/USD exchange rate of 1.3 is used throughout

¹⁵ See note 2 and Ministry of Justice (2012), Impact Assessment on Proposal for EU Data Protection Regulation, 2012

¹⁶ Based on total increase in bilateral trade from services NTM reductions by Francois, 2012

¹⁷ Source of IT manager remuneration level: [<http://www.business.nsw.gov.au/invest-in-nsw/about-nsw/people-skills-and-education/international-comparison-of-remuneration-levels>]; Data based on Watson-Wyatt Global 50 Remuneration Planning Report, (2009)

¹⁸ ENISA, The right to be forgotten - between expectations and practice, accessed from [<http://www.enisa.europa.eu/activities/identity-and-trust/library/deliverables/the-right-to-be-forgotten>], 2013

¹⁹ For an example see DMA response to Ministry of Justice calls for evidence on proposals for EU regulation on data protection. Accessed from [<http://dma.org.uk/toolkit/dma-response-moj-call-evidence-eu-data-protection-regulation>], (2012)

²⁰ Eurostat, (2012)

²¹ European Commission, DG ECFIN, European Economic Forecast, Winter 2013 – the EU economy: gradually overcoming headwinds, 22/02/2013

²² In real GDP, OECD Factbook, (2011)

²³ European Commission, DG TRADE, Staff Working Document, The Impact Assessment On The Future Of The EU-US Trade Relations, 2013, 12.3.2013 SWD(2013) 69 final, (2013)



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