Box I.3: Estimating a hypothetical scenario of generalised border controls in the Schengen area

The Schengen agreement is one of the major achievements of European integration. The creation of an internal area without borders where people and goods can circulate freely has brought important benefits to European citizens and businesses alike. Yet, in recent months, the system has been challenged by the largest inflow of asylum seekers since the Second World War. In reaction, several Member States have unilaterally resorted to reintroducing temporary internal border controls, within the framework of the Schengen Borders Code. Another reason for the temporary reintroduction of border controls were security concerns in the wake of the terrorist attacks in Paris. Currently, reintroduced controls are a short-term measure, limited to a small number of countries, and targeted to specific sections of the border. Their economic effect should therefore be limited. On 4 March, the Commission has proposed a roadmap for restoring a fully functioning Schengen system by the end of the year. However, a hypothetical more systematic and permanent reintroduction of border controls would represent a novel scenario and could turn out to be not only politically but also economically costly. The aim of this box is to provide a first estimate of the potential economic costs of such a scenario, while bearing in mind that political costs may well be very high too.

Estimating the cost of border controls

Estimating the cost of reversing Schengen is not a simple task. The scope of any analysis is bound to be significantly restricted by data availability and methodological limitations, therefore any assessment can only be an approximation at this stage. The approach proposed in this box is based on the combination of 'value of time' calculations for direct costs - where a standardised cost coefficient is applied to the delays caused by permanently re-established border controls – and simulations of the impact on trade flows for indirect costs.

Due to the sensitivity of the results to the assumptions (e.g. length of the delays, parameters used, model specifications, etc.), a range of results, rather than a point estimate, is presented. The lower bound represents the minimum cost, whereas the upper bound reflects the impact of lengthier and more systematic border controls, leading to longer delays.

The direct cost of border controls

The systematic reintroduction of border controls could bring significant additional costs to the European transport sector, notably to land transport, because of potential disruptions of traffic caused by congestion and delays. [1] In 2014, the road haulage sector performed at least 57 million cross-border transport operations in the EU. As the average international trip within the EU involves more than one border crossing, controls would entail non-negligible additional waiting times. According to estimates reported by the transport industry [2], delay costs amount to about EUR 55 per hour. An alternative coefficient used in the literature on the economics of transport (Quinet, 2013) [3] points to similar magnitudes and breaks down the cost in EUR 37 per hour per lorry and €0.6 per hour per tonne of merchandise. Considering a delay of 30 minutes to two hours for both estimates, the resulting costs for road freight transport would range from a lower bound of EUR 1.7 billion up to a maximum of EUR 7.5 billion per year. [4]

The reintroduction of border controls would also severely affect the mobility of international passengers, including 1.7 million cross-border commuters living in the Schengen area. It is roughly estimated that at least 1 billion passenger trips are performed within the Schengen area each year, [5] of which 50 million trips by ferries, 70 million by rail, 85 million by bus and around

(1) Rail and maritime transport might be affected more in terms of passengers than freight and costs occurring to these modes are therefore analysed only for the first sector.

(2) '*Will EU border controls really threaten the euro?*', BBC news, 8 December 2015.

(3) Quinet E. (2013). 'L'évaluation socioéconomique des investissements publics.' *France Stratégie,* September 18.

(4) Assuming a delay of one hour, the costs for road freight hauliers would vary between EUR 3.4 and EUR 3.7 billion per year, using the first and second parameters respectively. The higher value also takes into account intra-EU cross-border checks for merchandise trade ultimately exported outside the Schengen area.

(5) Calculation based on estimates based on Eurostat data on maritime and rail transport, on the number of cross-border commuters and their expected daily mobility, and tourist trips abroad by means of transport.

850 million by private cars. [6] To estimate the costs for cross-border passengers, the value of time coefficients are taken from the FORGE model for both professional passengers (including cross-border commuters) and personal trips. [7] Assuming a delay of between 7.5 and 30 minutes for each trip, the calculation returns a perceived costs for passengers at large ranging from EUR 1.3 to EUR 5.2 billion per year.

Finally, re-establishing border controls would also entail additional administrative and fiscal costs. These are assessed through the combination of two different approaches. First, the EU standard cost model for the reduction of regulatory burden is used (European Commission, 2004). [8] Considering EUR 18.5 per hour of labour costs, it is assumed that checking travel documents would take between 1.5 and six minutes per passenger for all modes of transport considered, while for each lorry between four and 16 minutes would be needed to perform the document check and a cargo inspection. The estimated administrative burden for the public administrations would range between EUR 600 million and EUR 2.2 billion per year. As a second approach, the estimates of custom administration costs existing before the entry into force of the Single European Act (1 January 1993) are used as a reference and updated. [9] In the context of this exercise, we only take the part relative to administrative expenditure for the public sector into account (human and material resources needed to perform controls) and not the administrative costs related to fulfilling custom formalities (e.g. questionnaires, declarations, proofs of conformity, etc.), which represented by far the largest administrative burden and were mostly borne by businesses. Public administrative costs were found to range between 0.1% and 0.2% of the total value of intra-community trade. Since the latter reached the value of EUR 2.9 trillion in 2014, the cost of reintroducing border controls in terms of staff and material can be assumed to amount up to EUR 5.8 billion. Combining both approaches to define our lowest and highest estimate, the resulting costs range from EUR 600 million to EUR 5.8 billion per year.

Indirect costs of reversing Schengen

The estimates of costs presented above are static or direct in the sense that they do not take into account behavioural changes. Effectively terminating the Schengen agreement among Member States entails risks whose economic impact may go well beyond a value of time approach measuring the direct costs of reinstituting border controls. The reintroduction of controls within Schengen, could, for example, reduce how much people decide to travel within the area, lead to the reorganisation of production chains, or lower the volume of trade etc.

To the extent that the abolition of Schengen could result in the unpicking of the EU's common visa policy, the tourism industry could be strongly affected, particularly by a drop in tourists from outside the EU. [10] In addition, frequent congestion and systematic delays at frontiers could require a re-organisation of just-in-time-logistics or the return to more expensive warehouse solutions, which would impact supply and delivery chains scattered across Europe and imply higher capital costs. This could particularly be the case in manufacturing industries like the automotive sector, which are characterised by the presence of strong backward linkages with production in neighbouring countries supplying intermediate inputs.

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(6) Although it cannot be excluded that the aviation sector would face additional costs, it is not considered in this calculation because control systems are already in place in airports.

(7) FORGE is the road capacity and cost model used by the UK department of transport. For professional passengers, a mode-specific monetisation is used, while for personal trips, EUR 7.89 per hour is used (overall resulting on an average value of time of EUR 10.40). This refers to the perceived cost related to loss of leisure time and not to traditional economic costs as used in National Accounts.

(8) European Commission (2004). 'The standard cost model: A framework for defining and quantifying administrative burdens for businesses.' *International working group on Administrative Burden.* Brussels, August.

(9) A detailed estimate of these costs was presented in the Cecchini report (European Commission, 1988).

(10) Within the EU, domestic tourism (especially day trips) would be impacted by restrictions to Schengen. Further costs in terms of lower turnover in the tourism industry may be considerably high for some countries of first arrival if the closure of borders impacts negatively on the capacity to manage alone massive inflows of asylum seekers. More broadly, recent studies on visa facilitation suggest that tourism from third countries towards the European Union may be significantly impacted if border controls are associated with a fragmentation of the EU's common visa policy. Tourism Economics (2012) calculated that the EU-Schengen area had the potential to generate additional income of between EUR 11-60 billion – depending on different scenarios - in international tourism receipts (exports) by 2015 if the flexibility in the visa rules were fully exploited. European Commission (2013) has also estimated that, by tackling the main issues with the current visa regime and practices, trips to the Schengen can be expected to increase between 30% and 60%.

The recent work by Assilloux and Le Hir (2016) [11] shows a significant positive impact of the Schengen agreement on bilateral trade since its implementation, suggesting that a widespread and permanent reintroduction of border controls would also have large indirect costs and decrease trade between Schengen countries by 10% to 20% in the long run. This impact is assumed to be equivalent to a tax of 3% on the value of traded goods and services. According to simulations performed using the MIRAGE model, [12] the GDP of the Schengen area would be 0.8% lower (more than EUR 100 billion) in 2025 compared to the baseline scenario. Another econometric analysis carried out by Felbermayr *et al* (2016) suggests that Schengen has boosted trade by 4.2% on average (modelled with an equivalent drop in tariff by 0.7 percentage points for each border crossed) and GDP for the the EU would fall by 0.31% if identity checks were to be reinstated at all internal borders. [13] Similar simulations for Germany and the EU have been performed by Böhmer *et al.* (2016), [14] where the impact of an increase in import prices of 1% to 3% are simulated in the VIEW macroeconomic model. [15] The range was chosen to define a conservative and pessimistic scenario and in view of past research on the single market (Harrison, Rutherford and Tarr, 1994) [16] quantifying the magnitude of so-called 'border costs' in the middle of this range (around 1.7%), on average, for the European Community. [17]

The estimations of equivalent tariffs to model the trade effects of Schengen are subject to considerable econometric uncertainty and the higher bound of the range used in the aforementioned literature partly overlaps with past studies of the trade effect of the single market too. However, for purely illustrative purposes, simulations using the Commission's QUEST model indicate that an import price increase of 1% to 3% would generate a fall in intra-community trade leading to a negative impact on cumulative GDP of around 0.2%-0.5% for the euro area by 2025 (EUR 20-55 billion), compared to a baseline scenario.

Whatever the uncertainty surrounding the indirect estimates, there is also a risk that the reversal of Schengen could fuel a deeper confidence crisis. In a worst case scenario, not only trade flows would be more severely affected, but also foreign direct investment and investment decisions (which are much more reactive to uncertainty). If this were to happen then the economic impact could be far greater.

Conclusions

The recent increase in the number of asylum seekers entering the EU has prompted some Member States to unilaterally re-introduce controls along their borders with other Member States.

Although border controls have so far been introduced only temporarily by some Member States on certain crossings, the estimates presented in this box suggest that the direct costs in a

[11] Aussilloux, V. and B. Le Hir (2016). 'The economic cost of Rolling Back Schengen.' *Analytical Note* 39, Paris: France Stratégie.

[12] Decreux, Y. and H. Valin (2007). 'MIRAGE, Updated Version of the Model for Trade Policy Analysis with a Focus on Agriculture and Dynamics.', *CEPII Working Paper* 2007-15.

[13] Felbermayr, G., J. Gröschl and T. Steinwachs (2016). 'The Trade Effects of Border Controls: Evidence from the European Schengen Agreement.' *Ifo Working Paper* 213 (Ifo Institute – Center for Economic Studies).

[14] Böhmer, M., J. Limbers, A. Pivac, H. Weinelt (2016). 'Departure from the Schengen Agreement: Macroeconomic impacts on Germany and the countries of the European Union.' *Global Economic Dynamics Study*, Bertelsmann Stiftung, Gütersloh.

[15] Prognos AG (2013). 'Das Prognos Weltwirtschaftsmodell VIEW. ' *Prognos Welt Report 2013*, http://www.prognos.com/publikationen/weltreport/modell-view.

[16] Harrison, G., T. Rutherford and D. Tarr (1994). 'Product standards, imperfect competition, and completion of the market in the European Union.' The World Bank *Policy Research Working Paper* 1293, Washington DC: World Bank.

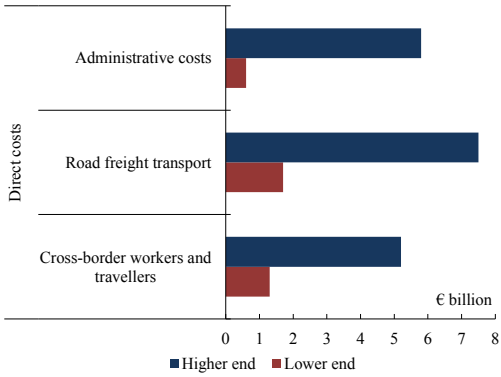
[17] Harrison, Rutherford and Tarr (1994) analysis of the impact of the single market differentiates between border costs and standardisation costs. According to the authors, border costs represent the costs of undertaking trade, such as transporting over international boundaries and administrative costs (e.g. shipping, handling and warehousing for customs purposes). Standardisation costs on the supply side are instead due to differences in technical specifications and regulations across national boundaries. The overall impact of the single market (border and standardisation costs) was assumed to be 2.5%. A simulation of a shock above this threshold is therefore very likely to include impacts that go beyond Schengen and include the benefits of the Single Market too.

hypothetical scenario of a permanent and more systematic reintroduction of border checks would be significant for EU cross-border workers and travellers, road freight transport and public administration and would range from less than EUR 5 to EUR 18 billion per year.

The abovementioned estimates correspond purely to the quantification of static costs based on a 'value of time' approach and do not factor in possible behavioural changes, substitution effects or indirect impacts on trade, tourism or mobility at large.

A small number of studies have tried to go beyond direct costs and have produced estimates which also include indirect effects, using either new econometric analyses or estimates from trade literature. Necessarily constrained by data and methodological limitations, these studies point to a possible equivalent impact on import prices of 1% to 3%, with the upper range likely to capture part of the benefit of the single market too. [18]

Graph 1: **Estimates of direct costs of border control**



Beyond the proposed quantification of the potential costs of reinstituting border controls, the 'free movement of people' is perceived by EU citizens as one of the most important achievements of the EU. [19] The introduction of permanent border controls risks undermining the EU's reputation for being able to effectively respond to common challenges which could have broader negative consequences for consumer and investor confidence.

[18] For illustrative purposes, the macroeconomic impact of a shock of this magnitude with the QUEST model would bring to a cumulative GDP loss of around 0.2%-0.5% for the euro area by 2025 (EUR 20-55 billion), compared to a baseline scenario.

[19] European Commission (2015). *Standard Eurobarometer 83*. Available on line at: http://ec.europa.eu/public_opinion/archives/eb/eb83/eb83_first_en.pdf