

**Effects of the EU-Russia Economic  
Sanctions on Value Added and  
Employment in the European Union  
and Switzerland**

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## Abstract

The ongoing trade conflict between the EU and Russia could have noticeable effects on the European economy given the importance of EU and Swiss exports to Russia. The current study provides estimates of the potential economic consequences of the export sanctions approved by the European Council and the Swiss parliament as well as the counter sanctions enacted by the Russian Federation on all EU countries. Using a multi-country econometric input-output model the study estimates real value added and employment effects associated with a decline in commodity exports and tourism demand as observed in recent months. The weak performance of EU and Swiss exports to Russia, however, is not only the result of export restrictions on sanctioned goods and the worsening of economic relations between Russia and the EU plus Switzerland, but also a consequence of slackening economic growth in Russia. The uncertainty about the true economic impacts of the sanctions is addressed by estimating different scenarios and distinguishing between short and long-run effects.

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## INTRODUCTION

The ongoing trade conflict between the EU and Russia, which is a consequence of the destabilization of the Eastern Ukraine, could have noticeable effects on the European economy. The current study therefore provides estimates with respect to the economic importance of exports to and tourism demand from Russia in the light of the current conflict between Russia and the EU. Switzerland as an economically important European country outside the EU has supported the EU-sanctions and is therefore included as well.

In view of the situation in the Ukraine, the European Union has formally enacted restrictive measures against Russia in August 2014. Besides restrictions of the capital market, these sanctions primarily address a prohibition to export or to provide assistance related to goods or technologies classified as defence goods, dual use goods for military purposes or military end-users, as well as equipment for the oil and gas sectors for use of the exploration, extraction of deep sea, arctic and shale oil. Existing export contracts were exempted; the sanctions thus concern only new contracts closed after the decisions had been made by the EU Council. To ensure that these sanctions imposed by the EU cannot be circumvented via Switzerland, the Swiss government joined the European alliance against Russia and committed end of August 2014 to implement similar sanctions against Russia<sup>1)</sup>.

Responding to the EU sanctions Russia forbade the import of agri-food goods and raw materials from countries that imposed sanctions on Russia, in particular the USA, EU, Canada, Australia and Norway. This import ban includes beef and pork of all kinds, poultry and poultry products, smoked foodstuffs and sausages, milk and milk products including raw milk and all foodstuffs containing milk as well as fish, vegetables and fruits.

In June 2015 the EU Council decided to extend the economic sanctions against Russia until end of January 2016, in reverse Russia prolonged its counter-measures for another year. The export ban on the products directly covered by these sanctions and counter-sanctions is likely to cause only limited economic damages for economies within the EU. The share of these products in total EU exports to Russia is (with the exception of agri-food goods) rather low; furthermore some contracts are still in force and are thus exempted from the sanctions. The sizeable macro-economic effects of the trade conflict are much more a result of a general worsening of trade relations between the EU and Russia that are not limited to individual goods, and to diplomatic disruptions as well as indirect effects caused by the high level of economic integration of European countries. Furthermore, the Russian economy is suffering from a recession that has deepened ever since it started in 2013. This implies that exports to Russia have fallen not only as a consequence of the economic sanctions and counter-sanctions imposed but also due to slackening economic growth, two effects hard to disentangle.

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<sup>1)</sup> Schweizerischer Bundesrat, "Verordnung über Maßnahmen zur Vermeidung der Umgehung internationaler Sanktionen im Zusammenhang mit der Situation in der Ukraine", SR 046.231.176.72, August 27, 2014.

## Recent developments of exports to Russia

Recent developments of EU exports to Russia highlight the impact of the Ukraine conflict and the implemented trade embargo over time. On the list of the most important recipient countries for products made in the EU, Russia slipped back to the 13<sup>th</sup> place, while in 2013 Russia ranked as the EU's 11<sup>th</sup> most important export partner. In particular, EU-27-exports to Russia in 2014 declined by 13.5% to 103 bn € compared to last year. Already in 2013 and thus before the sanctions have been in force EU trade relations with Russia suffered significantly from the economic downturn in Russia. In 2013 the volume of exports fell by more than 3%, while it had increased significantly in each of the previous years.

Since the beginning of the sanctions, however, EU-27-exports dropped significantly stronger. In the second half-year of 2014 EU-27-exports to Russia declined by 14.5% and thus fell to a value of 51.1 bn €. In most of the EU-27-countries the reduction in exports to Russia intensified in the last quarter of 2014 and even more so in the first quarter of 2015. In the first three months total EU-27-exports to Russia decreased by 33.6%, similar negative impacts on exports can be observed for Germany, France and Belgium. However, countries like Austria (-37%), Spain (-40%) and Estonia (-49%) experienced even greater reductions in exports to Russia in the first three months of the year, while the decline in exports of the UK and Italy was around 30% and slightly less (between -23% and -25%) in Latvia, Switzerland and Romania.

In contrast to the impact of the trade embargo and the economic downturn in Russia which simultaneously affects the EU trade relations with Russia, it seems that the EU has managed to partly redirect agri-food exports to alternative third countries<sup>2)</sup>. In total EU 27 agri-food exports to third countries (Extra-EU-27) increased during the second half-year of 2014 and in the first two months of 2015 each by 2.4% compared to the same period of the previous year. Specifically, gains in agri-food exports were achieved in the USA (+11.4% in August 2014 to February 2015), China (+15.8%), Hong Kong (+25.8%) and South Korea (+34.1%). A possible redirection of other banned goods to alternative third countries cannot be excluded in this analysis, but is less obvious in the trade statistics, as not all goods listed in the EU restrictions fall under the trade embargo; such exports can be approved if these goods do not serve a military purpose for instance in the case of dual use goods. A detailed assessment to which extent export losses of banned goods can be compensated by increased exports to alternative third countries is not possible and therefore not considered in the assumptions of the underlying simulations.

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<sup>2)</sup> Agriculture: European Exports do well despite Russian embargo, Agence Europe, Brussels, 05/06/2015.

Table 1: Recent developments of exports to Russia

|                           | 2 <sup>nd</sup> half-year<br>2014           | 4 <sup>th</sup> quarter<br>2014 | 1 <sup>st</sup> quarter<br>2015 | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |                      |
|---------------------------|---|---------------------------------|---------------------------------|---|----------------------|
|                           | Percentage change against the previous year |                                 |                                 |   | Percentage<br>shares |
| Austria                   | -5.4  | -4.7                            | -37.2                           | -20.2   | 3.9                  |
| Belgium                   | -20.5                                       | -23.1                           | -33.9                           | -28.3   | 3.9                  |
| Bulgaria                  | -13.4                                       | -6.7                            | -31.5                           | -17.8   | 0.6                  |
| Cyprus                    | -42.9                                       | -55.6                           | -73.7                           | -66.6   | 0.0                  |
| Czech Republic            | -9.7  | -16.5                           | -36.2                           | -25.6   | 3.9                  |
| Germany                   | -20.6                                       | -22.7                           | -33.9                           | -28.0   | 28.2                 |
| Denmark                   | -28.3                                       | -39.3                           | -39.7                           | -39.5   | 1.0                  |
| Estonia                   | -22.4                                       | -31.3                           | -49.0                           | -39.0   | 1.0                  |
| Spain                     | -11.8                                       | -19.0                           | -40.4                           | -29.7   | 2.2                  |
| Finland                   | -15.4                                       | -18.7                           | -33.9                           | -25.4   | 4.4                  |
| France                    | -9.7  | -3.6                            | -33.6                           | -19.0   | 7.0                  |
| Great Britain             | -11.2                                       | -19.0                           | -30.4                           | -24.4   | 4.3                  |
| Greece                    | -8.7  | -11.2                           | -38.0                           | -21.9   | 0.3                  |
| Hungary                   | -14.0                                       | -20.1                           | -30.7                           | -25.0   | 2.1                  |
| Ireland                   | 15.9  | -18.0                           | -49.9                           | -34.2   | 0.5                  |
| Italy                     | -13.4                                       | -16.8                           | -29.3                           | -22.5   | 9.4                  |
| Lithuania                 | 5.2   | -7.9                            | -33.6                           | -19.2   | 4.7                  |
| Luxembourg                | -9.3  | -13.9                           | -40.3                           | -27.6   | 0.1                  |
| Latvia                    | -3.2  | -6.4                            | -25.4                           | -14.0   | 1.8                  |
| Malta                     | -65.2                                       | 200.1                           | 157.0                           | 187.6   | 0.0                  |
| Netherlands               | -9.4  | -6.0                            | -37.9                           | -20.8   | 6.5                  |
| Poland                    | -17.2                                       | -18.9                           | -30.4                           | -24.1   | 6.9                  |
| Portugal                  | -28.0                                       | -25.4                           | -33.8                           | -29.5   | 0.2                  |
| Romania                   | -5.8  | -18.0                           | -23.3                           | -20.7   | 1.5                  |
| Sweden                    | -13.9                                       | -19.5                           | -33.4                           | -25.5   | 2.5                  |
| Slovenia                  | -2.7  | -4.0                            | -31.3                           | -17.0   | 1.1                  |
| Slovakia                  | -27.0                                       | -29.1                           | -28.1                           | -28.6   | 2.1                  |
| <b>EU 27</b>              | <b>-14.5</b>                                | <b>-17.4</b>                    | <b>-33.6</b>                    | <b>-24.9</b>  | <b>100.0</b>         |
| Switzerland               | -12.4                                       | -28.1                           | -23.7                           | -26.4   | .                    |
| <b>EU27 + Switzerland</b> | <b>-14.5</b>                                | <b>-17.7</b>                    | <b>-33.3</b>                    | <b>-24.9</b>  | .                    |

Source: Eurostat, IMF (DoT).

## Recent developments in the tourism sector

The strained political and economic relationship between the EU, Switzerland and Russia and the Russian economic crisis are not only hampering commodity trade but also trade in services. Notably the European tourism industry has been suffering from a steep decline of Russian demand, as data on overnight stays for some European countries and destinations clearly indicate. Spain, for instance, experienced a reduction of overnight stays by Russian tourists by more than 40% in the past winter season<sup>3)</sup>. In Austria the number of Russian overnight stays dropped by 30%, in Paris by 27% and in Switzerland by 25%. Table 2 includes all countries/destinations for which data for the last winter season were available.

Two important assumptions were made for the impact modeling: Since for some countries, overnight stays in the past winter season were available only for a certain destination, it was assumed that the change in overnight stays as observed for that destination is representative for the whole country (e.g. tourism development in France corresponds to the change in overnight stays in Paris). Furthermore, for all those countries for which no current data on overnight stays were available, the (unweighted) mean growth rate for countries listed in Table 2, which amounts to –29%, was applied.

The resulting reductions in overnight stays are multiplied by average expenditures per overnight stay. For Russian tourists these amount to € 218.5<sup>4)</sup> which results in revenue losses for the European tourism sector above the share of overnight stays of Russian guests since these tourists are known to spend more than those from other countries.

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<sup>3)</sup> The winter season ranges from November 2014 to April 2015.

<sup>4)</sup> Source: Eurostat.

Table 2: Decline in overnight stays due to the absence of Russian tourists

|                         | Winter season<br>(November 2014<br>to April 2015) |
|-------------------------|---|
|                         | Percentage<br>change against<br>the previous year |
| Austria                 | -30   |
| Belgium                 | -14   |
| Czech Republic          | -27   |
| Germany                 | -19   |
| Denmark                 | -33   |
| Estonia                 | -33   |
| Barcelona (Spain)       | -41   |
| Paris (France)          | -27   |
| Hungary                 | -23   |
| Lithuania               | -28   |
| Malta                   | -48   |
| Amsterdam (Netherlands) | -11   |
| Poland                  | -43   |
| Portugal                | -28   |
| Sweden                  | -35   |
| Switzerland             | -25   |

Source: WIFO calculations.

Table 3: Decline in tourism expenditures due to the absence of Russian tourists

|                | Winter season<br>(November 2014<br>to April 2015) |
|----------------|---|
|                | Change in mn €<br>against the<br>previous year    |
| Austria        | -143  |
| Belgium        | -7  |
| Bulgaria       | -179  |
| Cyprus         | -256  |
| Czech Republic | -236  |
| Germany        | -108  |
| Denmark        | -8  |
| Estonia        | -49   |
| Spain          | -916  |
| Finland        | -103  |
| France         | -185  |
| Great Britain  | -68   |
| Greece         | -503  |
| Hungary        | -34   |
| Ireland        | -3  |
| Italy          | -450  |
| Lithuania      | -41   |
| Luxembourg     | -1  |
| Latvia         | -44   |
| Malta          | -34   |
| Netherlands    | -9  |
| Poland         | -62   |
| Portugal       | -37   |
| Romania        | -4  |
| Sweden         | -16   |
| Slovenia       | -22   |
| Slovakia       | -12   |
| <b>EU 27</b>   | <b>-3,530</b>                                     |
| Switzerland    | -18   |

Source: WIFO calculations.

## SIMULATION STRATEGY

Since it was assumed that the economic impacts of the ongoing conflict between the EU and Russia are not restricted to export reductions in those commodities that fall under the sanctions / counter-sanctions (defense goods, dual use goods for military purposes or military end-users as well as equipment for the oil and gas sectors for use of the exploration, extraction of deep sea, arctic and shale oil and agrarian / food products and raw materials) and furthermore the exact volume of past exports of sanctioned commodities is not known due to the very complex nature of the sanctions (specifically with respect to dual use goods which need to be approved) simulations were carried out using an alternative strategy:

The estimation of the so called "direct effects" (i.e. the decline in the volume of exports) is based on the export performance of EU countries and Switzerland with regard to all commodities demanded by and delivered to Russia. 2013 serves as the benchmark year as the sanctions were not imposed until the summer of 2014. The value of export reductions by each country and each commodity is then calculated using export growth rates for the last quarter of 2014 and the first quarter of 2015 and applied to the observed export levels for 2013<sup>5)</sup>. Moreover, for assessing potential economic losses of the European and Swiss tourism industries the growth rates of overnight stays of Russian tourists in the winter season 2014/15 (ranging from November 2014 to April 2015; see Table 2) are used and the observed levels of overnight stays and expenditures in 2013 are reduced accordingly.

Since quarterly data in particular bear a higher risk of being affected by statistical outliers and their use thus increases the uncertainty with respect to the model estimations, two different rates of change in commodity exports are examined:

- 1) relative changes for the whole period of October 2014 to March 2015 (last quarter of 2014 and first quarter of 2015 relative to the corresponding previous year period);
- 2) relative changes for the first quarter of 2015 compared to the first quarter of 2014.

Since the economic crisis in Russia started in the middle of the year 2013, by applying rates of change that include the last quarter of 2013 and the first quarter of 2014 as denominators, some part of those Russian export reductions that were the result of the crisis rather than the sanctions is accounted for. Nevertheless and as mentioned above, since the Russian economic downturn has been progressing from its start a complete disentanglement of crisis impacts and sanction effects is out of reach in this estimation exercise. Consequently, simulation results should be interpreted with great care.

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<sup>5)</sup> Since for Switzerland export data by commodities were not available for the last quarter of 2014 and the first quarter of 2015, growth rates for total exports were applied. Consequently, changes in exports are uniform across all commodities.

Table 4: Simulation assumptions according to the decline in EU-27-exports to Russia

|                | 4 <sup>th</sup> quarter 2014 till 1 <sup>st</sup> quarter 2015 |              | 1 <sup>st</sup> quarter 2015 |              |
|----------------|--|--------------|------------------------------|--------------|
|                | Change against the previous year                               |              |                              |              |
|                | in mn €  | in percent   | in mn €                      | in percent   |
| Austria        | -869.9   | -20.2        | -1,603.0                     | -37.2        |
| Belgium        | -1,446.0   | -28.3        | -1,736.4                     | -33.9        |
| Bulgaria       | -102.2   | -17.8        | -180.7                       | -31.5        |
| Cyprus         | -16.1  | -66.6        | -17.9                        | -73.7        |
| Czech Republic | -1,144.7   | -25.6        | -1,619.0                     | -36.2        |
| Germany        | -10,089.5  | -28.0        | -12,237.4                    | -33.9        |
| Denmark        | -616.7   | -39.5        | -620.1                       | -39.7        |
| Estonia        | -547.6   | -39.0        | -687.8                       | -49.0        |
| Spain          | -835.9   | -29.7        | -1,135.1                     | -40.4        |
| Finland        | -1,358.6   | -25.4        | -1,818.1                     | -33.9        |
| France         | -1,467.8   | -19.0        | -2,596.8                     | -33.6        |
| Great Britain  | -1,137.5   | -24.4        | -1,419.1                     | -30.4        |
| Greece         | -89.0  | -21.9        | -154.3                       | -38.0        |
| Hungary        | -614.1   | -25.0        | -755.0                       | -30.7        |
| Ireland        | -216.1   | -34.2        | -315.8                       | -49.9        |
| Italy          | -2,424.3   | -22.5        | -3,164.8                     | -29.3        |
| Lithuania      | -936.9   | -19.2        | -1,634.0                     | -33.6        |
| Luxembourg     | -43.1  | -27.6        | -62.9                        | -40.3        |
| Latvia         | -246.3   | -14.0        | -447.7                       | -25.4        |
| Malta          | 66.8   | 187.6        | 55.9                         | 157.0        |
| Netherlands    | -1,652.9   | -20.8        | -3,019.2                     | -37.9        |
| Poland         | -1,953.2   | -24.1        | -2,463.2                     | -30.4        |
| Portugal       | -77.7  | -29.5        | -89.0                        | -33.8        |
| Romania        | -285.8   | -20.7        | -321.4                       | -23.3        |
| Sweden         | -695.1   | -25.5        | -911.9                       | -33.4        |
| Slovenia       | -202.8   | -17.0        | -372.6                       | -31.3        |
| Slovakia       | -731.1   | -28.6        | -717.5                       | -28.1        |
| <b>EU 27</b>   | <b>-29,734.1</b>   | <b>-24.9</b> | <b>-40,044.8</b>             | <b>-33.5</b> |
| Switzerland    | -647.8   | -26.4        | -582.8                       | -23.7        |

Source: WIFO calculations.

Uncertainty about the "true" economic impacts of the sanctions is further reduced by using different scenarios in the model simulations. These differ first with respect to the development of exports to Russia that represent the direct effects of the sanctions: as a lower bound of impacts the growth rates for the period of October 2014 to March 2015 are applied while an upper bound is defined by using data of the first quarter of 2015 when export decline increased considerably. Secondly, the extent of the economic impacts taken into account differs when short term effects are distinguished from long term effects.

### *Short term effects*

Applying export growth rates for the period of October 2014 to March 2015 (lower bound) or the first quarter of 2015 (upper bound) and tourism expenditure reductions based on data of the development of overnight stays/expenditures in the winter season 2014/15, direct and indirect effects as well as effects on investment are included in the model simulations. While direct effects measure the response of a given industry in a given country to a fall in export (tourism) demand for the commodities (services) it produces, indirect effects represent the response by all industries in all countries resulting from a change in export (tourism) demand for a specific industry. Indirect effects thus include the consequences of lower production in exporting firms (firms of the tourism industry) on firms supplying inputs along the complete national and international supply chain. In addition lower production levels will also diminish investment activities of industries (for exporting industries, tourism industries as well as input supplying industries).

### *Long term effects*

In addition to the impacts described above, induced effects are now calculated as well. These effects measure a possible decline in the demand of private households as a consequence of lower employment and income levels due to production cutbacks by firms. This scenario is thus related to a situation in which sanctions endure over some extended period of time; while in the short run, employment levels are either kept constant by firms expecting a temporary fall in production only or social security systems kick in to compensate households for rising unemployment and implied income losses, in the medium/long run employment demand is going down and household compensations of social security systems are insufficient.

A final caveat needs to be pointed out: The estimations illustrated in the next section do not completely account for possible trade diversion effects and economic policy measures directed towards promoting such diversion to partly compensate for the export losses incurred on the Russian market. The results thus represent value added and employment impacts which are (directly or indirectly) linked to exports to Russia – in a way, they represent potential reductions in income and employment that are associated with the expected decrease in production.

## RESULTS

All simulation results are illustrated in Tables 5a-d and 6a-c. These estimations represent the value of income and the volume of employment that are associated with the decline in commodity exports and tourism expenditures as calculated above. However, it should be noted that due to expected trade diversion effects, which the simulations do not take into account, these negative income and employment effects will very likely not materialize up to the full extent. They thus represent upper bounds rather than a forecast of the economic effects of the sanctions.

In a short term scenario, employment effects for the EU 27 and Switzerland together range between 900.000 and just over 1 mn jobs, depending on which export growth rates are applied; this corresponds to 0.4% to 0.5% of total employment. The value added impacts are around 34 bn € and 42 bn € and thus 0.3% of total value added generated in the EU 27 and Switzerland.

Including induced effects and thus switching to a longer term view of the sanction impacts increases total effects considerably: Employment impacts are now between 2.2 and 2.7 mn jobs (1% to 1.2% of total employment), while value added declines by 92 bn € and 113 bn € (0.8% to 0.9% of total value added).

Not surprisingly, geographical closeness highly correlates with the relative size of the effects at the national level, with the Baltic countries, Finland and the Eastern European countries being hit above the EU average of 0.3% of value added in the short and 0.8% in the long run.

The impacts for Germany, due to the size of the economy and the strong export performance – it accounts for almost 30% of total EU-27-exports to Russia – are in absolute terms the largest across the EU countries and lie above the average impact with respect to value added. In addition, the results suggest an above EU average impact for the Spanish economy with respect to long term employment effects, as well as for Austria regarding value added impacts. All other countries (except for Cyprus and Greece) are somewhat less affected compared to the EU-27-average, both in terms of employment and value added.

The sectoral composition of the effects differs somewhat between the short term scenario, where exporting industries and their suppliers as well as industries specialized on the production of investment goods dominate, and the long term scenario where the effects are spread out to industries that are more dependent on final household demand.

Agriculture and manufacturers of food products, the metal product industry, the manufacturing of machinery, equipment and motor vehicles, construction (with respect to employment) plus manufacturing related services (wholesale, business services) are the most effected industries in the short run. In the longer run, construction, wholesale trade and business services are still among those with higher impacts; in addition, retail trade is now more strongly affected since a lower income of households will reduce their consumption expenditures.

Table 5a: Simulation results by country: employment and real value added impacts due to a decline in tourism demand

|                           | Tourism                                     |             |               |             |             |             |                |             |
|---------------------------|---|-------------|---------------|-------------|-------------|-------------|----------------|-------------|
|                           | Winter season (November 2014 to April 2015) |             |               |             |             |             |                |             |
|                           | Short term                                  |             |               |             | Long term   |             |                |             |
|                           | Employment                                  |             | Value added   |             | Employment  |             | Value added    |             |
|                           | in 1.000                                    | in %        | in mn €       | in %        | in 1.000    | in %        | in mn €        | in %        |
| Austria                   | 0   | 0.00        | -130          | 0.05        | -5          | 0.12        | -315           | 0.11        |
| Belgium                   | 0   | 0.00        | -25           | 0.01        | 0           | 0.00        | -130           | 0.04        |
| Bulgaria                  | -15   | 0.44        | -115          | 0.34        | -40         | 1.17        | -260           | 0.76        |
| Cyprus                    | -5  | 1.40        | -185          | 1.23        | -15         | 4.21        | -420           | 2.79        |
| Czech Republic            | -10   | 0.20        | -180          | 0.13        | -15         | 0.29        | -330           | 0.25        |
| Germany                   | -5  | 0.01        | -245          | 0.01        | -20         | 0.05        | -1,195         | 0.05        |
| Denmark                   | 0   | 0.00        | -15           | 0.01        | 0           | 0.00        | -70            | 0.03        |
| Estonia                   | -5  | 0.81        | -60           | 0.37        | -10         | 1.63        | -175           | 1.08        |
| Spain                     | -20   | 0.12        | -935          | 0.10        | -60         | 0.35        | -2,440         | 0.26        |
| Finland                   | 0   | 0.00        | -95           | 0.06        | -5          | 0.20        | -200           | 0.12        |
| France                    | -5  | 0.02        | -240          | 0.01        | -15         | 0.06        | -880           | 0.05        |
| Great Britain             | 0   | 0.00        | -125          | 0.01        | -10         | 0.03        | -630           | 0.04        |
| Greece                    | -10   | 0.26        | -415          | 0.26        | -35         | 0.90        | -1,350         | 0.84        |
| Hungary                   | 0   | 0.00        | -30           | 0.04        | -5          | 0.12        | -90            | 0.11        |
| Ireland                   | 0   | 0.00        | -15           | 0.01        | 0           | 0.00        | -70            | 0.05        |
| Italy                     | -10   | 0.04        | -500          | 0.04        | -25         | 0.10        | -1,490         | 0.11        |
| Lithuania                 | 0   | 0.00        | -35           | 0.11        | -5          | 0.39        | -75            | 0.24        |
| Luxembourg                | 0   | 0.00        | -5            | 0.01        | 0           | 0.00        | -15            | 0.04        |
| Latvia                    | 0   | 0.00        | -30           | 0.14        | -5          | 0.56        | -65            | 0.31        |
| Malta                     | 0   | 0.00        | 0             | 0.00        | 0           | 0.00        | 0              | 0.00        |
| Netherlands               | 0   | 0.00        | -45           | 0.01        | -5          | 0.06        | -230           | 0.04        |
| Poland                    | -5  | 0.03        | -65           | 0.02        | -15         | 0.10        | -235           | 0.07        |
| Portugal                  | 0   | 0.00        | -40           | 0.03        | -5          | 0.11        | -140           | 0.10        |
| Romania                   | 0   | 0.00        | -10           | 0.01        | -5          | 0.05        | -70            | 0.06        |
| Sweden                    | 0   | 0.00        | -30           | 0.01        | 0           | 0.00        | -115           | 0.03        |
| Slovenia                  | 0   | 0.00        | -20           | 0.07        | 0           | 0.00        | -45            | 0.15        |
| Slovakia                  | 0   | 0.00        | -20           | 0.03        | 0           | 0.00        | -55            | 0.08        |
| <b>EU 27</b>              | <b>-105</b>                                 | <b>0.05</b> | <b>-3,620</b> | <b>0.03</b> | <b>-300</b> | <b>0.14</b> | <b>-11,095</b> | <b>0.10</b> |
| Switzerland               | 0   | 0.00        | -35           | 0.01        | -5          | 0.10        | -195           | 0.04        |
| <b>EU27 + Switzerland</b> | <b>-110</b>                                 | <b>0.05</b> | <b>-3,655</b> | <b>0.03</b> | <b>-300</b> | <b>0.13</b> | <b>-11,290</b> | <b>0.09</b> |

Source: WIFO calculations.

Table 5b: Simulation results by country: employment and real value added impacts due to a decline in exports (4<sup>th</sup> quarter 2014 – 1<sup>st</sup> quarter 2015)

|                           | Exports   |             |                |             |               |             |                |             |
|---------------------------|---|-------------|----------------|-------------|---------------|-------------|----------------|-------------|
|                           | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |             |                |             |               |             |                |             |
|                           | Short term  |             |                |             | Long term     |             |                |             |
|                           | Employment  |             | Value added    |             | Employment    |             | Value added    |             |
|                           | in 1.000  | in %        | in mn €        | in %        | in 1.000      | in %        | in mn €        | in %        |
| Austria                   | -15   | 0.35        | -860           | 0.30        | -35           | 0.83        | -2,190         | 0.77        |
| Belgium                   | -15   | 0.33        | -985           | 0.29        | -30           | 0.66        | -2,215         | 0.65        |
| Bulgaria                  | -5  | 0.15        | -40            | 0.12        | -25           | 0.73        | -150           | 0.44        |
| Cyprus                    | 0   | 0.00        | -20            | 0.13        | 0             | 0.00        | -70            | 0.46        |
| Czech Republic            | -35   | 0.68        | -835           | 0.63        | -75           | 1.46        | -1,715         | 1.29        |
| Germany                   | -140  | 0.33        | -9,230         | 0.38        | -375          | 0.90        | -22,190        | 0.90        |
| Denmark                   | -10   | 0.36        | -565           | 0.26        | -20           | 0.72        | -1,320         | 0.61        |
| Estonia                   | -35   | 5.70        | -740           | 4.55        | -90           | 14.67       | -1,980         | 12.16       |
| Spain                     | -40   | 0.23        | -1,590         | 0.17        | -130          | 0.75        | -5,375         | 0.58        |
| Finland                   | -15   | 0.60        | -1,105         | 0.67        | -30           | 1.21        | -2,205         | 1.33        |
| France                    | -35   | 0.13        | -2,220         | 0.12        | -105          | 0.39        | -7,045         | 0.38        |
| Great Britain             | -20   | 0.07        | -1,445         | 0.09        | -85           | 0.28        | -5,545         | 0.33        |
| Greece                    | -5  | 0.13        | -175           | 0.11        | -20           | 0.51        | -785           | 0.49        |
| Hungary                   | -15   | 0.37        | -360           | 0.44        | -40           | 0.97        | -845           | 1.03        |
| Ireland                   | -5  | 0.27        | -290           | 0.20        | -10           | 0.53        | -765           | 0.52        |
| Italy                     | -65   | 0.27        | -3,320         | 0.24        | -175          | 0.72        | -9,440         | 0.67        |
| Lithuania                 | -85   | 6.58        | -975           | 3.13        | -135          | 10.45       | -1,910         | 6.13        |
| Luxembourg                | 0   | 0.00        | -50            | 0.12        | 0             | 0.00        | -135           | 0.33        |
| Latvia                    | -10   | 1.13        | -145           | 0.69        | -20           | 2.25        | -325           | 1.56        |
| Malta                     | 0   | 0.00        | 0              | 0.00        | 0             | 0.00        | 0              | 0.00        |
| Netherlands               | -25   | 0.29        | -1,405         | 0.26        | -55           | 0.64        | -3,400         | 0.63        |
| Poland                    | -130  | 0.84        | -1,880         | 0.54        | -285          | 1.84        | -4,695         | 1.36        |
| Portugal                  | -5  | 0.11        | -130           | 0.09        | -20           | 0.44        | -515           | 0.35        |
| Romania                   | -20   | 0.22        | -225           | 0.18        | -75           | 0.82        | -820           | 0.66        |
| Sweden                    | -10   | 0.21        | -785           | 0.21        | -25           | 0.53        | -1,755         | 0.48        |
| Slovenia                  | -5  | 0.54        | -130           | 0.43        | -10           | 1.09        | -310           | 1.02        |
| Slovakia                  | -15   | 0.68        | -360           | 0.55        | -30           | 1.37        | -785           | 1.20        |
| <b>EU 27</b>              | <b>-765</b>   | <b>0.34</b> | <b>-29,865</b> | <b>0.26</b> | <b>-1,905</b> | <b>0.86</b> | <b>-78,485</b> | <b>0.68</b> |
| Switzerland               | -10   | 0.21        | -770           | 0.15        | -35           | 0.72        | -2,560         | 0.51        |
| <b>EU27 + Switzerland</b> | <b>-770</b>   | <b>0.34</b> | <b>-30,635</b> | <b>0.25</b> | <b>-1,935</b> | <b>0.85</b> | <b>-81,050</b> | <b>0.67</b> |

Source: WIFO calculations.

Table 5c: Simulation results by country: employment and real value added impacts due to a decline in exports (1<sup>st</sup> quarter 2015)

|                           | Exports<br>1 <sup>st</sup> quarter 2015 |             |                |             |               |             |                 |             |
|---------------------------|---|-------------|----------------|-------------|---------------|-------------|-----------------|-------------|
|                           | Short term                              |             |                |             | Long term     |             |                 |             |
|                           | Employment                              |             | Value added    |             | Employment    |             | Value added     |             |
|                           | in 1.000                                | in %        | in mn €        | in %        | in 1.000      | in %        | in mn €         | in %        |
| Austria                   | -20                                     | 0.47        | -1,280         | 0.45        | -50           | 1.18        | -3,110          | 1.10        |
| Belgium                   | -15                                     | 0.33        | -1,175         | 0.34        | -35           | 0.77        | -2,695          | 0.79        |
| Bulgaria                  | -10                                     | 0.29        | -70            | 0.20        | -35           | 1.02        | -235            | 0.69        |
| Cyprus                    | 0                                       | 0.00        | -20            | 0.13        | 0             | 0.00        | -75             | 0.50        |
| Czech Republic            | -45                                     | 0.88        | -1,060         | 0.79        | -95           | 1.85        | -2,165          | 1.62        |
| Germany                   | -175                                    | 0.42        | -11,425        | 0.47        | -465          | 1.11        | -27,605         | 1.12        |
| Denmark                   | -10                                     | 0.36        | -620           | 0.29        | -20           | 0.72        | -1,515          | 0.70        |
| Estonia                   | -45                                     | 7.33        | -975           | 5.99        | -120          | 19.56       | -2,580          | 15.85       |
| Spain                     | -45                                     | 0.26        | -1,940         | 0.21        | -160          | 0.93        | -6,640          | 0.71        |
| Finland                   | -20                                     | 0.80        | -1,370         | 0.83        | -40           | 1.61        | -2,730          | 1.65        |
| France                    | -50                                     | 0.19        | -3,255         | 0.18        | -145          | 0.54        | -9,860          | 0.53        |
| Great Britain             | -30                                     | 0.10        | -1,815         | 0.11        | -110          | 0.37        | -6,990          | 0.42        |
| Greece                    | -10                                     | 0.26        | -200           | 0.13        | -25           | 0.64        | -925            | 0.58        |
| Hungary                   | -20                                     | 0.49        | -405           | 0.49        | -45           | 1.10        | -985            | 1.20        |
| Ireland                   | -5                                      | 0.27        | -335           | 0.23        | -10           | 0.53        | -920            | 0.62        |
| Italy                     | -80                                     | 0.33        | -4,140         | 0.30        | -215          | 0.89        | -11,815         | 0.84        |
| Lithuania                 | -95                                     | 7.35        | -1,220         | 3.91        | -165          | 12.77       | -2,400          | 7.70        |
| Luxembourg                | 0                                       | 0.00        | -25            | 0.06        | 0             | 0.00        | -115            | 0.28        |
| Latvia                    | -15                                     | 1.69        | -240           | 1.15        | -35           | 3.94        | -525            | 2.51        |
| Malta                     | 0                                       | 0.00        | 0              | 0.00        | 0             | 0.00        | 0               | 0.00        |
| Netherlands               | -30                                     | 0.35        | -1,940         | 0.36        | -75           | 0.87        | -4,570          | 0.85        |
| Poland                    | -150                                    | 0.97        | -2,245         | 0.65        | -335          | 2.17        | -5,660          | 1.64        |
| Portugal                  | -5                                      | 0.11        | -160           | 0.11        | -25           | 0.55        | -640            | 0.44        |
| Romania                   | -25                                     | 0.27        | -235           | 0.19        | -80           | 0.87        | -900            | 0.72        |
| Sweden                    | -15                                     | 0.32        | -995           | 0.27        | -30           | 0.64        | -2,230          | 0.60        |
| Slovenia                  | -5                                      | 0.54        | -210           | 0.69        | -15           | 1.63        | -470            | 1.54        |
| Slovakia                  | -15                                     | 0.68        | -395           | 0.60        | -35           | 1.60        | -890            | 1.36        |
| <b>EU 27</b>              | <b>-940</b>                             | <b>0.42</b> | <b>-37,750</b> | <b>0.32</b> | <b>-2,370</b> | <b>1.07</b> | <b>-99,240</b>  | <b>0.85</b> |
| Switzerland               | -10                                     | 0.21        | -850           | 0.17        | -40           | 0.83        | -2,965          | 0.59        |
| <b>EU27 + Switzerland</b> | <b>-950</b>                             | <b>0.42</b> | <b>-38,600</b> | <b>0.32</b> | <b>-2,410</b> | <b>1.06</b> | <b>-102,205</b> | <b>0.84</b> |

Source: WIFO calculations.

Table 5d: Simulation results by country: employment and real value added impacts due to a decline in tourism demand and exports

| Tourism and exports   |             |             |                |             |               |             |                |             |
|---|-------------|-------------|----------------|-------------|---------------|-------------|----------------|-------------|
| 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |             |             |                |             |               |             |                |             |
|   | Short term  |             |                |             | Long term     |             |                |             |
|   | Employment  |             | Value added    |             | Employment    |             | Value added    |             |
|   | in 1.000    | in %        | in mn €        | in %        | in 1.000      | in %        | in mn €        | in %        |
| Austria   | -15         | 0.35        | -990           | 0.35        | -40           | 0.95        | -2,505         | 0.88        |
| Belgium   | -15         | 0.33        | -1,010         | 0.30        | -30           | 0.66        | -2,345         | 0.69        |
| Bulgaria  | -20         | 0.58        | -155           | 0.45        | -65           | 1.90        | -410           | 1.20        |
| Cyprus  | -5          | 1.40        | -205           | 1.36        | -15           | 4.21        | -490           | 3.25        |
| Czech Republic  | -45         | 0.88        | -1,015         | 0.76        | -90           | 1.76        | -2,045         | 1.53        |
| Germany   | -145        | 0.35        | -9,475         | 0.39        | -395          | 0.94        | -23,385        | 0.95        |
| Denmark   | -10         | 0.36        | -580           | 0.27        | -20           | 0.72        | -1,390         | 0.65        |
| Estonia   | -40         | 6.52        | -800           | 4.91        | -100          | 16.30       | -2,155         | 13.24       |
| Spain   | -60         | 0.35        | -2,525         | 0.27        | -190          | 1.10        | -7,815         | 0.84        |
| Finland   | -15         | 0.60        | -1,200         | 0.72        | -35           | 1.41        | -2,405         | 1.45        |
| France  | -40         | 0.15        | -2,460         | 0.13        | -120          | 0.45        | -7,925         | 0.43        |
| Great Britain   | -20         | 0.07        | -1,570         | 0.09        | -95           | 0.32        | -6,175         | 0.37        |
| Greece  | -15         | 0.38        | -590           | 0.37        | -55           | 1.41        | -2,135         | 1.33        |
| Hungary   | -15         | 0.37        | -390           | 0.47        | -45           | 1.10        | -935           | 1.14        |
| Ireland   | -5          | 0.27        | -305           | 0.21        | -10           | 0.53        | -835           | 0.57        |
| Italy   | -75         | 0.31        | -3,820         | 0.27        | -200          | 0.83        | -10,930        | 0.78        |
| Lithuania   | -85         | 6.58        | -1,010         | 3.24        | -140          | 10.84       | -1,985         | 6.37        |
| Luxembourg  | 0           | 0.00        | -55            | 0.14        | 0             | 0.00        | -150           | 0.37        |
| Latvia  | -10         | 1.13        | -175           | 0.84        | -25           | 2.81        | -390           | 1.87        |
| Malta   | 0           | 0.00        | 0              | 0.00        | 0             | 0.00        | 0              | 0.00        |
| Netherlands   | -25         | 0.29        | -1,450         | 0.27        | -60           | 0.70        | -3,630         | 0.67        |
| Poland  | -135        | 0.87        | -1,945         | 0.56        | -300          | 1.94        | -4,930         | 1.42        |
| Portugal  | -5          | 0.11        | -170           | 0.12        | -25           | 0.55        | -655           | 0.45        |
| Romania   | -20         | 0.22        | -235           | 0.19        | -80           | 0.87        | -890           | 0.71        |
| Sweden  | -10         | 0.21        | -815           | 0.22        | -25           | 0.53        | -1,870         | 0.51        |
| Slovenia  | -5          | 0.54        | -150           | 0.49        | -10           | 1.09        | -355           | 1.16        |
| Slovakia  | -15         | 0.68        | -380           | 0.58        | -30           | 1.37        | -840           | 1.28        |
| <b>EU 27</b>  | <b>-870</b> | <b>0.39</b> | <b>-33,485</b> | <b>0.29</b> | <b>-2,205</b> | <b>0.99</b> | <b>-89,580</b> | <b>0.77</b> |
| Switzerland   | -10         | 0.21        | -805           | 0.16        | -40           | 0.83        | -2,755         | 0.55        |
| <b>EU27 + Switzerland</b>                                   | <b>-880</b> | <b>0.39</b> | <b>-34,290</b> | <b>0.28</b> | <b>-2,235</b> | <b>0.99</b> | <b>-92,340</b> | <b>0.76</b> |

Source: WIFO calculations.

Table 6a: Simulation results by sector (for EU 27 and Switzerland): employment and real value added impacts due to a decline in tourism demand

|   | Tourism                                     |         |             |          |            |         |             |     |
|---|---|---------|-------------|----------|------------|---------|-------------|-----|
|   | Winter season (November 2014 to April 2015) |         |             |          |            |         |             |     |
|   | Short term                                  |         |             |          | Long term  |         |             |     |
|   | Employment                                  |         | Value added |          | Employment |         | Value added |     |
| in 1.000                                  | in %  | in mn € | in %        | in 1.000 | in %       | in mn € | in %        |     |
| Agriculture                               | -5  | 4.5     | -85         | 2.3      | -25        | 8.3     | -290        | 2.6 |
| Forestry                                  | 0   | 0.0     | -5          | 0.1      | 0          | 0.0     | -25         | 0.2 |
| Fishing                                   | 0   | 0.0     | -5          | 0.1      | 0          | 0.0     | -20         | 0.2 |
| Mining of coal                            | 0   | 0.0     | -5          | 0.1      | 0          | 0.0     | -15         | 0.1 |
| Extrac. of crude petroleum, nat. gas      | 0   | 0.0     | -15         | 0.4      | 0          | 0.0     | -50         | 0.4 |
| Mining of uranium and thorium ores        | 0   | 0.0     | 0           | 0.0      | 0          | 0.0     | 0           | 0.0 |
| Mining of metal ores                      | 0   | 0.0     | 0           | 0.0      | 0          | 0.0     | -5          | 0.0 |
| Other mining and quarrying                | 0   | 0.0     | -5          | 0.1      | 0          | 0.0     | -20         | 0.2 |
| Manuf. of food products, beverages        | 0   | 0.0     | -90         | 2.5      | -10        | 3.3     | -295        | 2.6 |
| Manuf. of tobacco products                | 0   | 0.0     | -15         | 0.4      | 0          | 0.0     | -50         | 0.4 |
| Manuf. of textiles                        | 0   | 0.0     | -15         | 0.4      | 0          | 0.0     | -45         | 0.4 |
| Manuf. of wearing apparel                 | 0   | 0.0     | -20         | 0.5      | -5         | 1.7     | -55         | 0.5 |
| Tanning and dressing of leather           | 0   | 0.0     | -10         | 0.3      | 0          | 0.0     | -25         | 0.2 |
| Manuf. of wood                            | 0   | 0.0     | -15         | 0.4      | 0          | 0.0     | -50         | 0.4 |
| Manuf. of pulp and paper                  | 0   | 0.0     | -15         | 0.4      | 0          | 0.0     | -50         | 0.4 |
| Publishing and printing                   | 0   | 0.0     | -35         | 1.0      | 0          | 0.0     | -100        | 0.9 |
| Manuf. of refined petroleum products      | 0   | 0.0     | -25         | 0.7      | 0          | 0.0     | -55         | 0.5 |
| Manuf. of chemicals                       | 0   | 0.0     | -45         | 1.2      | 0          | 0.0     | -155        | 1.4 |
| Manuf. of plastic products                | 0   | 0.0     | -25         | 0.7      | 0          | 0.0     | -80         | 0.7 |
| Manuf. of other mineral products          | 0   | 0.0     | -30         | 0.8      | -5         | 1.7     | -105        | 0.9 |
| Manuf. of basic metals                    | 0   | 0.0     | -25         | 0.7      | 0          | 0.0     | -85         | 0.8 |
| Manuf. of fabricated metal products       | 0   | 0.0     | -55         | 1.5      | -5         | 1.7     | -185        | 1.6 |
| Manuf. of machinery and equipm. n.e.c.    | 0   | 0.0     | -50         | 1.4      | -5         | 1.7     | -175        | 1.6 |
| Manuf. of office machinery, computers     | 0   | 0.0     | 0           | 0.0      | 0          | 0.0     | -10         | 0.1 |
| Manuf. of electrical machinery            | 0   | 0.0     | -25         | 0.7      | 0          | 0.0     | -80         | 0.7 |
| Manuf. of radio, TV, comm. equipm.        | 0   | 0.0     | -10         | 0.3      | 0          | 0.0     | -40         | 0.4 |
| Manuf. of medical, precision, opt. instr. | 0   | 0.0     | -10         | 0.3      | 0          | 0.0     | -40         | 0.4 |
| Manuf. of motor vehicles                  | 0   | 0.0     | -30         | 0.8      | 0          | 0.0     | -130        | 1.2 |
| Manuf. of other transport equipment       | 0   | 0.0     | -30         | 0.8      | 0          | 0.0     | -50         | 0.4 |
| Manuf. of furniture; manufact. n.e.c.     | 0   | 0.0     | -25         | 0.7      | -5         | 1.7     | -80         | 0.7 |

Table 6a/continued

| Tourism  |             |              |               |              |             |              |                |              |
|--|-------------|--------------|---------------|--------------|-------------|--------------|----------------|--------------|
| Winter season (November 2014 to April 2015)    |             |              |               |              |             |              |                |              |
|  | Short term  |              |               |              | Long term   |              |                |              |
|  | Employment  |              | Value added   |              | Employment  |              | Value added    |              |
|  | in 1.000    | in %         | in mn €       | in %         | in 1.000    | in %         | in mn €        | in %         |
| Recycling                                      | 0           | 0.0          | -5            | 0.1          | 0           | 0.0          | -10            | 0.1          |
| Electricity and gas supply                     | 0           | 0.0          | -65           | 1.8          | 0           | 0.0          | -250           | 2.2          |
| Distribution of water                          | 0           | 0.0          | -5            | 0.1          | 0           | 0.0          | -30            | 0.3          |
| Construction                                   | -5          | 4.5          | -220          | 6.0          | -25         | 8.3          | -840           | 7.4          |
| Sale and repair of motor vehicles              | -5          | 4.5          | -90           | 2.5          | -10         | 3.3          | -300           | 2.7          |
| Wholesale trade and commission trade           | -5          | 4.5          | -190          | 5.2          | -15         | 5.0          | -675           | 6.0          |
| Retail trade                                   | -5          | 4.5          | -130          | 3.6          | -25         | 8.3          | -580           | 5.1          |
| Hotels and restaurants                         | -30         | 27.3         | -790          | 21.6         | -45         | 15.0         | -1,245         | 11.0         |
| Land transport                                 | -5          | 4.5          | -190          | 5.2          | -10         | 3.3          | -390           | 3.5          |
| Water transport                                | 0           | 0.0          | -10           | 0.3          | 0           | 0.0          | -25            | 0.2          |
| Air transport                                  | 0           | 0.0          | -155          | 4.2          | 0           | 0.0          | -180           | 1.6          |
| Supporting and auxiliary transport act.        | 0           | 0.0          | -95           | 2.6          | -5          | 1.7          | -220           | 1.9          |
| Post and telecommunications                    | 0           | 0.0          | -100          | 2.7          | -5          | 1.7          | -310           | 2.7          |
| Financial intermediation                       | 0           | 0.0          | -85           | 2.3          | -5          | 1.7          | -415           | 3.7          |
| Insurance and pension funding                  | 0           | 0.0          | -15           | 0.4          | 0           | 0.0          | -95            | 0.8          |
| Activities auxiliary to financial              | 0           | 0.0          | -10           | 0.3          | 0           | 0.0          | -65            | 0.6          |
| Real estate activities                         | 0           | 0.0          | -175          | 4.8          | -5          | 1.7          | -1,270         | 11.2         |
| Renting of machinery and equipment             | 0           | 0.0          | -45           | 1.2          | 0           | 0.0          | -110           | 1.0          |
| Computer and related activities                | 0           | 0.0          | -50           | 1.4          | -5          | 1.7          | -160           | 1.4          |
| Research and development                       | 0           | 0.0          | -10           | 0.3          | 0           | 0.0          | -30            | 0.3          |
| Other business activities                      | -5          | 4.5          | -225          | 6.2          | -15         | 5.0          | -735           | 6.5          |
| Public administration                          | 0           | 0.0          | -20           | 0.5          | 0           | 0.0          | -85            | 0.8          |
| Education                                      | 0           | 0.0          | -25           | 0.7          | -5          | 1.7          | -150           | 1.3          |
| Health and social work                         | 0           | 0.0          | -25           | 0.7          | -5          | 1.7          | -205           | 1.8          |
| Sewage and refuse disposal                     | 0           | 0.0          | -10           | 0.3          | 0           | 0.0          | -55            | 0.5          |
| Activities of membership organizations         | 0           | 0.0          | -10           | 0.3          | 0           | 0.0          | -25            | 0.2          |
| Recreational, cultural and sporting activities | -5          | 4.5          | -150          | 4.1          | -10         | 3.3          | -290           | 2.6          |
| Other service activities                       | 0           | 0.0          | -40           | 1.1          | -5          | 1.7          | -120           | 1.1          |
| Activities of households                       | 0           | 0.0          | 0             | 0.0          | -10         | 3.3          | -65            | 0.6          |
| <b>Total</b>                                   | <b>-110</b> | <b>100.0</b> | <b>-3,655</b> | <b>100.0</b> | <b>-300</b> | <b>100.0</b> | <b>-11,290</b> | <b>100.0</b> |

Source: WIFO calculations.

Table 6b: Simulation results by sector (for EU 27 and Switzerland): employment and real value added impacts due to a decline in exports

|   | Exports   |                        |        |                              |                        |      | Exports                |                        |      |                        |                        |      |      |      |        |     |
|---|---|------------------------|--------|------------------------------|------------------------|------|------------------------|------------------------|------|------------------------|------------------------|------|------|------|--------|-----|
|   | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |                        |        | 1 <sup>st</sup> quarter 2015 |                        |      | Short term             |                        |      | Long term              |                        |      |      |      |        |     |
|   | Employment<br>in 1,000                                      | Value added<br>in mn € | in %   | Employment<br>in 1,000       | Value added<br>in mn € | in % | Employment<br>in 1,000 | Value added<br>in mn € | in % | Employment<br>in 1,000 | Value added<br>in mn € | in % |      |      |        |     |
| Agriculture                               | -145  | 18.8                   | -1,575 | 5.1                          | -235                   | 12.1 | -2,715                 | 3.3                    | -150 | 15.8                   | -1,650                 | 4.3  | -265 | 11.0 | -3,080 | 3.0 |
| Forestry                                  | -5  | 0.6                    | -95    | 0.3                          | -15                    | 0.8  | -220                   | 0.3                    | -10  | 1.1                    | -120                   | 0.3  | -20  | 0.8  | -280   | 0.3 |
| Fishing                                   | 0   | 0.0                    | -30    | 0.1                          | -5                     | 0.3  | -75                    | 0.1                    | 0    | 0.0                    | -30                    | 0.1  | -5   | 0.2  | -85    | 0.1 |
| Mining of coal                            | 0   | 0.0                    | -55    | 0.2                          | -5                     | 0.3  | -135                   | 0.2                    | 0    | 0.0                    | -65                    | 0.2  | -5   | 0.2  | -165   | 0.2 |
| Extrac. of crude petroleum, nat. gas      | 0   | 0.0                    | -185   | 0.6                          | 0                      | 0.0  | -510                   | 0.6                    | 0    | 0.0                    | -240                   | 0.6  | -5   | 0.2  | -645   | 0.6 |
| Mining of uranium and thorium ores        | 0   | 0.0                    | 0      | 0.0                          | 0                      | 0.0  | 0                      | 0.0                    | 0    | 0.0                    | 0                      | 0.0  | 0    | 0.0  | 0      | 0.0 |
| Mining of metal ores                      | 0   | 0.0                    | -55    | 0.2                          | -5                     | 0.3  | -90                    | 0.1                    | 0    | 0.0                    | -55                    | 0.1  | -5   | 0.2  | -100   | 0.1 |
| Other mining and quarrying                | 0   | 0.0                    | -50    | 0.2                          | 0                      | 0.0  | -125                   | 0.2                    | 0    | 0.0                    | -60                    | 0.2  | -5   | 0.2  | -150   | 0.1 |
| Manuf. of food products, bev erages       | -40   | 5.2                    | -1,405 | 4.6                          | -75                    | 3.9  | -2,735                 | 3.4                    | -45  | 4.7                    | -1,525                 | 4.0  | -90  | 3.7  | -3,195 | 3.1 |
| Manuf. of tobacco products                | 0   | 0.0                    | 0      | 0.0                          | -5                     | 0.3  | -215                   | 0.3                    | 0    | 0.0                    | 5                      | 0.0  | -5   | 0.2  | -265   | 0.3 |
| Manuf. of textiles                        | -5  | 0.6                    | -170   | 0.6                          | -15                    | 0.8  | -355                   | 0.4                    | -10  | 1.1                    | -240                   | 0.6  | -25  | 1.0  | -470   | 0.5 |
| Manuf. of wearing apparel                 | -10   | 1.3                    | -185   | 0.6                          | -25                    | 1.3  | -385                   | 0.5                    | -15  | 1.6                    | -230                   | 0.6  | -30  | 1.2  | -485   | 0.5 |
| Tanning and dressing of leather           | -5  | 0.6                    | -150   | 0.5                          | -10                    | 0.5  | -240                   | 0.3                    | -5   | 0.5                    | -170                   | 0.4  | -15  | 0.6  | -290   | 0.3 |
| Manuf. of wood                            | -10   | 1.3                    | -210   | 0.7                          | -20                    | 1.0  | -470                   | 0.6                    | -10  | 1.1                    | -265                   | 0.7  | -25  | 1.0  | -590   | 0.6 |
| Manuf. of pulp and paper                  | -5  | 0.6                    | -255   | 0.8                          | -10                    | 0.5  | -480                   | 0.6                    | -5   | 0.5                    | -310                   | 0.8  | -10  | 0.4  | -600   | 0.6 |
| Publishing and printing                   | -5  | 0.6                    | -235   | 0.8                          | -15                    | 0.8  | -765                   | 0.9                    | -5   | 0.5                    | -300                   | 0.8  | -20  | 0.8  | -970   | 0.9 |
| Manuf. of refined petroleum products      | 0   | 0.0                    | -130   | 0.4                          | 0                      | 0.0  | -325                   | 0.4                    | 0    | 0.0                    | -165                   | 0.4  | -5   | 0.2  | -410   | 0.4 |
| Manuf. of chemicals                       | -10   | 1.3                    | -1,170 | 3.8                          | -20                    | 1.0  | -1,965                 | 2.4                    | -15  | 1.6                    | -1,645                 | 4.3  | -25  | 1.0  | -2,650 | 2.6 |
| Manuf. of plastic products                | -15   | 1.9                    | -605   | 2.0                          | -25                    | 1.3  | -1,005                 | 1.2                    | -20  | 2.1                    | -785                   | 2.0  | -30  | 1.2  | -1,290 | 1.3 |
| Manuf. of other mineral products          | -10   | 1.3                    | -385   | 1.3                          | -20                    | 1.0  | -840                   | 1.0                    | -10  | 1.1                    | -485                   | 1.3  | -25  | 1.0  | -1,055 | 1.0 |
| Manuf. of basic metals                    | -15   | 1.9                    | -725   | 2.4                          | -25                    | 1.3  | -1,095                 | 1.4                    | -20  | 2.1                    | -975                   | 2.5  | -30  | 1.2  | -1,445 | 1.4 |
| Manuf. of fabricated metal products       | -30   | 3.9                    | -1,355 | 4.4                          | -50                    | 2.6  | -2,215                 | 2.7                    | -40  | 4.2                    | -1,780                 | 4.6  | -65  | 2.7  | -2,870 | 2.8 |
| Manuf. of machinery and equipm. n.e.c.    | -40   | 5.2                    | -2,255 | 7.4                          | -55                    | 2.8  | -3,165                 | 3.9                    | -55  | 5.8                    | -3,050                 | 7.9  | -75  | 3.1  | -4,195 | 4.1 |
| Manuf. of office machinery, computers     | 0   | 0.0                    | -80    | 0.3                          | 0                      | 0.0  | -125                   | 0.2                    | 0    | 0.0                    | -115                   | 0.3  | -5   | 0.2  | -170   | 0.2 |
| Manuf. of electrical machinery            | -15   | 1.9                    | -810   | 2.6                          | -25                    | 1.3  | -1,225                 | 1.5                    | -20  | 2.1                    | -1,050                 | 2.7  | -35  | 1.5  | -1,575 | 1.5 |
| Manuf. of radio, TV, comm. equipm.        | -5  | 0.6                    | -215   | 0.7                          | -10                    | 0.5  | -415                   | 0.5                    | -5   | 0.5                    | -320                   | 0.8  | -10  | 0.4  | -565   | 0.6 |
| Manuf. of medical, precision, opt. instr. | -5  | 0.6                    | -440   | 1.4                          | -10                    | 0.5  | -685                   | 0.8                    | -10  | 1.1                    | -645                   | 1.7  | -15  | 0.6  | -955   | 0.9 |
| Manuf. of motor vehicles                  | -40   | 5.2                    | -2,225 | 7.3                          | -50                    | 2.6  | -2,995                 | 3.7                    | -40  | 4.2                    | -2,465                 | 6.4  | -60  | 2.5  | -3,435 | 3.4 |
| Manuf. of other transport equipment       | -5  | 0.6                    | -225   | 0.7                          | -5                     | 0.3  | -370                   | 0.5                    | -5   | 0.5                    | -395                   | 1.0  | -10  | 0.4  | -575   | 0.6 |
| Manuf. of furniture; manufact. n.e.c.     | -10   | 1.3                    | -305   | 1.0                          | -25                    | 1.3  | -670                   | 0.8                    | -15  | 1.6                    | -390                   | 1.0  | -35  | 1.5  | -855   | 0.8 |

Table 6b/continued

|   | Exports   |                        |                             |                              |                    |                     | Exports   |                             |                    |                              |                        |                             |                    |                     |
|---|---|------------------------|-----------------------------|------------------------------|--------------------|---------------------|---|-----------------------------|--------------------|------------------------------|------------------------|-----------------------------|--------------------|---------------------|
|   | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |                        |                             | 1 <sup>st</sup> quarter 2015 |                    |                     | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |                             |                    | 1 <sup>st</sup> quarter 2015 |                        |                             |                    |                     |
|   | Short term  |                        | Long term                   |                              | Short term         |                     | Long term   |                             | Short term         |                              | Long term              |                             |                    |                     |
|   | Employment<br>in 1,000                                      | Value added<br>in mn € | Employment<br>in % in 1,000 | Value added<br>in % in mn €  | Employment<br>in % | Value added<br>in % | Employment<br>in 1,000                                      | Value added<br>in % in mn € | Employment<br>in % | Value added<br>in %          | Employment<br>in 1,000 | Value added<br>in % in mn € | Employment<br>in % | Value added<br>in % |
| Recycling                               | 0   | -60                    | 0.2                         | -105                         | 0.3                | -105                | -5  | -75                         | 0.2                | -130                         | -5                     | -75                         | 0.2                | -130                |
| Electricity and gas supply              | -5  | -600                   | 2.0                         | -1,875                       | 0.8                | -1,875              | -5  | -755                        | 2.0                | -2,355                       | -5                     | -755                        | 2.0                | -2,355              |
| Distribution of water                   | 0   | -60                    | 0.2                         | -215                         | 0.0                | -215                | 0   | -75                         | 0.2                | -270                         | 0                      | -75                         | 0.2                | -270                |
| Construction                            | -40   | -1,235                 | 4.0                         | -4,840                       | 7.2                | -4,840              | -50   | -1,540                      | 4.0                | -6,090                       | -50                    | -1,540                      | 4.0                | -6,090              |
| Sale and repair of motor vehicles       | -20   | -735                   | 2.4                         | -2,235                       | 3.1                | -2,235              | -25   | -900                        | 2.3                | -2,770                       | -25                    | -900                        | 2.3                | -2,770              |
| Wholesale trade and commission trade    | -55   | -2,720                 | 8.9                         | -5,680                       | 6.2                | -5,680              | -70   | -3,455                      | 9.0                | -7,195                       | -70                    | -3,455                      | 9.0                | -7,195              |
| Retail trade                            | -55   | -1,230                 | 4.0                         | -4,240                       | 9.3                | -4,240              | -65   | -1,555                      | 4.0                | -5,350                       | -65                    | -1,555                      | 4.0                | -5,350              |
| Hotels and restaurants                  | -5  | -140                   | 0.5                         | -2,085                       | 3.9                | -2,085              | -5  | -180                        | 0.5                | -2,635                       | -5                     | -180                        | 0.5                | -2,635              |
| Land transport                          | -25   | -850                   | 2.8                         | -2,230                       | 3.1                | -2,230              | -30   | -1,075                      | 2.8                | -2,810                       | -30                    | -1,075                      | 2.8                | -2,810              |
| Water transport                         | 0   | -60                    | 0.2                         | -155                         | 0.0                | -155                | 0   | -80                         | 0.2                | -195                         | 0                      | -80                         | 0.2                | -195                |
| Air transport                           | 0   | -50                    | 0.2                         | -200                         | 0.3                | -200                | 0   | -65                         | 0.2                | -255                         | 0                      | -65                         | 0.2                | -255                |
| Supporting and auxiliary transport act. | -10   | -545                   | 1.8                         | -1,435                       | 1.6                | -1,435              | -15   | -690                        | 1.8                | -1,815                       | -15                    | -690                        | 1.8                | -1,815              |
| Post and telecommunications             | -5  | -375                   | 1.2                         | -1,735                       | 1.6                | -1,735              | -10   | -475                        | 1.2                | -2,190                       | -10                    | -475                        | 1.2                | -2,190              |
| Financial intermediation                | -5  | -620                   | 2.0                         | -2,735                       | 1.6                | -2,735              | -10   | -775                        | 2.0                | -3,425                       | -10                    | -775                        | 2.0                | -3,425              |
| Insurance and pension funding           | 0   | -95                    | 0.3                         | -740                         | 0.5                | -740                | 0   | -120                        | 0.3                | -940                         | 0                      | -120                        | 0.3                | -940                |
| Activities auxiliary to financial       | 0   | -115                   | 0.4                         | -545                         | 0.3                | -545                | 0   | -145                        | 0.4                | -690                         | 0                      | -145                        | 0.4                | -690                |
| Real estate activities                  | -5  | -1,160                 | 3.8                         | -8,860                       | 1.6                | -8,860              | -5  | -1,460                      | 3.8                | -11,210                      | -5                     | -1,460                      | 3.8                | -11,210             |
| Renting of machinery and equipment      | -5  | -325                   | 1.1                         | -890                         | 0.8                | -890                | -10   | -405                        | 1.0                | -1,120                       | -10                    | -405                        | 1.0                | -1,120              |
| Computer and related activities         | -10   | -505                   | 1.6                         | -1,330                       | 1.3                | -1,330              | -15   | -665                        | 1.7                | -1,715                       | -15                    | -665                        | 1.7                | -1,715              |
| Research and development                | -5  | -195                   | 0.6                         | -385                         | 0.3                | -385                | -5  | -265                        | 0.7                | -510                         | -5                     | -265                        | 0.7                | -510                |
| Other business activities               | -50   | -2,555                 | 8.3                         | -6,460                       | 6.7                | -6,460              | -65   | -3,270                      | 8.5                | -8,230                       | -65                    | -3,270                      | 8.5                | -8,230              |
| Public administration                   | -5  | -175                   | 0.6                         | -645                         | 0.8                | -645                | -5  | -220                        | 0.6                | -805                         | -5                     | -220                        | 0.6                | -805                |
| Education                               | -5  | -135                   | 0.4                         | -780                         | 1.3                | -780                | -5  | -175                        | 0.5                | -990                         | -5                     | -175                        | 0.5                | -990                |
| Health and social work                  | -5  | -60                    | 0.2                         | -1,320                       | 2.1                | -1,320              | -5  | -70                         | 0.2                | -1,655                       | -5                     | -70                         | 0.2                | -1,655              |
| Sewage and refuse disposal              | -5  | -110                   | 0.4                         | -455                         | 0.8                | -455                | -5  | -140                        | 0.4                | -570                         | -5                     | -140                        | 0.4                | -570                |
| Activities of membership organizations  | 0   | -60                    | 0.2                         | -210                         | 0.3                | -210                | 0   | -80                         | 0.2                | -260                         | 0                      | -80                         | 0.2                | -260                |
| Recreational, cultural and sporting     | -5  | -215                   | 0.7                         | -1,085                       | 1.6                | -1,085              | -5  | -255                        | 0.7                | -1,360                       | -5                     | -255                        | 0.7                | -1,360              |
| Other service activities                | 0   | -85                    | 0.3                         | -630                         | 0.8                | -630                | -5  | -105                        | 0.3                | -795                         | -5                     | -105                        | 0.3                | -795                |
| Activities of households                | 0   | 0                      | 0.0                         | -345                         | 2.1                | -345                | 0   | 0                           | 0.0                | -435                         | 0                      | 0                           | 0.0                | -435                |
| <b>Total</b>                            | <b>-770</b>   | <b>100.0</b>           | <b>30,635</b>               | <b>100.0</b>                 | <b>-1,935</b>      | <b>100.0</b>        | <b>-950</b>   | <b>100.0</b>                | <b>-38,600</b>     | <b>100.0</b>                 | <b>-2,410</b>          | <b>100.0</b>                | <b>-102,205</b>    | <b>100.0</b>        |

Source: WIFO calculations.

Table 6c: Simulation results by sector (for EU 27 and Switzerland): employment and real value added impacts due to a decline in tourism demand and exports

|   | Tourism and exports   |      |             |      |            |      |             |      |
|---|---|------|-------------|------|------------|------|-------------|------|
|   | 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |      |             |      |            |      |             |      |
|   | Short term  |      |             |      | Long term  |      |             |      |
|   | Employment  |      | Value added |      | Employment |      | Value added |      |
|   | in 1.000  | in % | in mn €     | in % | in 1.000   | in % | in mn €     | in % |
| Agriculture                               | -150  | 17.0 | -1,660      | 4.8  | -260       | 11.6 | -3,005      | 3.3  |
| Forestry                                  | -5  | 0.6  | -100        | 0.3  | -15        | 0.7  | -245        | 0.3  |
| Fishing                                   | 0   | 0.0  | -35         | 0.1  | -5         | 0.2  | -95         | 0.1  |
| Mining of coal                            | 0   | 0.0  | -60         | 0.2  | -5         | 0.2  | -150        | 0.2  |
| Extrac. of crude petroleum, nat. gas      | 0   | 0.0  | -200        | 0.6  | 0          | 0.0  | -560        | 0.6  |
| Mining of uranium and thorium ores        | 0   | 0.0  | 0           | 0.0  | 0          | 0.0  | 0           | 0.0  |
| Mining of metal ores                      | 0   | 0.0  | -55         | 0.2  | -5         | 0.2  | -95         | 0.1  |
| Other mining and quarrying                | 0   | 0.0  | -55         | 0.2  | 0          | 0.0  | -145        | 0.2  |
| Manuf. of food products, beverages        | -40   | 4.5  | -1,495      | 4.4  | -85        | 3.8  | -3,030      | 3.3  |
| Manuf. of tobacco products                | 0   | 0.0  | -15         | 0.0  | -5         | 0.2  | -265        | 0.3  |
| Manuf. of textiles                        | -5  | 0.6  | -185        | 0.5  | -15        | 0.7  | -400        | 0.4  |
| Manuf. of wearing apparel                 | -10   | 1.1  | -205        | 0.6  | -30        | 1.3  | -440        | 0.5  |
| Tanning and dressing of leather           | -5  | 0.6  | -160        | 0.5  | -10        | 0.4  | -265        | 0.3  |
| Manuf. of wood                            | -10   | 1.1  | -225        | 0.7  | -20        | 0.9  | -520        | 0.6  |
| Manuf. of pulp and paper                  | -5  | 0.6  | -270        | 0.8  | -10        | 0.4  | -530        | 0.6  |
| Publishing and printing                   | -5  | 0.6  | -270        | 0.8  | -15        | 0.7  | -865        | 0.9  |
| Manuf. of refined petroleum products      | 0   | 0.0  | -155        | 0.5  | 0          | 0.0  | -380        | 0.4  |
| Manuf. of chemicals                       | -10   | 1.1  | -1,215      | 3.5  | -20        | 0.9  | -2,120      | 2.3  |
| Manuf. of plastic products                | -15   | 1.7  | -630        | 1.8  | -25        | 1.1  | -1,085      | 1.2  |
| Manuf. of other mineral products          | -10   | 1.1  | -415        | 1.2  | -25        | 1.1  | -945        | 1.0  |
| Manuf. of basic metals                    | -15   | 1.7  | -750        | 2.2  | -25        | 1.1  | -1,180      | 1.3  |
| Manuf. of fabricated metal products       | -30   | 3.4  | -1,410      | 4.1  | -55        | 2.5  | -2,400      | 2.6  |
| Manuf. of machinery and equipm. n.e.c.    | -40   | 4.5  | -2,305      | 6.7  | -60        | 2.7  | -3,340      | 3.6  |
| Manuf. of office machinery, computers     | 0   | 0.0  | -80         | 0.2  | 0          | 0.0  | -135        | 0.1  |
| Manuf. of electrical machinery            | -15   | 1.7  | -835        | 2.4  | -25        | 1.1  | -1,305      | 1.4  |
| Manuf. of radio, TV, comm. equipm.        | -5  | 0.6  | -225        | 0.7  | -10        | 0.4  | -455        | 0.5  |
| Manuf. of medical, precision, opt. instr. | -5  | 0.6  | -450        | 1.3  | -10        | 0.4  | -725        | 0.8  |
| Manuf. of motor vehicles                  | -40   | 4.5  | -2,255      | 6.6  | -50        | 2.2  | -3,125      | 3.4  |
| Manuf. of other transport equipment       | -5  | 0.6  | -255        | 0.7  | -5         | 0.2  | -420        | 0.5  |
| Manuf. of furniture; manufact. n.e.c.     | -10   | 1.1  | -330        | 1.0  | -30        | 1.3  | -750        | 0.8  |

Table 6c/continued

| Tourism and exports   |             |              |                |              |               |              |                |              |
|---|-------------|--------------|----------------|--------------|---------------|--------------|----------------|--------------|
| 4 <sup>th</sup> quarter 2014 - 1 <sup>st</sup> quarter 2015 |             |              |                |              |               |              |                |              |
|   | Short term  |              |                |              | Long term     |              |                |              |
|   | Employment  |              | Value added    |              | Employment    |              | Value added    |              |
|   | in 1.000    | in %         | in mn €        | in %         | in 1.000      | in %         | in mn €        | in %         |
| Recycling   | 0           | 0.0          | -65            | 0.2          | -5            | 0.2          | -115           | 0.1          |
| Electricity and gas supply                                  | -5          | 0.6          | -665           | 1.9          | -15           | 0.7          | -2,125         | 2.3          |
| Distribution of water                                       | 0           | 0.0          | -65            | 0.2          | 0             | 0.0          | -245           | 0.3          |
| Construction  | -45         | 5.1          | -1,455         | 4.2          | -165          | 7.4          | -5,680         | 6.2          |
| Sale and repair of motor vehicles                           | -25         | 2.8          | -825           | 2.4          | -70           | 3.1          | -2,535         | 2.7          |
| Wholesale trade and commission trade                        | -60         | 6.8          | -2,910         | 8.5          | -135          | 6.0          | -6,355         | 6.9          |
| Retail trade  | -60         | 6.8          | -1,360         | 4.0          | -205          | 9.2          | -4,820         | 5.2          |
| Hotels and restaurants                                      | -35         | 4.0          | -930           | 2.7          | -120          | 5.4          | -3,330         | 3.6          |
| Land transport  | -30         | 3.4          | -1,040         | 3.0          | -70           | 3.1          | -2,620         | 2.8          |
| Water transport   | 0           | 0.0          | -70            | 0.2          | 0             | 0.0          | -180           | 0.2          |
| Air transport   | 0           | 0.0          | -205           | 0.6          | -5            | 0.2          | -380           | 0.4          |
| Supporting and auxiliary transport act.                     | -10         | 1.1          | -640           | 1.9          | -35           | 1.6          | -1,655         | 1.8          |
| Post and telecommunications                                 | -5          | 0.6          | -475           | 1.4          | -35           | 1.6          | -2,045         | 2.2          |
| Financial intermediation                                    | -5          | 0.6          | -705           | 2.1          | -35           | 1.6          | -3,150         | 3.4          |
| Insurance and pension funding                               | 0           | 0.0          | -110           | 0.3          | -10           | 0.4          | -835           | 0.9          |
| Activities auxiliary to financial intermediation            | 0           | 0.0          | -125           | 0.4          | -5            | 0.2          | -610           | 0.7          |
| Real estate activities                                      | -5          | 0.6          | -1,335         | 3.9          | -35           | 1.6          | -10,130        | 11.0         |
| Renting of machinery and equipment                          | -5          | 0.6          | -370           | 1.1          | -15           | 0.7          | -1,000         | 1.1          |
| Computer and related activities                             | -10         | 1.1          | -555           | 1.6          | -30           | 1.3          | -1,490         | 1.6          |
| Research and development                                    | -5          | 0.6          | -205           | 0.6          | -5            | 0.2          | -415           | 0.4          |
| Other business activities                                   | -55         | 6.3          | -2,780         | 8.1          | -145          | 6.5          | -7,195         | 7.8          |
| Public administration                                       | -5          | 0.6          | -195           | 0.6          | -15           | 0.7          | -730           | 0.8          |
| Education   | -5          | 0.6          | -160           | 0.5          | -30           | 1.3          | -930           | 1.0          |
| Health and social work                                      | -5          | 0.6          | -85            | 0.2          | -45           | 2.0          | -1,525         | 1.7          |
| Sewage and refuse disposal                                  | -5          | 0.6          | -120           | 0.3          | -15           | 0.7          | -510           | 0.6          |
| Activities of membership organizations n.e.c.               | 0           | 0.0          | -70            | 0.2          | -5            | 0.2          | -235           | 0.3          |
| Recreational, cultural and sporting activities              | -10         | 1.1          | -365           | 1.1          | -40           | 1.8          | -1,375         | 1.5          |
| Other service activities                                    | 0           | 0.0          | -125           | 0.4          | -20           | 0.9          | -750           | 0.8          |
| Activities of households                                    | 0           | 0.0          | 0              | 0.0          | -50           | 2.2          | -410           | 0.4          |
| <b>Total</b>  | <b>-880</b> | <b>100.0</b> | <b>-34,290</b> | <b>100.0</b> | <b>-2,235</b> | <b>100.0</b> | <b>-92,340</b> | <b>100.0</b> |

Source: WIFO calculations.

## SUMMARY AND CONCLUSIONS

Using a multi-country econometric input-output model the study estimates real value added and employment effects associated with a decline in commodity exports and tourism demand as observed in recent months. The weak performance of EU and Swiss exports to Russia, however, is not only the result of export restrictions on sanctioned goods and the worsening of economic relations between Russia and the EU plus Switzerland, but also a consequence of slackening economic growth in Russia. The uncertainty about the true economic impacts of the sanctions is addressed by estimating different scenarios. These differ first with respect to the development of exports to Russia that represent the direct effects of the sanctions: as a lower bound of impacts the growth rates for the period of October 2014 to March 2015 are applied while an upper bound is defined by using data of the first quarter of 2015 when export decline increased considerably. Secondly, the extent of the economic impacts taken into account differs when short term effects are distinguished from long term effects; the latter additionally takes into account an income induced reduction in household consumption. However, as potential trade diversion effects are not considered in the simulations the negative income and employment effects will very likely not materialize up to the full extent. They thus represent upper bounds rather than a forecast of the economic effects of the sanctions. Consequently, simulation results should be interpreted with great care.

The export ban on the products directly covered by these sanctions and counter-sanctions is likely to cause only limited economic damages for economies within the EU. The share of these products in total EU exports to Russia is (with some exceptions) rather low; furthermore some contracts are still in force and are thus exempted from the sanctions. The sizeable macro-economic effects of the trade loss, amounting to 34 bn € in value added in the short run and 92 bn € in the longer run, are much more a result of a general worsening of trade relations between the EU and Russia. The decline of exports over the last quarter of 2014 and the first quarter of 2015 by 30 bn € (equivalent to a decline of almost 25% compared to the previous year) and an estimated decrease in tourism expenditures by some 3.5 bn € (-29% as compared with the winter season 2013/14) have multiple causes: In addition to the sanctions and counter-sanctions, diplomatic disruptions, boycotts by Russian trading partners as well as indirect effects caused by the high level of economic integration of European countries are contributing to the reduction in trade activities. Furthermore, the Russian economy is suffering from a recession that has deepened ever since it started in 2013. As these effects are hard to disentangle, the estimation of economic losses covers multiple factors where sanctions play a major role.

Specifically, the simulations highlight as expected the great importance of the indirect effects of the sanctions or disrupted trade relations through reduced exports to other countries with close trade relations to Russia, primarily Germany but also Baltic and Eastern European countries. In particular, for countries like Austria – on account of its close supply relationships

to a number of countries with a high export share to Russia – the indirect effects of the sanctions are of heightened importance and thus, relative to other EU-27-countries, these countries will suffer more strongly under the indirect effects of the sanctions.

Due to these close supply relationships compensating measures call for a coordinated economic action within the framework of EU institutions in order to minimize third-country effects. Moreover, it seems necessary to promote companies in compensating export losses in Russia by supporting their efforts to redirect exports to other countries.