



Discussion Note

The effect of Brexit on the Slovak foreign trade

We estimate the total exposure of the Slovak exports and consequently of GDP to Brexit-related trade disruptions. A direct trade exposure to Brexit amounts to 3,50% GDP and an indirect exposure is 0,93% GDP. The total value added in Slovak exports exposed to Brexit amounts to 4,43% GDP.

Brexit is going to have far reaching political, economic, and security consequences for Europe. It will adversely affect mostly the UK economy, but will have also negative effect on the EU. This note tries to assess and quantify the negative impact of Brexit on Slovak exports and production.

After more than two years since the Brexit referendum it is still not clear under what terms is the UK leaving the EU. Due to the fact there is no consensus within the UK public, let along the UK politicians, about the terms of departure, it is more and more likely that Brexit can take the least preferable, the most harmful form of all i.e. the hard Brexit. In this scenario virtually all existing agreements would cease to be valid and trade flows would be hit hard.

What effect would this hard form of Brexit will have on the Slovak exports and the GDP?

To quantify this impact we use the World Input Output Database (WIOD) which combines the national input-output tables with official trade and national accounts statistics. WIOD is an annual database including 43 countries (all OECD, all EU, and all other major economies) plus the rest of the world and 56 industry sectors in each economy. The latest version covers time-period between 2000 and 2014, all values are in current US dollars.

Based on the classical Leontief insight, a country's gross export is decomposed into various value-added components by source country and source industry. This approach from the value-added perspective enables us to better assess the impact of trade on GDP as it directly provides the amount of GDP being exported.

In the calculations below we provide several measures of Slovak export exposure to restrictions in UK trade.

Direct channel

Gross exports from Slovakia to the UK	4,64 bil. US\$	
Exports of Slovak value added	3,21 bil. US\$	
of which:		
Final goods consumed in the UK		1,30 bil. US\$
Intermediate goods used to produce final goods consumed in the UK		1,49bil. US\$
Intermediate products exported from the UK to third countries		0,20 bil. US\$
Total value added of exports to the UK		2,99 bil. US\$

Remaining 0,22 bil. US\$ ($3,21 - (1,30 + 1,49 + 0,20)$) was the Slovak value added exported to the UK and returned back to Slovakia where it was consumed. From the value added perspective it is a double counted term although it counts as a part of gross exports. The difference between gross exports and value added exports ($4,64 - 3,21 = 1,43$) is a foreign value added in our exports to the UK.

Slovak GDP in 2014 91,14 bil. of US\$.

Thus, an exposure in exports worth of 2,99 bil. translates to 3,28% GDP. This can be considered as a direct impact of disruption caused by hard Brexit.

Indirect channel

However, there are other – indirect channels, where Slovak trade is exposed to UK trade. One of the most important recent developments in international trade is the increasing interconnectedness of export through a vertical trading chain network that stretches across many countries.

On the one hand Slovak export production uses imports from other countries (foreign value added embodied in Slovak export) which is called a backward participation of Slovakia in a global value chain. On the other hand, a part of Slovak exports can be used as an input in production of other countries' exports which is called a forward participation.

Backward participation

In 2014 Slovak exports used UK's imports worth of 0,34 bil. US\$. If these imports had been cut off and had not been replaced by other countries' imports, the Slovak exports would have decreased. Because we can't discern the final destination of Slovak exports that embody UK's imports we can't calculate the corresponding loss of value added. However, it can be estimated by using VAX ratio. VAX ratio is a percentage of domestic value added in country's gross exports and it had a value of 52 % for Slovakia in 2014. Imports worth of 0,34 bil. US\$ would have generated additional value added exports worth of 0,37 bil. (assuming that VAX ratio is maintained), corresponding to 0,4% of GDP.

Forward participation

Part of Slovak exports do not stay in an importer's country but are used as intermediary goods to produce goods exported to a third country. If the third country had been the UK and the intermediary an EU country, these trade flows between Slovakia and the other EU country would be exposed to a disruption in UK trade. In estimating the corresponding reduction we need to make certain assumptions.

Slovak forward participation in 2014 was 6,81 bil.US\$. This was the value of Slovak exports re-exported to third countries. These third countries can't be identified from WIOD data. That is why we don't know what part of the 6,81 bil. was destined for the UK. Let us focus on the top three destinations of the Slovak exports and see how large are their exports to the UK.

Main export destinations of Slovakia		Their value added exports to the UK
Germany:	5,85 bil. US\$ (13,8%)	77,16 bil. US\$ (6,6%)
Czech Republic:	2,08 bil. US\$ (4,9%)	4,54 bil. US\$ (5,2%)
Poland:	2,11 bil. US\$ (5,0%)	11,06 bil. US\$ (6,4%)
Total of 3 countries	10,05 bil. US\$ (25%)	92,76 bil. US\$ (6,5%)

The share of VA exports to the UK of the top three importers from Slovakia is 6,5% of their total trade value added. Assuming this percentage also applies to the whole UK imports coming from all importers of Slovak goods, 6,5% of Slovak forward participation worth of 6,81 bil.US\$ would have been exposed to Brexit. This represents 0,44 bil. US\$ or 0,48% of GDP.

Update and Conclusion

Let us bring these figures up to date 2017. Between 2014 and 2017 the Slovak GDP increased by 11,5% in US\$ terms and gross exports grew by 17,6%. If we assume that all components of export grew proportionally to gross exports then the direct exposure to hard Brexit would amount to 3,50% of GDP and indirect exposure would increase from 0,88% to 0,93% of GDP. The total value added in Slovak exports exposed to Brexit-related trade disruptions amounts to 4,43% GDP. Obviously not all the above value added would be lost after the Brexit, the actual loss is likely to be a small fraction of the exposure, depending on how strong administrative and tariff barriers to trade will be.

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