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Research Report

Austria's Economic Competitiveness in a Neighbourhood Context: Is Austria's Economy Locked-in to the CESEE Region?

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Is Austria's Economy Locked-in to the CESEE Region?

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Abstract

Since the Eastern enlargement of the EU in 2004, Austria has lost global export market shares. At the same time exports to Central, East and Southeast Europe (CESEE) have gained a significant portion of Austria's total exports. Moreover, in recent years Austrian GDP growth has slowed down and unemployment increased. In this context our main research question is whether the opening to the East has had a structural lock-in effect for Austria's economy. In a novel approach on the territorial lock-in effect we apply a multi-perspective view from a microeconomic (firm-level), mesoeconomic (industry-level) and macroeconomic (country-level) perspective. The major finding is that by and large Austria is not subject to a lock-in effect into CESEE markets. On the contrary, the results suggest a growing internationalisation of the Austrian export structure. Nevertheless, policy recommendations that aim at further improving Austria's competitiveness include a productivity-oriented wage policy, an industrial policy that aims at technological upgrading, support for European policy measures that speed up income convergence across the continent as well as additional measures to internationalise Austrian businesses with a focus on the booming emerging markets in India and Africa.

Keywords: competitiveness, lock-in effect, total factor productivity, value added trade, real exchange rate, Eastern Europe, Austria

JEL classification: D24, F14, F41, E64

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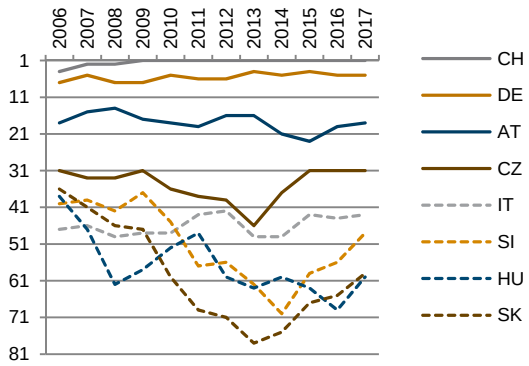
1. Introduction

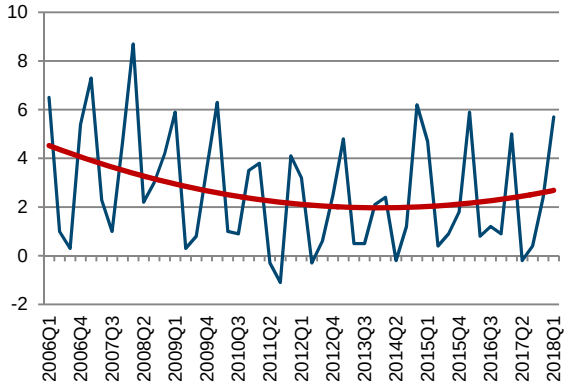
Austria's economic competitiveness is of regular concern to the country's wider public. Over the last few years the economy was downgraded in the Global Competitiveness Index ranking from No. 16 in 2013 to No. 23 in 2015 albeit upgraded again to No. 18 in 2017 (see Figure 1, left panel). When looking at the many subcategories of the index, the initial strong downgrading was mainly due to a deterioration of the government debt level and the degree of legal protection of borrowers' and lenders' rights. Both are arguably related to a one-time effect in the wake of the nationalisation of the ailing Hypo Group Alpe Adria bank (which admittedly may have longer-lasting effects on domestic investment). Most of the neighbouring countries have improved their position in the ranking over the last couple of years, which was often, however, only a return to a previously held rank. In this context, improvements in the neighbourhood should not necessarily be considered as a harmful development for Austria due to the fact that (especially neighbouring) countries are also each other's main export markets and each other's main suppliers of useful imports. As stressed by Krugman (1994), countries do not compete with each other the way corporations do (nor do they have a bottom line as they do not go out of business).

Figure 1 / GCI in comparison and the Austrian current account development

Global Competitiveness Index rank, 1-140



Austrian current account balance, in % of GDP



Source: WEF (2017), Eurostat.

A traditional indicator of competitiveness is the share of the current account balance as a percentage of GDP. By definition, it reflects a country's ability to cover imports by exports and hence whether or not it is dependent on foreign capital inflows. It is a prime indicator of external competitiveness. In the case of Austria (see Figure 1, right panel) a persistent current account surplus, which has stabilised since the outbreak of the global financial crisis at around 2% of GDP, can be observed. More recently, the trend even shows an improvement of this indicator. Thus, the country is a net exporter of goods and services and a net investor abroad (although less so than in the period before the outbreak of the crisis). Nevertheless, the current account balance remains only a symptom of underlying developments and might be interpreted quite differently in different periods, as Krugman (1994) argues. In periods of

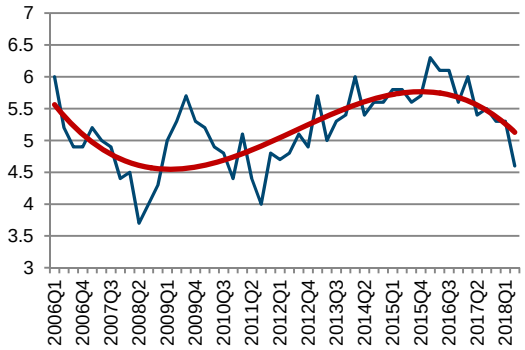
economic doldrums, a current account surplus can also be seen as an indicator of weak domestic demand and/or a lack of domestic investment opportunities and hence, capital leaving the country.

Austria's rising unemployment rate underpins this view (see Figure 2, left panel). The unemployment rate can be seen as an indicator of competitiveness in the internal markets and provides information about the degree of utilisation of potential capacities (though admittedly internal competitiveness is more often than not related to domestic market structure issues). The Austrian unemployment rate measured by the international definition was below 4% in the second quarter of 2008. Since then it has been increasing to rates close to 6% (still low by international standards). By national definition, unemployment rose from 5.6% to 9.1% over that period.

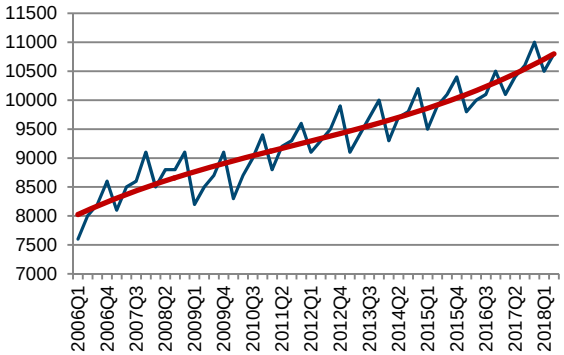
However, a trend reversal seems to have come about in early 2017, with economic growth picking up again after years of anaemic GDP growth rates. A further drop in the unemployment rate might be hampered by the increase in the labour supply that mainly results from a continued inflow of mobile/migrant labour and a rise in female labour market participation, and will also be due to the limited access to early retirement and disability pensions (Baumgartner et al., 2015).

Figure 2 / Unemployment and GDP per capita development in Austria

Austrian LFS unemployment rate, in %



Austrian quarterly GDP per capita, in euro



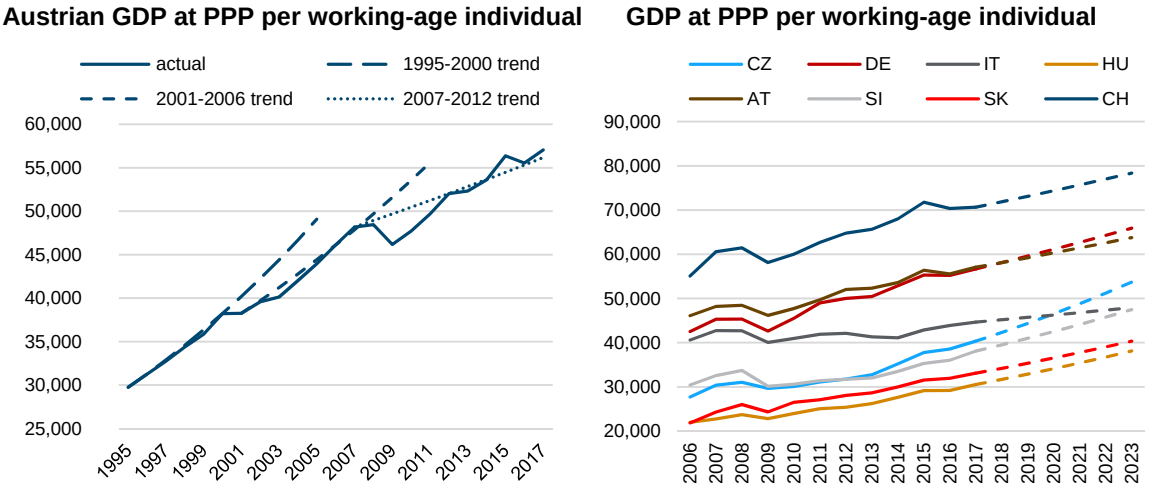
Source: Eurostat.

Apart from issues of external and internal competitiveness, the main traditional outcome indicator of overall competitiveness is GDP per capita, a proxy for economic prosperity and high living standards. For Austria this indicator shows a relatively high value of almost 11,000 Euro per quarter (see Figure 2, right panel), which is comparable to the Netherlands, Finland and Sweden at the top of the European distribution table. However, similar to many other European economies, the growth of Austrian GDP per capita has levelled off since the outbreak of the global financial crisis and has only shown some signs of recovery most recently. Nevertheless, it would be short-sighted to limit analysis to the above traditional, outcome-oriented evaluation of Austrian competitiveness. More recently for instance, Aiginger et al. (2013) made an attempt (one of many) to add new perspectives to indicators of outcome competitiveness beyond GDP goals. In their concept of competitiveness, they distinguish not only (traditional and new) outcome competitiveness but also quality competitiveness and price competitiveness – the latter including issues of various production costs and of productivity; the former, issues of capabilities (e.g. innovation) and of structure, such as export structure.

In this respect, recent research (Fenz et al., 2015) has stressed the fact that the Austrian economy has lost out in terms of goods exports shares to Germany over the last couple of years and that these were replaced by higher shares of exports from the countries of Central, East and Southeast Europe (CESEE) onto the German market. Overall, this was seen as an additional indicator of a decline in Austrian competitiveness. Sticking to the case of export shares, it is interesting to mention that between 2000 and 2017 the loss of more than three percentage points of Austrian goods exports shares to Germany (currently more than 30% of total goods exports) was more than outweighed by an increase in the shares to the economies in CESEE (currently about 22% of total goods exports) of almost five percentage points (Astrov and Grübler, 2018).

As indicated in Aiginger et al. (2013) there is a host of competitiveness indicators and it becomes difficult to grasp the gist of the term competitiveness. Hence in certain parts of our research we want to follow a more focused definition of competitiveness that involves one prime outcome indicator: Delgado et al. (2012) defined 'foundational competitiveness' as the expected level of output per working-age individual given the overall quality of a country as a place to do business. Both the productivity of employed workers and the ability to employ a large share of the available labour force influence overall prosperity.

Figure 3 / Foundational competitiveness indicator for Austria and its neighbours



Note: Right panel dashed line is the 2012-2017 trend.
Source: Eurostat.

The foundational competitiveness indicator for Austria depicts a relatively high level but its development has lost momentum in recent years (see Figure 3, left panel). Moreover, Germany is currently surpassing Austria in this indicator (see Figure 3, right panel).

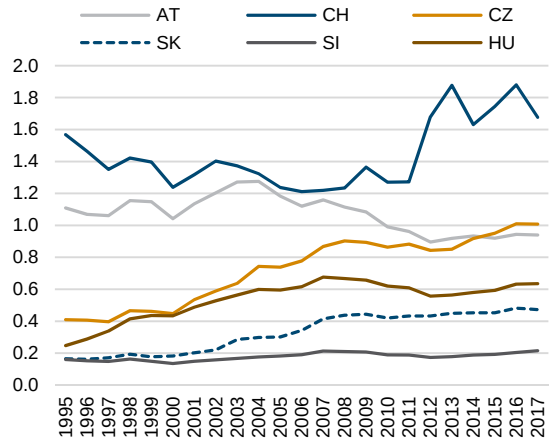
In their work, Delgado et al. (2012) stressed the importance of social infrastructure and political institutions, monetary and fiscal policy (both in the sphere of macroeconomic competitiveness) and the microeconomic environment as major drivers of foundational competitiveness. In addition, there are good reasons to believe that there is also a 'mesoeconomic competitiveness' sphere contributing to the development of foundational competitiveness. This mesoeconomic competitiveness view sees overall competitiveness to be reflected in a country's market share in certain strategic industries. It is well characterised by the notion of 'industrial competitiveness' as used, for instance, by UNIDO (2009). Thus,

in our research we use the overall foundational competitiveness definition for our prime outcome indicator but include not only macroeconomic and microeconomic but also mesoeconomic drivers of foundational competitiveness. Moreover, the underlying elements of these drivers were streamlined to the needs of the analysis of Austrian competitiveness in its neighbourhood context.

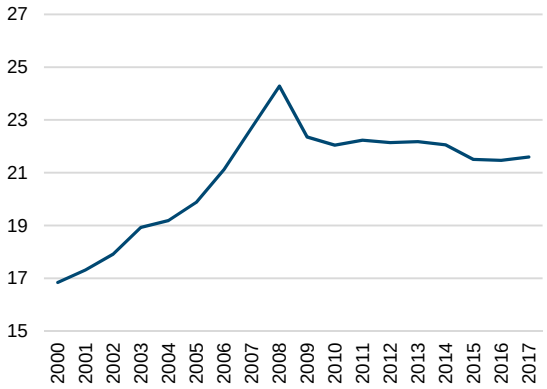
Many of the issues raised in the section above can be analysed against the backdrop of a historically unique quasi-natural experiment of Austria's opening to its eastern neighbours. Has this change in the shape of the customs union proved challenging for macro-balances and relative prices, for patterns of specialisation and for firm behaviour? And if yes, are there alternative policy ends that require policy adjustments whether structural and/or interventionist?

Figure 4 / Goods export shares in the global market and the importance of Austrian exports to CESEE

Global goods gross export shares, in %



CESEE in % of Austrian goods gross exports



Source: WDI, COMEXT, own calculations.

Austrian global export share peaked around the year of the EU Eastern enlargement in 2004 (see Figure 4, left panel). Since then it has experienced a constant decline and e.g. the Czech Republic has recently surpassed Austria in this indicator. At the same time, the CESEE region has gained in importance in Austria's external trade since the beginning of the millennium (see Figure 4, right panel), a trend which has been accelerated after the EU accession of the Central and Eastern European countries in 2004 and 2007 respectively (see e.g. Ragacs and Vondra, 2009). The dynamic export growth to CESEE between 2000 and 2008 can be explained both by the good growth performance of the region and its geographic proximity to Austria. To put it differently, the gravity factors were, to a large degree, able to explain this continuous shift of Austrian exports to CESEE which culminated in an export share of more than 24% in 2008. In the era after the outbreak of the global financial crisis (and after an initial downward adjustment in 2009), why did the share of Austrian exports to the CESEE region stabilise at around 22% despite the fact that the GDP growth rate of CESEE has been lagging the World growth rate since the outbreak of the global financial crisis (as indicated by IMF World Economic Outlook data)? If trade patterns react to the market potential of export destinations, one would expect a re-orientation of Austrian exports away from the CESEE region in the current constellation of GDP growth rates. One

could see the absence of this predicted reaction of export flows to the income situation in destination countries as evidence for a lock-in effect in trade specialisation.

The overarching research question of our research project described in the following is hence whether the opening to the East did support Austrian competitiveness or whether it had a (structural) lock-in effect. What could characterise such a lock-in effect? The implicit hypothesis is that (due to loss aversion), large sunken (investment) costs force the Austrian economy to stick to its commitment to the CESEE region (even though part of these costs is currently being written off). More generally, there might be substantial switching barriers. Originally, the CESEE economies had weak domestic suppliers of goods and services in quality terms. On these less competitive 'soft markets' ('soft' for the few potent suppliers) which are more often than not also small markets, Austria was exploiting a first mover advantage due to its geographical and historical vicinity and its own small economic size as the number of large entrants to the CESEE markets was limited, thereby avoiding the more competitive 'tough markets'. Austria's competitive advantage is constantly diminishing as CESEE economies transform themselves from 'soft' to 'tough' markets. Austria has now become more of a price taker and firms' profits will be squeezed as the rent component in pricing declines. Moreover, for the rather small sized Austrian firms, it might be very difficult to tackle distant but high growth prospect markets.

Describing and evaluating the co-development of the different aspects of Austrian competitiveness related to the economies of CESEE, and in comparison to its Western neighbours, had the following structure according to the level of economic analysis. The research entailed a microeconomic work package, a mesoeconomic work package and a macroeconomic work package as well as a fourth work package focused on policy recommendations. In the next chapter we summarise the findings of the macro, meso and micro analyses conducted recently by wiiw. Finally, we present potential policy recommendations based on the findings.

2. Main research findings

In this paper we summarise the main research findings from the macro, the meso and the micro work packages. For better readability we skip all the references made in those adapted text excerpts to other articles. These can be found in the original papers by Heimberger (2018, a, b) on the macro level, Hanzl-Weiss et al. (2018) on the meso level and Fattorini et al. (2018) and Ghodsi (2018) on the micro level.

TRADING PARTNERS' DEMAND DETERMINES AUSTRIA'S EXPORT PERFORMANCE

On the macro level, we analyse Austria's export market performance (Heimberger, 2018a) by exploring four channels that can have an impact on exports: a) cost competitiveness, b) ties to trading partners through their demand for import goods, c) global investment demand, and, d) offshoring of goods production. By using cointegration analysis and error corrections, we have estimated an export model based on quarterly data over the time period 1997-2016. The main results underscore that it is not only price competitiveness that influences Austria's export performance but also global export demand and trading partners' demand for capital goods which are shown to have significant impacts on Austrian goods exports in the long-run.

Cost competitiveness does play a role in determining export market performance, but over the last twenty years the relative contribution of changes in the real effective exchange rate based on unit labour costs to export growth are shown to be relatively small. While Austria's international competitiveness has only recorded small variations since the financial crisis, this paper provides evidence that lower export growth and the falling global export market share of goods since 2007 largely reflect the relatively weak economic activity of many of Austria's important trading partners, including Eastern Europe.

The following policy conclusions can be made. First, the results in this paper underscore the importance of striking a fine balance between price competitiveness and consumption demand considerations. While the success of the Austrian export industry partly relies on adequate wage policies to avoid large appreciations in the real effective exchange rate, it is important to stress that aggregate demand dynamics are of central importance for the future of the Austrian economy: in 2016, only about 2.5 out of 10 Euros of total demand in the Austrian economy derived from goods exports, which underscores the relevance of domestic consumption and investment demand.

Hence, the question of wage policies should not be reduced to the issue of price competitiveness and export performance. Wages play a dual role, as they are not only the most important cost competitiveness component for most firms, but also represent the incomes of employees, so that wage growth is highly important for sustaining adequate domestic demand. Against this background, striking a balance between price competitiveness and demand-side considerations in the long-run could be achieved by following the so-called Benya formula, according to which wage policies should be a function of inflation and productivity: in particular, yearly wage growth should compensate for both the inflation rate and medium-term productivity growth.

Second, given that this paper has shown that global export demand is an important determinant of export performance, industrial policy should aim at ensuring a diversified economic structure that strengthens the production base for complex products. Existing research has emphasised that technological capabilities are highly relevant for assessing the future developmental trajectories within given political and institutional constraints. Countries that are able to produce and export more complex products typically record more favourable development in terms of increasing incomes. Since the financial crisis, Austria has been one of only a handful of European countries which have been able to sustain their strong technological position. As Austria's technological capabilities are highly important for the future of its growth model, targeted policies could foster the technological position by pushing for investments in knowledge policies that support technological, organisational and institutional innovations. Policy-makers could also work to ensure a sufficient national supply of a highly-skilled labour force, which requires appropriate education policies.

Third, given the integration of the Austrian economy into global value chains and its strong linkages with Eastern Europe in particular, Austrian policy-makers should support European policy measures that prevent disruptions in trade with important trading partners. A sustainable strategy therefore requires policies that allow for a continuation of the catching-up process in Eastern Europe and a European policy agenda that supports convergence within the Eurozone. Finally, policymakers should think about how to increase exports to regions that could be expected to feature higher growth rates and increasing demand for capital goods in the future. For example, such an orientation of Austrian capital goods exports could be developed in the context of a strategy for future economic relations with India and Africa.

TRADING PARTNERS' COMPETITIVENESS GROWTH HAS POSITIVE IMPACT ON NATIONAL COMPETITIVENESS

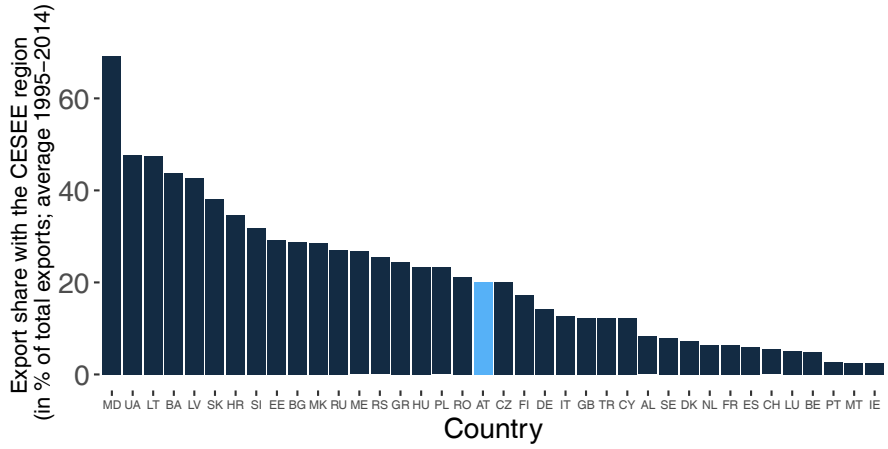
Based on a panel data set for 38 European countries over the period 1995-2014 and by using the definition of 'foundational competitiveness', which we operationalise as GDP per working-age individual at PPP, another macro paper (Heimberger, 2018b) analyses how much (CESEE) trading partners (Figure 5) matter for the national competitiveness of European countries. Results based on a growth regression framework show that higher growth of trading partners' competitiveness (Figure 6) has a positive impact on the growth of national competitiveness.

We find evidence that there are diminishing national returns to increasingly competitive trading partners, but we cannot find strong evidence for a lock-in effect of Austria with the CESEE region. Furthermore, regression results on the determinants of the Austrian bilateral export market shares with European trading partners over 1995-2016 provide evidence that Austria's export performance is sensitive to changes in its trading partners' business cycle positions, but not more sensitive than for other selected Eurozone countries.

This point underscores the importance of well-coordinated monetary and fiscal policies that allow for a proper management of aggregate demand at the European level. A set of active policy interventions could support national competitiveness in Austria and help avoid a lock-in effect with the CESEE region in the future. Domestic policies could focus on a) improving the mobilisation of the working-age population by measures such as working-time reductions and active labour market policies; b) strengthening technological capabilities by knowledge and investment policies; and, c) ensuring

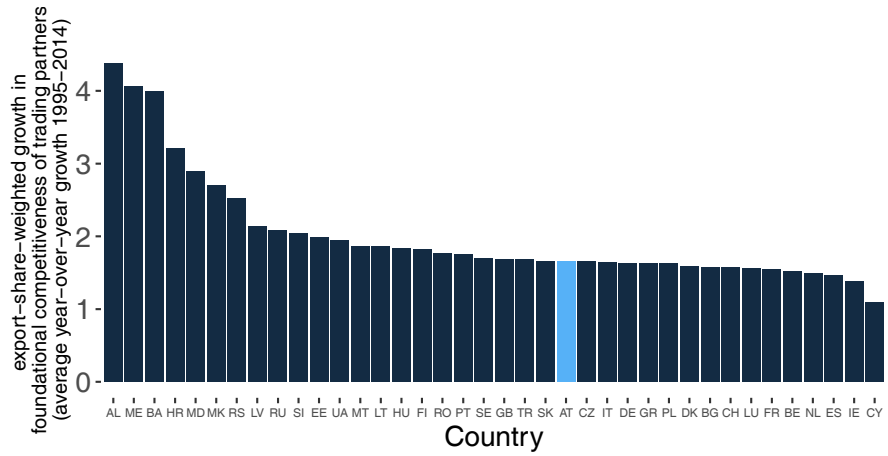
sufficient domestic wage growth to support long-term productivity growth that allows a competitive economy to evolve sustainably.

Figure 5 / Export shares of the respective country with CESEE (average 1995-2014)



Sources: IMF Direction of Trade Statistics on bilateral exports; Heimberger (2018b).

Figure 6 / Trading partners' (export-share weighted) growth of foundational competitiveness (average 1995-2014)



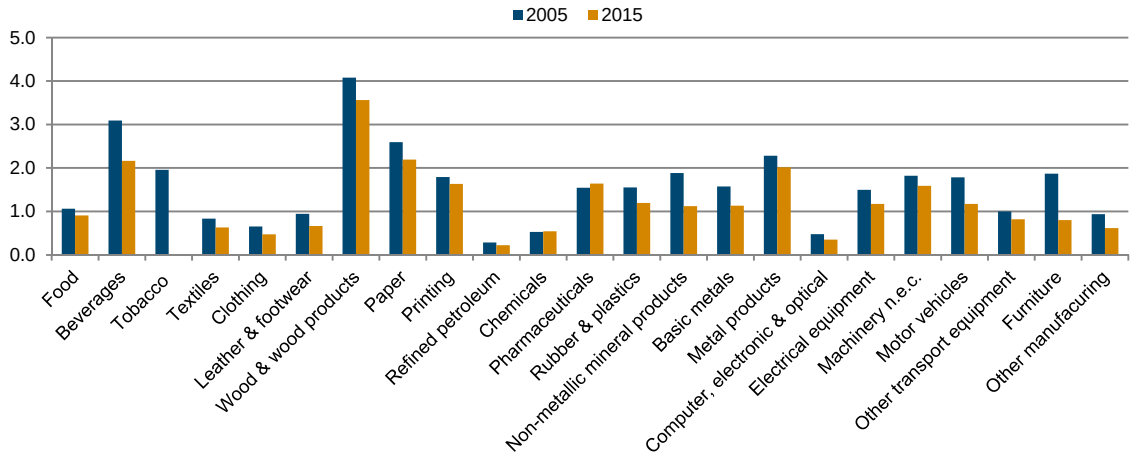
Note: Export shares are defined as exports to the CESEE region in % of total exports.
Sources: IMF Direction of Trade Statistics on bilateral exports, PennWorld Table (version 9.0); Heimberger (2018b).

AUSTRIAN GLOBAL GROSS EXPORT MARKET SHARE HAS DECLINED SINCE 2004 IN ALL INDUSTRIES, EXCEPT FOR PHARMACEUTICALS AND CHEMICALS

Our in-depth analysis (Hanzl-Weiss et al., 2018) of various indicators of external competitiveness at the meso level yields the following results. According to UN Comtrade data, Austrian global export market share peaked in 2004 (the year of the Eastern Enlargement of the EU) but has declined since then. This trend is also reflected in all industries at the 2-digit level, except for pharmaceuticals and chemicals (Figure 7). A number of industries show a revealed comparative advantage, the largest seen by the

wood industry, paper, beverages and metal product sectors. The Austrian export structure exhibited moderate changes between 1995 and 2015 with machinery and motor vehicles remaining the most important Austrian export sectors. Still important export industries are also: basic metals, electrical equipment, computer, electronic & optical products, pharmaceuticals, metal products and food.

Figure 7 / Austrian world market shares, 2005-2015, in % of world exports, NACE rev. 2, 2-digit



Note: Confidential trade not allocated. World trade includes all reporters contained in UN Comrade
Source: UN Comtrade; Hanzl et al., 2018.

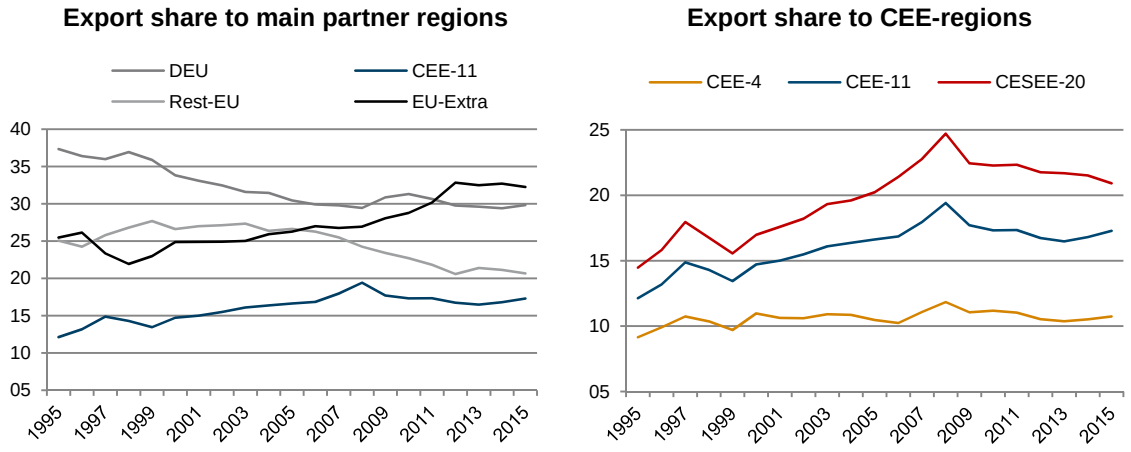
Trends in analysis of major Austrian manufacturing trade partners (Figure 8) are quite interesting and reveal different patterns: Over the long-run between 1995 and 2015, there was a major decline of export shares going to Germany as well as those going to the rest of the EU on the one hand. On the other, the share of exports going to the new EU member states (CEE-11) increased, as well as exports to extra-EU destinations. However, shifts away from Germany and toward the CEE-region already occurred before EU accession in the period 1995 to 2004, while the comparison between the years 2004 and 2015 shows only moderate shifts. Yet, between 2004 and 2015 large shifts can be observed away from the old EU member states towards extra-EU member states (likely to be also a crisis effect). This would point to the conclusion that Austria is not subject to a lock-in effect into CESEE markets, on the contrary, these results would suggest a growing internationalisation of the Austrian export structure. Still it should be mentioned that Germany kept its important role as Austria's major trade partner.

On the 2-digit industry level, Austrian export focus towards the CESEE is strongest in some smaller Austrian export sectors (e.g. refined petroleum products, leather, clothing), while the two major Austrian export sectors – machinery and transport equipment sectors – show a below average share of exports to the CESEE region. In fact, machinery exports are heading towards extra-EU markets and transport equipment exports towards Germany. However, in the latter sector, the CESEE-region gained in importance. On a 3-digit industry level, major export products towards the CESEE-region are pharmaceuticals (Russian markets), motor vehicles, basic iron & steel and parts & accessories for motor vehicles.

Germany has traditionally been Austria's main trading partner, both in terms of exports and imports, and is thus of high importance for Austria. Germany links itself to the Central and Eastern European

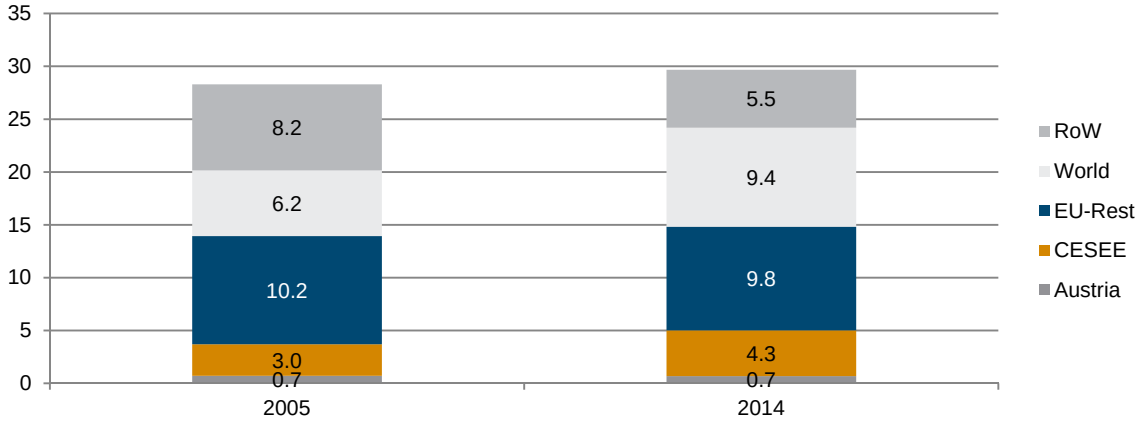
countries that have grown since the mid-1990s and together with Austria, the Czech Republic, Slovakia, Hungary and Poland it now forms the 'Central European Manufacturing Core'. Results for the transport equipment sector reveal that accession to the European Union and integration of CEE into the German supply chains did not harm Austria's role in Germany's supply chains and that Austria has remained an important supplier to Germany's transport equipment sector. Nevertheless, in terms of foreign value added embedded in the German transport equipment sector gross exports (Figure 9), the share for Austrian value added is stable (0.7%) while the share of the CESEE region grew between 2005 (3%) and 2014 (4.3%) out of a total foreign value added share of about 30%.

Figure 8 / Main Austrian export destinations, manufacturing



Note: CEE-4: Czech Republic, Hungary, Slovakia, and Slovenia; CEE-11: CEE-4 plus Poland, Bulgaria, Romania, Estonia, Latvia, Lithuania, and Croatia; CESEE-20: CEE-11 plus Albania, Bosnia & Herzegovina, Macedonia, Moldova, Montenegro, Russia, Serbia, Turkey, and Ukraine.
Source: UN Comtrade; Hanzl-Weiss et al., 2018.

Figure 9 / Foreign value added content of German transport equipment exports, 2014 and 2005, in % of total



Note: World denotes rest of countries specified in the Database, whereas RoW denotes 'Rest of the Wold' which is not specified in the Database.
Source: wiiw Wider Europe Multi-Country Input-Output Database; Hanzl-Weiss et al., 2018.

AUSTRIA MANAGED TO INCREASE ITS GLOBAL EXPORT MARKET SHARE IN TERMS OF VALUE ADDED, PRIMARILY THROUGH AN INCREASE IN PRICE COMPETITIVENESS

Findings from our analysis of the decomposition of global market share changes in value added in gross exports (Hanzl-Weiss et al. 2018, Excursus 1) yield the following results for the period 2000-2014. Germany has outperformed Austria in terms of non-price competitiveness, although by a tiny margin. The overall loss of Germany's global market share is caused primarily by moving upstream in the regional production chains. Although Austria managed to increase its global export market share in terms of value added, it achieved it primarily through an increase in its price competitiveness, inter alia due to an expansion of the regional production networks that allowed cutting costs of exports production. CESEE countries overall had dynamic growth in their global market shares, mainly on the back of improving non-price competitiveness and shifting their positions in the regional value chains. The former likely owing to improving quality of their export products with the adoption of new and more advanced technologies

Austria's involvement in the regional production chains appears to be one reason behind an increasing geographic concentration of its services exports (Hanzl-Weiss et al., 2018, Excursus 2), with growing shares of Germany and CESEE. The country's role in the production chains currently lies in exporting mainly "traditional" services such as transport and travel services, while Germany exports relatively more hi-tech services and R&D. Austrian manufacturing uses services inputs, in particular imported business services inputs, less intensively than many other EU members, which might imply negative effects for productivity of the country's manufacturing as compared to its main trading partners, especially Germany. Based on these developments, it is likely that Germany has stronger comparative advantages as a provider of producer related services than Austria.

AUSTRIA'S CESEE LOCK-IN EFFECTS STAGNANT SINCE CRISIS – NEGATIVE EFFECTS IN MEDIUM-HIGH-TECH INDUSTRIES (AUTOMOTIVE) ON AUSTRIA'S COMPETITIVENESS

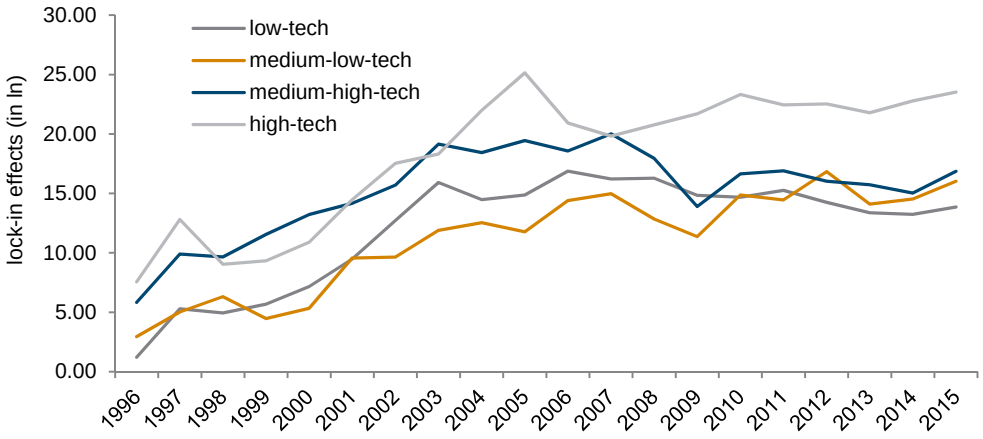
With the help of a gravity model approach for certain industry groups (Hanzl-Weiss et al., 2018, Excursus 3), lock-in effects (higher observed than predicted trade flows) were obtained for Austria's trade with its partners in the CESEE-region across four industry groups (differentiated by technology content) and they have increased over time. Most of the increase in the lock-in effect, however, already occurred before the Great Recession of 2008 with a more or less constant lock-in effect since then, apart from the high-tech industry, where the lock-in effects have kept growing (Figure 10). This group includes inter alia the computers, electronics and pharmaceutical industries.

In an attempt to explain 'foundational competitiveness', operationalised as GDP at PPP per working-age individual, we ran regressions that inter alia include the industry specific lock-in effects as explanatory variables. Additionally, including an interaction term of a dummy variable for Austria with the lock-in variables allowed for testing whether an industrial specialisation lock-in effect with the CESEE region might be different for Austria than for the rest of the EU-15 sample.

However, for the period 1995-2014, we did not find evidence that the Austrian industry is exposed to a more pronounced negative lock-in effect: the coefficient of the lock-in term has a positive sign in three out of four industry groups. However, the negative (and statistically significant) impact of the lock-in

variable on foundational competitiveness in the medium-high-technology industries is somewhat stronger in Austria than for the rest of the EU-15 sample.

Figure 10 / Lock-in effects in Austria's trade with the CESEE-region



Note: Lock-in effects calculated as $X_{jcdt} - \hat{X}_{jcdt}$ where the exports are expressed in logs of the nominal US-Dollar values. Sum of the individual lock-in effects obtained for Austria in trade with the individual CESEE-partner countries.
Source: Hanzl-Weiss et al., 2018 (Excursus 3).

For the post-crisis period of 2010-2014 we find more evidence that Austrian industries might be exposed to a certain overspecialisation in the CESEE region. Three of the four industry groups show a negative impact of the lock-in variable on foundational competitiveness that is stronger in Austria than for the rest of the EU-15 sample. However, it is only the coefficient of the medium-high-technology industries' interaction term that is again statistically significant at the usual levels of confidence.

It is interesting to note that the Austrian interaction term with the medium-low-technology variable is even positive (and statistically significant). This hints at the fact that the Austrian metal and refined petroleum industries (which constitute the medium-low-tech group to a large extent and which are vital for the Austrian economy) have found an important market in CESEE that also generates substantial value added as well as employment in Austria. On the other hand, the automotive sector (which is dominant in the medium-high-tech group and also very important for the Austrian economy) does not seem to have had similar gains from its inclusion in the Central (and Eastern) European automotive cluster.

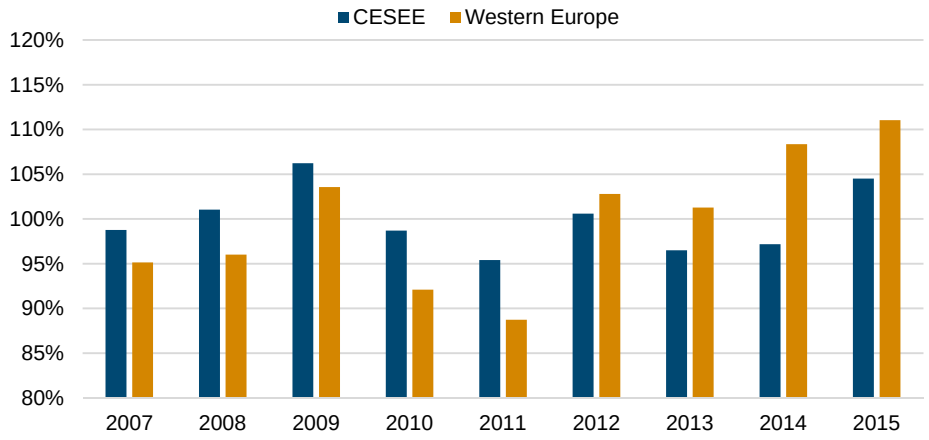
AUSTRIAN FIRMS MOST COMPETITIVE IN WESTERN EUROPE IN MANUFACTURE OF BEVERAGES AND IN COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS IN 2014

In our micro analysis (Fattorini et al., 2018), we enrich the relevant empirical literature by testing the impact of the 'cohesion policy' and its tools on the performance of 273,500 EU manufacturing firms for the period 2007-2015, after estimating their total factor productivities (TFPs) according to the most recent semi-parametric econometric technique. Here, a number of policy relevant results can be extracted. We focus on one of the main financial tools of EU regional policy, i.e. the European Regional Development Fund (ERDF). In particular, we find that the ERDF for Research, Technology and Development (RTD) has a positive and statistically significant impact on productivity growth.

Interestingly, the firms that seem to benefit most from the RTD measure are the ones in the first quartile of the productivity distribution, i.e. the less efficient in a certain region. The ERDF for RTD stimulates research and innovation activities through investments in research centres and promoting technology transfers and cooperation between businesses and the scientific environment.

Moreover, results suggest that national governments' fiscal policy also has a positive impact on the growth of firms' TFP. According to a model controlling for both sample selection bias and firm heterogeneity, when a government increases its final consumption expenditure relative to total GDP of the country by 1 percentage point, efficiency gains of firms measured in growth of TFP are expected to increase by about 0.8%. The results on exchange rate indicators are interesting as well. An appreciation of the real effective exchange rate of a country also has a statistically significant positive relation with its firms' TFP growth. In other words, it works as a productivity whip meaning that when the REER appreciates, this makes it necessary for the firms to increase productivity as they would otherwise be kicked out of the market, hence, they innovate and increase TFP. Moreover, firms grow faster when the volatility of the nominal effective exchange rate of a country measured in standard errors to the mean of the monthly exchange rates is larger. This could be interpreted in a way to suggest that in order to be able to respond to the volatilities of the exchange rates, firms need to increase their productivity to sustain their profitability.

Figure 11 / Austrian exports performance to CESEE and Western Europe, 2007-2015, in % of predicted value



Source: Ghodsi (2018).

SINCE 2012 AUSTRIA'S EXCESSIVE EXPORTS WERE DIRECTED MORE TO WESTERN EUROPE RATHER THAN TO CESEE

In another micro analysis paper (Ghodsi, 2018), the competitiveness of Austrian manufacturing industries is looked at by comparing the performance of Austrian firms with Western European firms using estimates of TFP across Wider Europe (EU-28 plus Western Balkans) during the period 2007-2015. According to the TFP estimates, Austrian firms with larger turnovers, and less employment, and in regions with less regional-industrial concentration of labour have become more competitive in terms of TFP. It is interesting to note that according to the simple average TFP, in 2014 Austria was the most competitive across 18 Western European countries in the following two sectors: Manufacture of

beverages and Manufacture of computer, electronic and optical products. Overall, Austrian firms in 2014 ranked Austria as the 9th most competitive country.

Using firm's TFP and other characteristics aggregated by industries across Wider Europe, a gravity model for exports has been estimated. The results show that larger trade across countries in the sample is driven by intra-firm trade, better efficiency of industries in terms of the simple average of TFP growth of firms, and more allocation of capital to more efficient firms. Comparing the actual values of exports from Austria to CESEE with the predicted values of the gravity model, it is found that since 2012 excessive exports were directed more to Western Europe rather than to CESEE (Figure 11). These findings are also confirmed in a robustness check using unilateral exports values. A potential Austrian lock-in effect in the CESEE region thus might have been reversed and trade diverged to the more competitive markets of Western Europe.

3. Summary and policy recommendations

To sum up, our research on a potential lock-in effect of Austrian export specialisation vis-à-vis Central, Eastern and Southeastern Europe (CESEE) has provided evidence that, at the macroeconomic level, it is not only price competitiveness but also that it is the trading partners' demand to a large extent that determines Austria's export performance. Moreover, it appears that trading partners' competitiveness growth also has a positive impact on national competitiveness. Although there are diminishing national returns to increasingly competitive trading partners, we cannot find strong evidence for a lock-in effect of Austria with the CESEE region.

While it is true that Austrian global gross export market share has declined since 2004 in all industries, except for pharmaceuticals and chemicals, we also found that Austria managed to increase its global export market share in terms of value added between 2000 and 2014, primarily through an increase in price competitiveness. This is likely inter alia due to an expansion of the regional production networks that allowed cutting costs of exports production. Austria's potential CESEE lock-in effects (higher observed than gravity-model-predicted trade flows) have been stagnating since the outbreak of the global financial crisis, with some negative effects on Austria's competitiveness only in the medium-high-tech industries' (i.e. to a large extent the important automotive sector) CESEE specialisation.

Austrian firms' total factor productivity (TFP) on average is at normal Western European levels. Interestingly, Austrian firms were the most competitive in Western Europe in the manufacture of beverages and in computer, electronic and optical products, in 2014. Moreover, we find that EU regional policy support for Research, Technology and Development has generally a positive impact on productivity growth for less productive firms. Also, national governments' fiscal policy has a positive impact on the growth of firms' TFP. Interestingly, an appreciation of the real effective exchange rate of a country also has a positive relation with its firms' TFP growth. This mechanism appears to work as a sort of productivity whip pressuring firms to innovate and increase TFP. A lock-in analysis that combines the micro with the meso and macro levels reveals that Austria's excessive exports (again, given gravity-model-predicted trade flows) have been directed more to Western Europe rather than to CESEE since 2012.

Overall, while more recent data shows only moderate shifts of Austrian gross exports to CESEE, trade shifts can be observed primarily away from the old EU member states towards (other) extra-EU countries (machinery exports, to a large extent). This is also likely to be a crisis effect. All of this would lead to the conclusion that Austria is not subject to a lock-in effect into CESEE markets. On the contrary, these results would suggest a growing internationalisation of the Austrian export structure.

Nevertheless, policy recommendations that aim at further improving Austria's competitiveness are needed in order to avoid potential negative lock-in effects in the future. In terms of policy measures, it can be claimed that competitiveness is a topic with a clear policy angle. It is possible to distinguish two major types of policy measures. One deals with the rules of the game, the other one with immediate causality. The former might be called neoclassical, and is mostly what one means by structural, while

the other is Keynesian, and is interventionist. In the Austrian context the following policy mix of both types seems to be particularly relevant:

› The question of **wage policy** should not be reduced to the issue of price competitiveness and export performance. Wages play a dual role as they are not only the most important cost competitiveness component for many firms but also represent the incomes of employees, so that wage growth is highly important for sustaining adequate domestic demand. Against this background, striking a fine balance between price competitiveness and demand-side considerations in the long-run could be achieved by following the so-called Benya formula, according to which wage policies should be a function of inflation and productivity: in particular, yearly wage growth should compensate both for the inflation rate and medium-term productivity growth. Moreover, given some of our results which might hint at the potential function of a real effective exchange rate appreciation as a productivity whip and in view of current macroeconomic imbalances (current account surpluses and unemployment), occasional overcompensation might have overall positive effects on foundational competitiveness, defined as GDP at PPP per working-age individual.

› As Austria's technological capabilities are highly important for the future of its growth model, targeted **industrial policy** could foster the technological position by pushing for investments in knowledge policies that support technological, organisational and institutional innovations. Policy-makers could also work to ensure sufficient national supply of a highly-skilled labour force, which requires appropriate education policies. Domestic policies should also focus on improving the mobilisation of the working-age population by measures such as working-time reductions and active labour market policies. Given our research findings on the positive impact of national government expenditures on firms' productivity growth, a larger public sector should be an aim in order to create both more supply as well as demand for innovative new products.

› Austrian policy-makers should support **European policy measures** that prevent disruptions in trade with important trading partners. A sustainable strategy therefore requires policies that allow for a continuation of the catching-up process in Central, Eastern and Southeastern Europe and a European policy agenda that supports convergence within the Euro area. This point underscores the importance of well-coordinated monetary and fiscal policies that allow for proper management of aggregate demand at the European level. Moreover, given our findings on EU regional policy, i.e. that support for Research, Technology and Development that has a positive impact on productivity growth for less productive firms, structural policy tools could be topped up in order to move economic convergence in Europe forward.

› Policymakers should also think about how to increase exports to regions that could be expected to feature higher growth rates and increasing demand for capital goods in the future. For example, such an orientation of Austrian capital goods exports could be developed in the context of a strategy for future economic relations with India and Africa. Successful **internationalisation activities** such as the global network of offices of the Advantage Austria initiative of the Austrian Economic Chamber should be boosted in scope and targeted towards promising markets.

Literature

Aiginger, K., S. Bärenthaler-Sieber and J. Vogel (2013), ‚Competitiveness under New Perspectives', WWWforEurope Working Paper, No. 44.

Astrov V. and J. Grübler (2018), 'MOSOE: Konjunkturzenit überschritten', wiiw Research Report in German language, No. 10.

Baumgartner, J., S. Kaniovski, H. Pitlik and M. Schratzenstaller (2015), ‚Mäßiges Wirtschaftswachstum mit hoher Arbeitslosigkeit. Mittelfristige Prognose der österreichischen Wirtschaft bis 2020', WIFO-Monatsberichte, Vol. 88, No. 10, pp. 779-796.

Delgado, M., C. Ketels, M.E. Porter and S. Stern (2012), 'The Determinants of National Competitiveness', NBER Working Paper, No. 18249.

Fattorini, L., M. Ghodsi and A. Rungi (2018), 'Cohesion Policy Meets Heterogeneous Firms', wiiw Working Paper, No. 142.

Fenz, G., C. Ragacs, M. Schneider and K. Vondra (2015), ‚Marktanteilsentwicklung der österreichischen Exportwirtschaft ', OeNB Konjunktur Aktuell, June.

Ghodsi, M. (2018), 'Is Austria's economy locked-in in the CESEE region? Austria's competitiveness at the micro-level', Working Paper, No. 151.

Hanzl-Weiss, D., P. Heimberger, O. Pindyuk and R. Stöllinger (2018), 'Is Austria's economy locked-in the CESEE region? A mesoeconomic analysis', wiiw Research Report, No. 433.

Heimberger, P. (2018a), 'What Explains Austria's Export Market Performance?', wiiw Working Paper No. 149.

Heimberger, P. (2018b), 'How much do trading partners matter for Austria's competitiveness and export performance?', wiiw Research Report, No. 434.

Krugman, P. (1994), 'Competitiveness: A dangerous obsession', Foreign Affairs, Vol. 73, No. 2, March/April, pp. 28-44.

Ragacs, C. and K. Vondra (2009), 'Austria's Economic Activities in CESEE', OeNB Focus on European Economic Integration, Special Issue.

UNIDO (2009), 'Breaking In and Moving Up: New Industrial Challenges for the Bottom Billion and the Middle-Income Countries', Industrial Development Report.

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