Understanding the Croatian Export Boom

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By Kristian Orsini and Arian Perić

Abstract

Notwithstanding a quite diversified export base, a fair degree of sophistication of its products and a well-established presence in a large number of markets, Croatia's export performance has trailed that of other Central and Eastern European countries – most of which joined the EU already in 2004. Following its EU accession in 2013, however, Croatia's export performance has improved markedly. The aim of this paper is to review the performance of Croatia's exports of goods over the past two decades and assess to what extent EU accession facilitated the surge in exports.

The strong export growth is partly explained by the recovery in global demand, as well as policies geared to restore external competitiveness and wage restraint. More importantly, our analysis provides evidence that EU accession opened new opportunities for Croatian firms, which are making inroads into EU value chains and gaining market shares.

Interestingly, deeper trade links with the EU do not seem to have come at the cost of Croatia's historical trade ties with CEFTA countries – and particularly the ex-Yugoslav economies. Sluggish demand growth, nevertheless, implies that these markets now absorb a much lower share of Croatia's total exports.

Policy action should aim to ensure that real wage improvements go hand in hand with productivity gains, while incentivise investing in product upgrades, particularly in sectors where Croatia already enjoys a strategic advantage. At EU level, relaunching accession talks with candidate members participating in CEFTA would boost Croatia's strategic role in the regional trade flows.

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Introduction and motivation

Despite being a latecomer to globalisation, Croatia witnessed an impressive surge in exports of goods following EU accession. Croatia has traditionally posted large merchandise deficits and large surpluses in the service balance. This is typical of small, tourism-dependent economies, which heavily rely on imports to satisfy the seasonal surge in demand linked to the arrival of foreign tourists. As such, the merchandise deficit is primarily the mirror image of an all-important tourism sector and not, *per se*, a sign of weak competiveness. In the years leading to the global financial crisis, Croatian goods made important inroads in global markets, though gains were less pronounced than those of Central Eastern European economies (hereafter CEE10). Exports' lower starting point and slower growth can be attributed to the late integration into international economic institutions (Figure 1). Unlike other CEE10 countries, Croatia became a member of the WTO only in 2000. Secondly, in the absence of an Association Agreement with the EU, Croatia not only did not enjoy preferential access to the EU market, but was also penalised by provisions in the Association Agreements of CEE10 that discouraged sourcing outside the EU and associated countries. In October 2001, Croatia signed the Stabilisation and Association Agreement (SAA), but exports to CEE10 countries were further impeded until December 2002, when it became a member of the Central European Free Trade Agreement, or CEFTA (Ranilović, 2017). The SAA and CEFTA gradually granted Croatia unlimited duty-free access to the market of the enlarged Union for virtually all products. Exports increased dramatically and Croatia re-gained some of the lost market shares. The crisis took a heavy toll on Croatia's merchandise exports. With the EU accession in July 2013, residual non-tariff barriers were fully removed and in the following years, exports of goods grew buoyantly, more than compensating for the losses in market shares accumulated in previous years.

A solid export performance ensures the capacity of an economy to generate sufficient foreign currency inflows to repay its debts and preserve external sustainability. Croatia is still saddled with a high level of external liabilities. At the end of 2019, the Net International Investment Position (NIIP) stood at -51% of GDP: a significant improvement from the -89% at the end of 2013, but still substantially in excess of the -35% of GDP precautionary threshold used by the European Commission in its Macroeconomic Imbalances Procedure. Moreover, in the case of Croatia, a high share of domestic and practically all external

liabilities are denominated in or linked to the euro. Macro-financial stability therefore rests on the stability of the exchange rate *vis-à-vis* the euro, which limits the possibility to achieve external equilibrium through exchange rate fluctuations.

Figure 1: **Trade regimes and merchandise export performance in Croatia and in the CEE10 (million of 2005 EUR)**
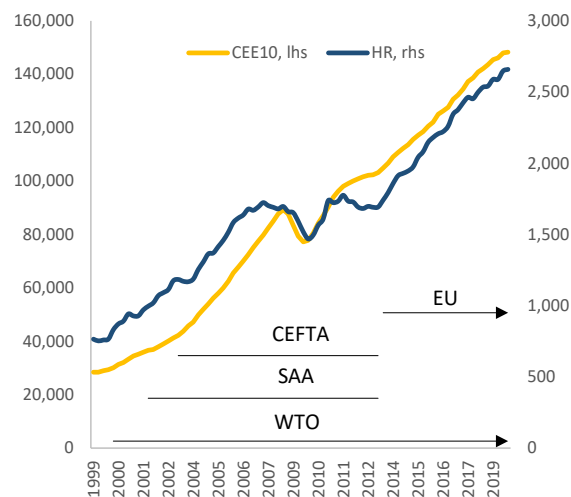
Source: Eurostat.

Exports of goods not only contribute more to the net inflow of foreign currency, but have a greater impact on the process of economic convergence. Whereas tourism revenues represent a considerable inflow of foreign currency, the relatively high import-intensity of tourism revenues reduces their net impact (Orsini, 2015). With a more limited integration in global value chains and a larger reliance on the domestic production base, the import content of Croatian exports of goods is on the other hand generally considered quite low. As discussed in Croatia's 2016 Country report (EC, 2016), a limited reliance on foreign inputs reflects the more closed nature of its economy, but also the relative strength of its production base in some primary sectors (agriculture, fishing, forestry and extractive industries). This is confirmed in a recent study by Peruško et al. (2018) which finds that Croatia's participation in GVCs was significantly below five Central and Eastern Europe countries and the EU average – mostly on account of lower backward participation, i.e. the uses of other countries' inputs to generate exports. This implies that exports of goods contribute more to external equilibrium than export of services. Furthermore, the export-led growth literature has demonstrated that exporting firms tend to generate positive spillovers on the productivity of other firms – including those only active on the domestic market. Whereas this in principle also applies to service exporting firms, it is less the case in

tourism, which accounts for ca. 70% of Croatia's exports of services. Orsini and Pletikosa (2019) demonstrate empirically that in the case of Croatia, the export-led growth hypothesis holds with respect to exports of goods, but not with respect to tourism.[1]

The performance of merchandise exports following EU accession points to a successful integration within the internal market, but doubts remain on the structural nature of recent changes. The strong performance of merchandise trade contributed significantly to the turnaround of the current account, the reduction in external liabilities and productivity growth. However, several of these developments occurred in the aftermath of a crippling recession and sharp wage and price adjustments which underpinned a re-balancing of the economy away from domestic sources of growth, in a context of a trade-intensive rebound in global growth. The aim of this paper is to review the performance of Croatia's exports of goods over the past two decades and assess to what extent EU accession facilitated the surge in exports. The analysis focuses exclusively on merchandise trade, since given Croatia's economic structure – and in particular, its very large tourism sector – exports of goods and services tend to display limited complementarity.[2] Furthermore, in order to isolate the impact of EU accession, we will focus on the period 2003-2019, which follows Croatia's WTO and CEFTA membership, thus avoiding multiple breaks in the trade regime which could complicate the analysis. The structure of the paper is as follows: section 2 discusses macroeconomic developments, while section 3 looks at the changes in the structure of exports over the same period, using CEE10 as a benchmark; section 4 develops an econometric model which allows us to test econometrically the hypothesis of structural change; section 5 sums up conclusions and provides policy advice.

Macroeconomic developments

The sustained economic growth in the years leading to the Global Financial Crisis witnessed the accumulation of sizable internal and external macroeconomic imbalances. Following the macroeconomic stabilisation in the 90s, the turn of the century marked the beginning of a long expansionary phase. Strong capital inflows — partly channelled through Croatia's largely foreign-owned banking sector — underpinned the robust growth up to the 2008 global financial crisis. Foreign direct investment (FDI), including cross-border intercompany lending from parent holdings, was also sizable. The investment-led internal demand contributed to rapid

import penetration. The sizeable FDI inflows, however, largely bypassed the tradable sector, resulting in an excessive build-up of debt, mostly owed to foreigners, without a corresponding debt-servicing capacity. As a result, by 2008 Croatia registered an overall negative net international investment position (NIIP) of over 75% of GDP and a record current account deficit of 8.9% of GDP. At 36% of GDP, general government debt was relatively low, but having maintained a broadly pro-cyclical stance throughout the previous years, public finances were highly exposed to a reversal in the macroeconomic environment. Though price and wage dynamics were contained in relative terms, subdued productivity dynamics resulted in increasing unit labour costs (ULC). Croatia accumulated competitiveness losses in a context of an exchange rate which has been tightly managed since well before Croatia's ERM2 accession.

Figure 2: **Croatian merchandise exports, ULC deflated REER and merchandise imports in EU15, CEE10, current CEFTA members and rest of the world (2010=100).**
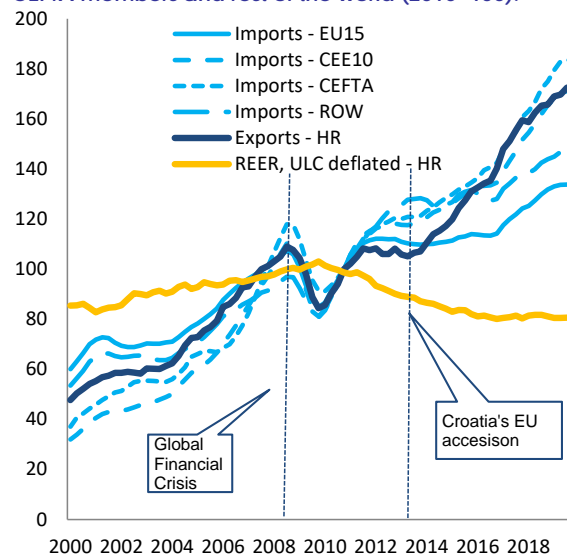
Source: Eurostat.

Despite adverse competiveness dynamics, until the eruption of the global financial crisis, strong demand from key regional partners underpinned a buoyant export growth. The exclusion from major trading blocs and the disruption caused by the independence war and its aftermath weighted on Croatia's integration in global trade. In 2000, exports of goods represented only 14.6% of GDP. At the end of 2002, Croatia joined CEFTA, which at the time included most of Central European countries that would eventually leave the free trade area to join the

EU.[3] Other historically important trade partners were former Yugoslavian republics, which would also eventually join CEFTA in 2007.[4] Up until the global financial crisis, both regions experienced sustained economic growth and a boom in imports. Despite the progressive appreciation of its real exchange rate, Croatia's exports of goods therefore increased on average by more than 10% every year. However impressive, this figure must be assessed in the contest of the developments of the broader region. During the same period, exports from CEE10 expanded at a yearly pace of almost 15%.

The turnaround in global trade and a sharp tightening in financial conditions triggered a deep and long recession, followed by a process of macroeconomic adjustment. Between 2008 and 2013, Croatia's GDP contracted by more than 10 pps in real terms, while the unemployment rate almost doubled from 8.9% to 17.0%. Investment activity was hit first and hardest: from a peak of 28% of GDP in 2008, investments plummeted to 19% in 2014, a real decline entailing a particularly steep drop in construction activity. Fiscal policies partly cushioned the impact of the crisis but general government debt rapidly emerged as a new concern. Facilitated by structural reforms, wages and prices reacted to the changes in the macroeconomic conditions and Croatia started to regain some of the lost competitiveness.

Despite improved competitiveness, exports failed to rebound completely after the crisis – weighted down by sector-specific shocks and exposure to depressed markets. Between the fourth quarter of 2007 and the fourth quarter of 2009, exports collapsed by roughly 20% in real terms. The turnaround in global demand, the depressed domestic market and competitiveness gains should have facilitated a quick recovery of exports. Instead, by mid-2013, the volume of exports was still below the level attained at the end of 2007. This is partly explained by the weak import demand from the EU, particularly in Slovenia and Italy, which had accounted for roughly one quarter of Croatia's exports. This demand shock coincided with a deep restructuring of the shipbuilding industry – one of the top exporting sectors for Croatia. As a result, in the period 2010-2012, net of shipbuilding and exports to Slovenia and Italy, exports increased by roughly 7% (in real terms), whereas they decreased by 3% in total.

By mid-2013, exports picked up again, supported by improved domestic and international macroeconomic conditions and improved market

access that came with EU membership. Croatia entered the EU on the 1st of July 2013. While Croatia's EU-bound exports had for the most part already been free of tariffs and quotas in line with its Stability and Association Agreement, EU accession further removed trade frictions in the shape of customs inspections and administrative requirements. Furthermore, Croatia's products could henceforth benefit from the EU designation of origin. Between the third quarter of 2013 and the fourth quarter of 2019, exports expanded on average by more than 7% y-o-y every quarter. The bulk of the growth was towards the EU, particularly Central and Eastern European economies. Extra-EU export performance was not equally strong, but remained positive. Whereas it is tempting to attribute the turnaround in exports to EU accession, it is also notable that 2013 marked the end of the double dip recession in the EU, continued strong import growth in key trading partners and improved competitiveness. The strong post-accession export expansion could therefore be explained by macroeconomic dynamics. In order to assess whether more structural changes took place after the accession, we now turn to an analysis of the composition and destination of Croatian exports – by benchmarking them to those of CEE10 economies.

Structural analysis of exports

Croatia's small export base was largely a historical legacy. Like several other countries in the West Balkans – and particularly the former Yugoslavian Republics – Croatia was never a member of any major trading block, was mired in a destructive war and eventually missed the first and second wave of EU eastwards enlargement. Despite its favourable geographical position, the large FDIs that underpinned the integration of CEE10 economies in global value chains – particularly in the automotive sector – largely bypassed Croatia. Over the past two decades, exports have risen from representing 15% of GDP to almost 24% of GDP. Whereas the performance is certainly remarkable, the share remains relatively small compared with most other small and open CEE10 economies. On average, exports represent almost 50% of GDP in the CEE10, with Romania's 30% being the lowest share and Slovakia's 80% the highest in the group.[5]

Croatian exports nevertheless are well diversified across industries – even more so following the downsizing of shipbuilding. The analysis of exports by broad economic category (BEC) and sector (STIC) reveals significant differences between the export

structure of Croatia and other CEE10 economies (see table 1). The importance of the automotive sector for the CEE10 is mirrored in the significant share of machinery and transport equipment (mostly intermediate and capital goods), which makes up almost half of their total exports. In Croatia, exports in this category represent less than a quarter of the total, partly as a result of the sharp fall in output following the restructuring of the ailing shipyards (completed in 2013) and more recently with the Uljanik crisis. However, a higher share of Croatian exports is to be found in all other sectors, including food and beverages (both processed and unprocessed), raw materials (mainly linked to the important wood industry) and chemicals (including fertilizers and pharmaceutical products). As a consequence, a comparatively larger share of exports is also made up of consumer goods.

Product breadth has also been expanded until recently. The large differentiation of Croatia's export base is reflected in the relatively large number of products it exports. Table 1 also reports the Herfindahl-Hirschman index (HHI), a concentration index constructed on the basis of export shares of narrowly defined product typologies (more than 4,000). The index decreases for both Croatia and the CEE10, reflecting a tendency towards weaker concentration in just a few products. Moreover, starting from 2010, the concentration in Croatia is well below not only the average for CEE10 as a whole, but also most of the individual countries – bar the larger economies of Hungary and Poland. This shows that despite the small size of the economy, the Croatian export structure is quite differentiated in comparative terms.

Table 1: **Exports of goods in Croatia and in the CEE10 economies**

	Croatia					CEE10				
	2000	2005	2010	2015	2018	2000	2005	2010	2015	2018
Share of GDP	15%	17%	18%	23%	24%	28%	38%	44%	51%	52%
Export of goods by standard international trade classification (SITC)										
Food, drinks and tobacco	11% (†)	10%	11%	13%	13%	6%	6%	7%	9%	8%
Raw materials	6% (†)	6%	7%	8%	7%	4%	3%	4%	3%	3%
Mineral fuels, lubricants and related materials	9% (†)	14%	12%	11%	11%	5%	5%	5%	4%	4%
Chemicals and related products, n.e.s.	10% (†)	10%	11%	12%	13%	7%	7%	8%	8%	8%
Machinery and transport equipment	29% (†)	29%	32%	24%	23%	39%	43%	46%	46%	46%
Other manufactured goods	36% (†)	32%	27%	33%	33%	39%	36%	29%	30%	30%
Exports of goods by broad econoic category (BEC)										
Consumer goods	32% (†)	30%	28%	30%	30%	25%	24%	25%	24%	24%
Food and beverages / primary / mainly for household consumption	2% (†)	1%	2%	2%	2%	1%	1%	1%	1%	1%
Food and beverages / processed / mainly for household consumption	6% (†)	7%	6%	7%	7%	3%	4%	4%	5%	5%
Transport equipment and parts and accessories thereof / other / non-industrial	2% (†)	3%	4%	2%	2%	1%	1%	1%	1%	1%
Consumer goods n.e.s. / durable	0% (†)	0%	1%	1%	0%	0%	0%	0%	0%	0%
Consumer goods n.e.s. / semi-durable	2% (†)	3%	2%	2%	2%	5%	6%	8%	6%	5%
Consumer goods n.e.s. / non-durable	13% (†)	9%	6%	8%	7%	10%	7%	5%	6%	6%
Fuels and lubricants / processed / motor spirit	7% (†)	6%	7%	8%	9%	5%	5%	6%	6%	6%
Intermediate goods	47% (†)	50%	52%	56%	57%	56%	56%	52%	53%	51%
Food and beverages / primary / mainly for industry	1% (†)	0%	1%	2%	3%	1%	1%	1%	2%	1%
Food and beverages / processed / mainly for industry	0% (†)	0%	0%	1%	1%	1%	0%	1%	1%	0%
Industrial supplies n.e.s. / primary	3% (†)	3%	5%	5%	4%	2%	2%	3%	2%	2%
Industrial supplies n.e.s. / processed	28% (†)	27%	26%	29%	29%	30%	27%	24%	23%	23%
Fuels and lubricants / primary	2% (†)	2%	2%	1%	1%	1%	1%	1%	1%	1%
Fuels and lubricants / processed / other	5% (†)	8%	7%	8%	8%	3%	3%	4%	3%	3%
Capital goods / parts and accessories	5% (†)	6%	7%	7%	6%	10%	9%	9%	9%	8%
Transport equipment and parts and accessories thereof / parts and accessor.	2% (†)	3%	3%	3%	4%	9%	11%	11%	13%	12%
Capital goods	21% (†)	20%	20%	13%	14%	19%	20%	23%	23%	25%
Transport equipment and parts and accessories thereof / passenger motor cars	0% (†)	0%	0%	1%	2%	6%	6%	7%	8%	8%
Capital goods (except transport equipment)	9% (†)	10%	12%	10%	10%	11%	12%	14%	13%	15%
Transport equipment and parts and accessories thereof / other / industrial	12% (†)	10%	8%	2%	2%	2%	2%	2%	2%	2%
Exports of goods by geographical market										
EU15	54%	48%	45%	43%	46%	68%	62%	58%	57%	58%
CEE10	14%	13%	14%	22%	21%	12%	17%	20%	21%	20%
Central Easter Free Trade Agreement (CEFTA)	15%	17%	19%	18%	17%	2%	1%	2%	2%	2%
Rest of the World (ROW)	16%	22%	23%	17%	16%	18%	20%	21%	20%	20%
Concentration index (HHI*)	1.85%	1.50%	1.13%	0.69%	0.75%	1.45% (†)	1.44%	1.35%	1.00%	0.98%
Complexity index (ECI*)	0.42	0.52	0.71	0.73	0.77	0.50	0.78	0.99	1.06	1.13

Notes:
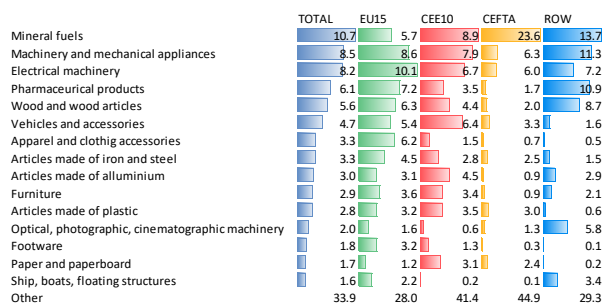- Figures marked with a dagger (†) refer to year 2002 instead of 2000.
- HHI and ECI for CEE10 are simple averages across countries. ECI is based on exports data classified according the Harmonized System HS92, with a depth of 4 digits.

Source: Eurostat, OEC (Observatory of Economic Complexity).

Exports are also diversified across trading blocks, mainly on account of historical trade ties with ex-Yugoslav markets. Whereas the exclusion from major trading blocks might have been detrimental to overall export growth, it has underpinned a greater geographical diversification. Overall, Croatia's exports are less concentrated towards the EU15. Moreover, the share of exports towards the EU15 has been progressively decreasing, mainly reflecting more dynamic growth of CEE10 markets. Differently from CEE10 economies, short of a fifth of Croatia's exports is still destined to former Yugoslavian and other CEFTA markets. Croatia also has good access to markets outside the EU and CEFTA. Notwithstanding this apparent differentiation across blocks (or former blocks), Croatian exports are relatively reliant on neighbouring markets. Slovenia, Germany, Austria, Italy and Bosnia and Herzegovina collectively import more than 50% of all Croatia's exports – possibly reflecting the limited value added and greater incidence of transportation costs.[6]

The export mix tends to differ across geographical markets. The product and geographical dimensions intersect to some extent: the export mix varies across geographical markets. This is evident when looking at figure 3: mineral fuels represent a quarter of all exports to CEFTA in 2018, but a negligible share of exports towards the EU15. Interestingly, the bulk of pharmaceutical products are now exported to countries outside Europe. Exports of ships decreased drastically after 2012, relegating them to the 15th top exported product (most relevant in the non-EU market). On the other hand, exports towards the EU15 are quite diversified, with machinery, pharmaceuticals, wood and textiles leading the way. This different product mix may reflect different demand and substitution elasticities across geographical markets.

Figure 3: **Distribution of exports by product and by geographical market (%, 2019)**

|	TOTAL	EU15	CEE10	CEFTA	ROW
Mineral fuels	10.7	5.7	8.9	23.6	13.7
Machinery and mechanical appliances	8.5	8.6	7.9	6.3	11.3
Electrical machinery	8.2	10.1	6.7	6.0	7.2
Pharmaceutical products	6.1	7.2	3.5	1.7	10.9
Wood and wood articles	5.6	6.3	4.4	2.0	8.7
Vehicles and accessories	4.7	5.4	6.4	3.3	1.6
Apparel and clothig accessories	3.3	6.2	1.5	0.7	0.5
Articles made of iron and steel	3.3	4.5	2.8	2.5	1.5
Articles made of alluminium	3.0	3.1	4.5	0.9	2.9
Furniture	2.9	3.6	3.4	0.9	2.1
Articles made of plastic	2.8	3.2	3.5	3.0	0.6
Optical, photographic, cinematographic machinery	2.0	1.6	0.6	1.3	5.8
Footware	1.8	3.2	1.3	0.3	0.1
Paper and paperboard	1.7	1.2	3.1	2.4	0.2
Ship, boats, floating structures	1.6	2.2	0.2	0.1	3.4
Other	33.9	28.0	41.4	44.9	29.3

Source: Eurostat.

Exports remain over-reliant on labour and resource-intensive sectors and, despite recent progress, the gap in complexity vis-à-vis more successful Central Eastern European economies is widening. According to the European Commission's 2015 Country Report, Croatia features a higher share of low-value-added exports in labour intensive or raw-material intensive sectors. This is confirmed when looking at the economic complexity index of exports. Defining economic complexity is essentially an empirical question. Some products, like medical imaging devices or jet engines, embed large amounts of knowledge and are the results of very large networks of people and organisations. These products cannot be made in relatively simpler economies which lack parts of the necessary capability set. Complex products therefore tend to be exported in combination with other products (diversification), whereas more basic products are often observed to represent a high share of export of less advanced economies. This is particularly the case in commodity-rich but technology-poor countries. At the same time, the greater the number of countries capable of exporting a given product (ubiquity), the less complex the product is in relative terms. Combining the information on ubiquity and diversification allows constructing a complexity index for each exported commodity. Aggregate economic complexity is expressed in the composition of a country's exports and reflects the structures that emerge to hold and combine knowledge. The aggregate figure is then rescaled and normalised to produce an index (Simoes and Hidalgo, 2011). As shown in table 1, the aggregate complexity of Croatian exports in 2018 (0.77) is below the (simple) average of the CEE10 (1.13). The latter group, however, is rather heterogeneous in terms of economic complexity: Czechia and Slovenia feature rather high indexes (1.59 and 1.54 in 2019 respectively), whereas Bulgaria (0.53) has a complexity index well below that of Croatia. The Baltics and Romania have higher indices (up to 1), while, Hungary, Slovakia and Poland are just below the top performers. As shown in figure 4, the share of higher complexity exports has been increasing in Croatia, but not as fast as in CEE10 economies, leading to a slight widening of the gap between Croatia and the CEE10. In addition, Croatia lost some ground in the international ranking on account of stronger performance of other – mostly non-EU – economies. This picture is confirmed also by other indicators, including the export quality indicator developed by Vandenbusche (2014) at the European Commission. According to D'Adamo (2018), who extended and updated the analysis, between 2005 and

2016, Croatia was at the bottom of the distribution, outperforming only Lithuania.

Croatian exports nevertheless feature important areas of excellence, especially in the pharmaceutical industry. The average complexity of Croatian exports is partly a result of the high – and growing – share of exported products featuring relatively low economic complexity content. Figure 4 highlights how the high share of energy products (gas, oil and electricity) weighs on the average index. Croatia also features a large share of exports with intermediate level of complexity. This includes goods as diverse as ships, furniture, cosmetics and foodstuffs. Interestingly, however, this broad group of goods does not constitute the majority of exports. Finally, a high share of pharmaceutical products (medicaments and vaccines) dominates the top range, together with cars and car parts. This almost bimodal distribution is a rather positive feature as it signals that the move towards higher complexity exports is essentially a question of competitiveness and allocation of resources – rather than a lack of capability.

Figure 4: **Distribution of exports by degree of complexity in 2018.**
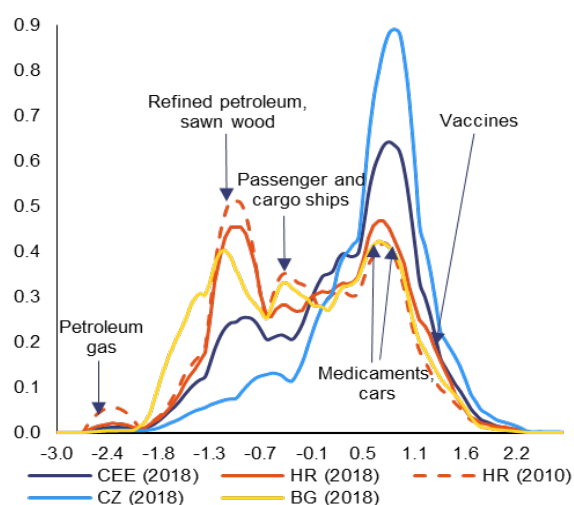
Source: Eurostat, Simoes and Hidalgo (2011).
Note: 2018 product complexity index used for both 2010 and 2018 distributions.

More complex goods tend to be exported towards more distant markets, whereas exports towards CEFTA markets show a lower degree of complexity. A disaggregated analysis of complexity of exports by geographical markets confirms the role of the different product mix. In general, goods that are more complex tend to be exported to farther markets. Indeed, pharmaceuticals and medicaments tend to have a higher weight in exports to non-EU and

non-CEFTA markets. The average complexity of exports towards the EU15 and CEE10 has been converging with time and is now broadly the same. On the other hand, the average complexity of exports to CEFTA markets is lower, reflecting the larger weight of fuels and food products. It is likely that the higher incidence of transport costs on less complex goods plays a role in their geographical destinations, which would explain the high share of less complex goods in the neighbouring CEFTA markets. However, it is also likely that the weight of historical trade relations is greater for less complex goods, whereas creating inroads into new markets requires a higher degree of sophistication.[7]

Available data suggest that EU accession boosted the number of firms engaged in international trade – or at least broadened the export mix. Unfortunately, there are limited statistics in Croatia on exports by firm characteristics. A textbook analysis in terms of export performance at the intensive (same firms exporting more) and extensive (new firms starting to export) margins cannot be performed with publicly available data. However, we can analyse exports performance in terms of "old" (already exported) and "new" (not previously exported) products. Figure 5 is quite telling: a large share of export growth between 2013 and 2019 was driven by Croatian firms starting to export products that were not exported at all or were only marginally exported in 2013 – i.e. for less than EUR 100 000. These products had a marginal weight in total exports in 2013, representing less than 1% of total exports, but in 2018 they represented more than 10% of the total. Meanwhile, the negative effect of discontinuation of previously exported products was very small. The composition of exports to extra-EU countries was most affected by these dynamics, with the share of new and previously marginally exported products rising form 1.4% in 2013 to 23.1% in 2017. Exports to the EU were also substantially affected, whereas the composition of exports to CEFTA markets changed the least, with new or previously marginally exported products growing from 2.6% in 2013 to 10.2% in 2018. These results are consistent with evidence found for other CEE economies shortly after EU accession (Foster, 2012) and with the decreasing concentration of exports discussed above. When it comes to exports towards CEFTA, they were already more differentiated before EU accession, meaning that a larger number of products were already exported for relatively small amounts (i.e. less than 100 000 EUR).

Figure 6: **Export growth between 2013 and 2019 (nominal)**
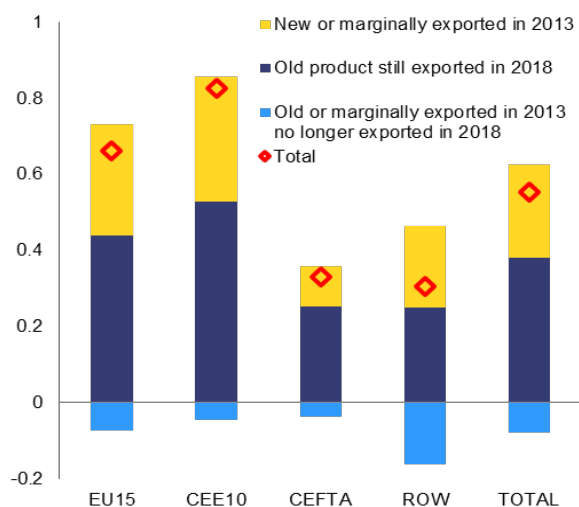
Source: Eurostat.
Notes: New products and marginally exported products are products either not exported or exported in the amount less than 100 000 EUR in 2013.

All in all, the analysis of Croatia's exports highlights notable changes through time, though it is difficult to establish direct causality with EU accession. The main development observable through a meso-level analysis of Croatian exports is the diminishing importance of shipbuilding – a process initiated well before EU accession. Another important development is the progressive increase in exports towards CEE10 economies – though the latter took place in the context of a diminishing importance of EU15. Micro-level analysis reveals ongoing efforts to scale-up the complexity of products, though progress remains slow – especially compared with advancements in CEE10 economies – and there is limited evidence of a sharp improvement in the quality of exports. On the other hand, product breadth continues to expand as a remarkably large share of export growth between 2013 and 2018 was driven by Croatian firms starting to export new products. It is notable that new products were also exported to the rest of world – which although counterintuitive at first, could be explained by improved market access through EU-negotiated trade agreements. All in all, however, the descriptive analysis fails to provide clear evidence of causality. Several factors might have contributed to the weaker export performance up to 2013 and to its rebound thereafter. Understanding the drivers of export performance and the role of EU accession requires going beyond simple descriptive analysis. In the following section, we review shortly the theoretical literature and set out an econometric

model for assessing the impact of different factors on the evolution of exports in Croatia.

Econometric analysis

A recent analysis based on the gravity model for Croatia has confirmed the positive impact of EU membership on trade. The gravity model is the workhorse of applied international trade analysis and is particularly suited in explaining the changes in bilateral trade patterns resulting from participating in preferential trade arrangements. In basic gravity models, bilateral trade between one country and its trading partners is explained mainly as a function of distance between the two economies and the size of their economies. A series of dummy variables are then used to estimate whether participating in trade arrangements leads to trade volumes that go beyond what generally explained by the proximity and size of trading partner. Ranilović (2017) has recently analysed the impact of EU accession on Croatian trade, using a gravity model specified both in terms of levels and first difference. The author finds that exports intensify with the level of income of Croatia and its trading partner. At the same time, greater distance from the trading partner weakens exports more than imports suggesting that a Croatian product is less accessible to a faraway country than a product of the same country in the Croatian market. A "history effect" is present in both flows, since both imports and exports present some inertia. The positive effect of EU accession is confirmed in the export equation, but only in the dynamic model, while in the import equation this result proved to be robust. On the other hand, the impact of CEFTA did not turn out to be significant – though the variable largely overlaps with the variable indicating whether the trade partner is a former Yugoslavian republic (which incidentally turned out to be significant).

The methodological approach proposed in this paper relies on an export demand function linking Croatian exports to domestic and international macroeconomic fundamentals. Our approach relies on a reduced form estimation of the demand for Croatian exports. The most widely used approach for estimating aggregate export demand consists in specifying a Marshallian demand function relating the total quantity of exports demanded by trading partners to a scale variable that captures demand conditions in trading partners and to the prices of exports from a country relative to the prices of potential substitutes. Specifically,

$$(1)\ x^d = F\big(Y^{tp}, p_x^{hr}, p_x^{comp}\big)$$

where x^d is the demand for exports, Y^{tp} is the demand condition in trading partners, p_x^{hr} is the price of Croatian exports and p_x^{comp} is the price level of exports of potential competitors. The function is increasing in the first and third terms and decreasing with respect to prices of Croatian exports. We postulate absence of money illusion, implying that the function is homogeneous of degree zero in nominal income and prices. The demand for exports, is therefore modelled as a function of real income and relative prices:

$$(2)\ x^d = F\left(y^{tp}, p_x^{hr}/p_x^{comp}\right)$$

where y^{tp} indicates the real level of activity. In an imperfect competition framework, products (or rather product bundles) are imperfect substitutes, and compete on cost and non-cost elements captured by the relative prices and resulting in finite substitution elasticity. The supply side is assumed to be an up-sloping function of relative prices:

$$(3)\ x^s = F\left(p_x^{hr}/p_x^{comp}\right)$$

It is assumed that that price of Croatian exports are largely independent of the demanded quantity. This is because Croatian exporters compete with infinitely elastic exports from other countries and therefore have limited price-making power. This implies that prices can be considered as exogenous, which allows the estimation of a reduced form model as a single equation.[8] Another basic assumption is that importers are on their demand schedules so that their demand for Croatian exports always equals the actual level of exports. Exports, however, do not immediately adjust to their long-run equilibrium level, following a change in any of their determinants. An error correction model specification allows to take into account the slow reaction of the economic agents to changes in the explanatory variables due to adjustment costs, inertia, habit, or lags in perceiving changes. If we assume a log-linear specification, the reduced form equation can be estimated through standard OLS:

$$(4)\ \ \Delta x_t^i = a^i \Delta y_t^i + b^i \Delta p_t^i +$$
$$+EC^i\left(x_t^i - \alpha y_t^i + \beta p_t^i\right) + \varepsilon_t^i,$$

where y and p represent real demand conditions and relative prices in trading block i (see discussion below). The operator Δ signifies the increase or decrease in a variable between time t-1 and t. If variables are expressed in logarithms, α and β assume the standard meaning of long-run income and price elasticity, while coefficients a, b represent short-term income and price elasticity. We specifically assume

that inertia and other disturbances like short-term movements in income and relative prices can allow for temporary deviations from the equilibrium, but over the long-run exports will move as to ensure that export volumes are on the importers long-term demand schedule. The speed of correction is given by the parameter EC and ε_t^i is a regression residual. This specification is only valid if fundamentals such as relative prices and income do explain the long-run behaviour of exports – i.e. when the series are co-integrated.[9] When such a relation exists and the estimated EC coefficient is negative and lower than unity, the short term dynamics are not only affected by short term developments in income and prices, but also by forces pulling exports back to their long-run equilibrium level – i.e. correcting the deviation from the long-run equilibrium. An economically and statistically significant EC coefficient is often considered as proof of the existence of a valid long-run relation. However, a more robust way to confirm the validity of the long-term equilibrium relation is to confirm that the residual of the long term relation does not present persistent deviations from its zero mean, which is done with an Engle and Granger test.

We do not explicitly account for changes in trade regimes, but allow for potential structural changes in the long-run equilibrium that would reflect the impact of improved market access. Differently from the gravity model, we do not identify *a-priori* different trade regimes governing trade flows between Croatia and trading partners. Instead, we check for the stability of the long-run elasticities. Our working hypothesis is that if EU accession led to improved market access, the long-run income elasticity of Croatian exports should in principle increase around the time of EU accession. We also expect that participating in a frictionless market in which trading costs have been removed would enhance the responsiveness of trade to price competiveness. In principle, changes in the exports mix could also affect price elasticity. A higher quality or greater complexity of exports, for example, would in general tend to reduce the price elasticity of aggregate exports. In general, we would expect the first force to dominate, as we did not observe overwhelming improvements in complexity or changes towards less price-sensitive exports. Structural breaks in long-run elasticities are identified by applying the Bai Perron test. In a nutshell, the Bai Perron tests compares the distribution of residuals stemming from different structural breaking points with the distribution of residuals stemming from a stable relation. If a structural break at a given point

leads to a lower dispersion in the distribution of residuals that could not plausibly (i.e. at 95% of confidence) have been generated under the hypothesis of a stable relation with underlying fundamentals, then the given point is considered a structural break.

We capture the role of proximity, different trade regimes and historical trade links by estimating different export demand functions from trading partners in the EU15, CEE10, CEFTA and from the rest of the World (ROW). One of the main drawbacks of the proposed modelling framework is that it aggregates demand from all trading partners, without recognising the role of geographical proximity of trading partners. In order to capture the role of proximity, the importance of historical trade relations and the observed differences in the structure of exports across different export markets, we estimate separate demand equations for the EU15, the CEE10, the CEFTA and the ROW. This differentiation across trading blocs would also allow more clearly identifying possible structural breaks as well as determining whether enhanced trade with one bloc came to the detriment of trade with other partners.

We rely on monthly exports and import data from March 2003 to 2019 deflated by Unit Value Indexes and adjusted for seasonality and other disturbances. Monthly export values come from the COMEXT database and are deflated by the unit value index for exports. This is standard practice in the absence of export prices (Bahmani-Oskooee and Kara, 2005) and the empirical literature has found that it does not greatly affect results (Shiells, 1991). We

exclude exports of ships and oil. Excluding oil is also a relatively standard practice, as strong fluctuations in world market prices introduce noise in the statistics (see Carone, 1996). Excluding ships is a common practice in the analyses of the Croatian external sector, as export of ships are relatively irregular transactions, with low frequency and high unit value (Orsini, 2017).[10] Imports from the EU15, CEE10, CEFTA and the rest of the world (ROW) are treated in a similar way and therefore represent our proxy for demand conditions. This is different from the bulk of the literature, though not exceptional. We follow this approach for two reasons. Firstly, import volumes are available on a monthly basis, thus allowing us to exploit all the wealth of the data at hand. Secondly, the import content of GDP can vary through time depending on the composition of economic activity (see Bussiere et al, 2011). The fact that some economic expansions are more trade intensive than others could otherwise interfere with our identification of structural breaks in income and price elasticity. Note that as the real import volumes for CEFTA were not readily available, we used as proxy the volume of EU exports to CEFTA markets (which represent more than 80% of their imports). The real demand conditions for the rest of the world were proxied by the readily available series of real world imports minus euro area exports. Nominal import and export prices are deflated/normalised with adjusted import IVU – which descends directly from the Marshallian demand specification discussed above. Note that for CEFTA and the ROW, we relied on EU adjusted export values as proxies for price level of potential competitors. These unit value indexes are also adjusted by removing the prices of oil and ships (for the latter we use the unit value index of the transport equipment).

Table 3: Demand and substitution elasticities of Croatian exports towards the EU15, CEE10, CEFTA and ROW markets

EU15

OLS error correction model

	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (2003m01-2013m05)				
Demand	0.867	0.076	11.403	0.000
Price	-1.129	0.205	-5.499	0.000
Long-run (2013m06-2019m10)				
Demand	1.733	0.084	2.058	0.000
Price	-3.442	0.231	-1.489	0.000
Short-run (2003m01-2019m10)				
Error correction	-0.605	0.064	-9.395	0.000
Demand	1.195	0.075	15.978	0.000
Price	-1.159	0.156	-7.456	0.000
Adjusted R-squared	0.661		Durbin-Watson stat	2.306

Bai-Perron test for structural breaks

Break Test	F-statistic	Scaled F-statistic	Critical value**
0 vs. 1 *	34.486	68.973	15.370

* Significant at the 0.01 level; ** Bai-Perron (Econometric Journal, 2003) critical values.

Cointegration Test, Phillips-Ouliaris performed on a DOLS

Period	Statistics	Value	Prob.*
2003m01-2019m10	Tau-statistic	-7.093	0.000
	z-statistic	-81.311	0.000
2003m01-2013m05	Tau-statistic	-11.163	0.000
	z-statistic	-142.924	0.000
2013m06-2019m10	Tau-statistic	-6.972	0.000
	z-statistic	-78.556	0.000

*MacKinnon (1996) p-values.

CEE10

OLS error correction model

	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (2003m01-2014m09)				
Demand	1.084	0.048	22.414	0.000
Price	-1.459	0.109	-13.425	0.000
Long-run (2014m10-2019m10)				
Demand	1.340	0.159	8.451	0.000
Price	-2.008	0.374	-5.373	0.000
Short-run (2003m01-2019m10)				
Error correction	-0.394	0.055	-7.117	0.000
Demand	1.181	0.073	16.184	0.000
Price	-1.342	0.187	-7.173	0.000
Adjusted R-squared	0.636		Durbin-Watson stat	2.129

Bai-Perron test for structural breaks

Break Test	F-statistic	Scaled F-statistic	Critical value**
0 vs. 1 *	16.718	33.436	15.370

* Significant at the 0.01 level; ** Bai-Perron (Econometric Journal, 2003) critical values.

Cointegration Test, Phillips-Ouliaris performed on a DOLS

Period	Statistics	Value	Prob.*
2003m01-2014m09	Tau-statistic	-4.133	0.0198
	z-statistic	-28.788	0.0265
2003m01-2014m09	Tau-statistic	-6.412	0.0000
	z-statistic	-63.526	0.0000
2014m10-2019m10	Tau-statistic	-5.249	0.0014
	z-statistic	-35.975	0.0018

*MacKinnon (1996) p-values.

CEFTA

OLS error correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (2003m01-2019m10)				
Demand	0.719	0.091	7.891	0.000
Price	-0.106	0.147	-0.720	0.472
Short-run (2003m01-2019m10)				
Error correction	-0.242	0.046	-5.225	0.000
Demand	0.731	0.073	9.993	0.000
Price	-0.576	0.133	-4.317	0.000
Adjusted R-squared	0.433		Durbin-Watson stat	2.169

Bai-Perron test for structural breaks

Break Test	F-statistic	Scaled F-statistic	Critical value**
0 vs. 1 *	4.499	8.997	15.370

* Significant at the 0.01 level; ** Bai-Perron (Econometric Journal, 2003) critical values.

Cointegration Test, Phillips-Ouliaris performed on a DOLS

Period	Statistics	Value	Prob.*
2003m01-2019m10	Tau-statistic	-6.505	0.000
	z-statistic	-51.334	0.000

*MacKinnon (1996) p-values.

ROW

OLS error correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (2003m01-2005m07)				
Demand	0.823	0.212	3.881	0.000
Price	-1.123	0.543	-2.067	0.040
Long-run (2005m08-2019m10)				
Demand	1.153	0.067	17.305	0.000
Price	-1.867	0.168	-11.143	0.000
Short-run (2003m01-2019m10)				
Error correction	-0.547	0.067	-8.187	0.000
Demand	0.942	0.166	5.670	0.000
Price	-1.022	0.139	-7.353	0.000
Adjusted R-squared	0.636		Durbin-Watson stat	2.129

Bai-Perron test for structural breaks

Break Test	F-statistic	Scaled F-statistic	Critical value**
0 vs. 1 *	16.718	33.436	15.370

* Significant at the 0.01 level; ** Bai-Perron (Econometric Journal, 2003) critical values.

Cointegration Test, Phillips-Ouliaris performed on a DOLS

Period	Statistics	Value	Prob.*
2003m01-2014m09	Tau-statistic	-7.395	0.000
	z-statistic	-87.779	0.000
2003m01-2014m09	Tau-statistic	-4.101	0.044
	z-statistic	-23.863	0.019
2014m10-2019m10	Tau-statistic	-8.980	0.000
	z-statistic	-121.131	0.000

*MacKinnon (1996) p-values.

Source: Eurostat.
Notes: (*) significant at 1%, (**) significant at 5%.

Our estimate confirms that EU accession resulted in a structural increase in demand elasticity signalling a greater connection with economic developments in the EU. The Bai Perron test identified a structural break in the export demand equation from EU15 at the time of EU accession (June 2013, as opposed to July 2013). Following EU accession, the elasticity of exports w.r.t. demand conditions increased from 0.9 to 1.7. Such elasticities may appear relatively low when compared with large elasticities encountered in international studies (see for example Bahmani-Oskooee and Kara, 2005 and OECD, 2010). However, this is partly related to the fact that we use imports and not GDP as a proxy for economic activity. It was indeed expected that demand elasticities would be smaller and closer to one – as is indeed the case. The elasticity of exports towards CEE10 economies w.r.t. demand also increased from 1.1 to 1.3. In this case the break was found to occur slightly after EU accession (at the end of 2014), but in a time window that can still plausibly attribute the structural change to enhanced market access following accession. The higher demand elasticity post accession was expected, as opportunities open up for deeper trade integration within EU economies. We also perform robustness checks by re-running the equation with different proxies of foreign demand (using real imports from quarterly national accounts for both CEE10 and EU15 and adding exports across quarters). The results are essentially identical, though the break was found to take place one quarter later in the case of the CEE10 equation.[11]

Large export demand price elasticities both pre- and post- accession may be caused by a preponderance of price-sensitive exports. Estimated price elasticities are large by international comparison – though by no means exceptional (e.g. Bahmani-Oskooee and Kara, 2005). High price elasticity could be explained by the low average complexity/quality of the export mix, as well as the high share of exports in row-materials and industries that tend to compete more on price than on quality.[12]

Higher substitution elasticity following EU accession could be the result of enhanced market access. Price elasticities also appear to be much larger following EU accession. This is especially the case with respect to substitution elasticity in exports towards the EU15, which increased from -1.1 to -3.4. The increase in the elasticity w.r.t. CEE10 economies was more modest: from -1.5 to -2. A higher elasticity following accession was largely expected. Higher

elasticity could follow from enhanced signalling role of prices once non-tariff barriers were removed.

Downward trending relative prices throughout most of the post-accession period may lead to bias in the estimation. Finally, it is possible that the estimated price elasticities are affected by asymmetric sensitivity to upward and downward movements in relative prices. This occurs because of relative inertia to price increases in the presence of significant costs in switching suppliers (IMF, 1995). The latter can be particularly relevant in intra-industry trade, given the tailoring of products for production processes in integrated value chains. To the extent that most of the period following EU accession was characterised by falling relative export prices (competitiveness gains), the estimate of elasticity could be to some extent biased for the post-accession period. Irrespective of the bias, it is likely that post-accession price elasticity did indeed increase – though with time estimated post-accession elasticity could decrease somewhat as the downward pressure bias fades out.

Trade with CEFTA does not appear to have been affected by Croatia's participation in the free trade area. We find no evidence of structural change in the export equation towards CEFTA markets. If however, a larger threshold level is defined for the identification of structural breaks (i.e. 5% instead of 1%), the equation presents a single structural break, but in 2009 – and not at the time of Croatia's accession to the EU and exit from CEFTA. One possible explanation for that is that shortly after accession, the EU negotiated adaptations to the trade concessions established by the Stabilisation and Association Agreements signed or concluded with the members of CEFTA, in order to take into account the preferential traditional trade that Croatia has with Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia and Kosovo. Most of these protocols were ratified shortly after accession, which might have helped minimise trade reorientation. More likely, however, the positive impact of CEFTA membership was not very strong in the first place. Begović (2011) and Ranilović (2017) found no particularly positive impact of access to CEFTA. Ranilović (2017), in particular, finds that trade with ex-members of the Yugoslavian federation was up to 90% greater than the simple gravity model would predict. This means that historical ties are still very strong. However, CEFTA membership had no impact in increasing or decreasing trade.

Trade relations between Croatia and CEFTA may be partly blurred by intra-group trade, which could also explains the weak substitution elasticity. Bosnia and Herzegovina, Serbia and Montenegro all feature in the top five destinations of Croatian FDI.[13] Together, the CEFTA countries account for more than one third of net equity investments made by Croatian corporates – a share disproportionate to the size of these economies and substantially higher than the 16% share of Croatia's CEFTA-bound exports. Such strong equity ties suggest that a relatively big part of trade between Croatia and these partners relates to *de facto* intra-company trade, which helps explain why trade overall is less dependent on price developments.

Historical links notwithstanding, it seems that Croatia's exports are not keeping pace with developments in former Yugoslavian economies. The estimated demand elasticity for exports to CEFTA countries is well below one, and far below that of exports to the EU. This could partly be explained by composition effects. However, given the large diversity in the mix of exports, it is difficult to justify such low income elasticity solely on composition effects. Moreover, if we were to accept a lower threshold for the identification of structural breaks, the income elasticity would be even lower after 2009 – roughly 0.4. This suggests that trade links with CEFTA countries, and in particular with former Yugoslav republics – though strong due to historical reasons, are progressively weakening.

Weakening trade links with former Yugoslavian markets could be a consequence of likely delays in the accession of remaining CEFTA members. As suggested in the literature, trade agreements negotiated in the run-up to accession can have negative effects on intra-regional trade (Bartlett, 2009). In the run up to accession, the EU liberalises trade with accession candidates unilaterally by adopting "Autonomous Trade Preferences" (ATPs) that allow duty and quota-free access for the majority of its exports. At the same time, the EU required candidate (and non-candidate) regional partners to liberalise trade among each other in the frame of the Association Agreements in order to boost intra-regional trade. This approach was followed also during previous accessions, specifically with the 2004 and 2007 accessions of Baltic Free Trade Agreement members (Estonia, Latvia and Lithuania) and other former CEFTA members (Poland, Hungary, Slovenia, Slovakia and Czechia, Bulgaria and Romania). According to De Benedictis et al. (2005)

this approach had a significant impact on intra-European trade, effectively reducing the potential negative impact of Association Agreements in shaping European trade structure along a hub-and-spoke system – with the EU15 as a hub and CEE10 economies as the spokes. Whereas the same approach has been in principle followed in the case of Croatia and the remaining CEFTA members, it is likely that the still distant prospects of EU accession for residual CEFTA members limited the positive role of regional trade agreement in countering the pull effects of the Association Agreement. This could explain why income elasticity of exports towards CEFTA is smaller, price elasticity is insignificant, the role of extensive margin negligible and why the overall level of complexity of exports to this region broadly stagnated. This trade reorientation following EU accessions was to some extent anticipated. Holzner (2013) predicted that the share of Croatian exports to the EU would increase by 2.2 percentage points, while the share of exports to the CEFTA countries and to the rest of the world would drop by 0.7 and 1.5 percentage points, respectively. It is possible, however, that this re-orientation process initiated well before, as delays in the accession talks of other CEFTA members became clear.

Exports towards the rest of the World do not appear to have been affected by EU accession. Income and substitution elasticity with respect to more distant markets are smaller in absolute value that those of either the EU15 and the CEE10 – which would be expected. In particular, the weaker price elasticity could reflect the relative importance of transportation costs, but also the dominance of less price elastic goods. Interestingly, EU accession does not appear to have negatively affected exports towards these markets. A structural shift occurred earlier – in mid-2005. In 2004, several CEE10 economies transitioned from CEFTA to EU and it is possible that an induced deflection of exports towards the EU opened up opportunities for Croatia. It is however beyond the scope of this paper to discuss what could have been behind this structural break. What is more interesting, from our perspective, is that the EU accession does not seem to have led to a weaker export performance towards the rest of the World.

Conclusions

Croatian firms appear well-placed to face global competition. Non-ship exports to markets other than

Italy and Slovenia withstood the impact of competitiveness losses and softening international trade in the wake of the Global Financial Crisis. Croatian exports benefit from being relatively diversified across countries, although a relatively high share of exports go to markets in its immediate neighbourhood. Croatian exports appear also well diversified in terms of products, especially considering the size of the economy.

EU accession has opened up opportunities for Croatian firms, which are making inroads into EU value chains and gaining market shares. The econometric analysis confirms that following EU accession, Croatian firms have been strengthening their economic relations with both old and more recent EU Member States. The elasticities of exports with respect to demand from both EU15 and CEE10 are of a broadly comparable magnitude. As substitution elasticities are also broadly similar, the faster increase in exports towards the CEE10 appears to be mainly driven by faster economic growth in convergence economies. Demand elasticities well above unity, moreover, signal a trend of increasing Croatia's market shares – irrespective of competitiveness developments. This tendency is largely driven by the extensive margin, as new products, or products that were only marginally exported to the EU before accession account for up to a third of the growth in nominal exports of the past three years. Finally, statistical evidence suggests that some of the trade is driven by deeper inroads into global value chains, as the import-export link for intra-EU trade has strengthened post accession.

The degree of complexity of exported goods has improved somewhat, but Croatian firms would benefit from moving away from low value added goods, shifting their comparative advantage to non-price competitiveness. The average degree of complexity of exports has improved across all markets, and the performance has been particularly strong for more distant destinations. The relative ranking of Croatia nevertheless slipped somewhat as other, mostly non-EU countries, performed even better. The export structure, moreover, remains skewed towards labour and resource-intensive products. This may explain both the high substitution elasticity and the high export share of markets in the immediate neighbourhood. Moreover, following accession, substitution elasticities have even increased. The extent of the surge might be over-estimated due to asymmetric reactions of buyers to increases and decreases in prices in a context of

sustained competiveness gains of Croatian firms. Composition effects might also have played a role in pushing up substitution elasticity – though we found evidence of a post-accession structural break also when disaggregating export performance for low, medium and highly complex goods. Most likely, accession to the single market implied a greater degree of price transparency and a decline in the relevance of non-cost elements. Until now, this has favoured the penetration of Croatian firms into new markets. However, as the economy approaches capacity constraints, price and wage increases may leave Croatian firms more exposed to competitiveness losses.

The apparent weakening of trade relations with remaining CEFTA partners is eroding one of Croatia's strategic advantages. In the case of exports towards CEFTA markets, there is no clear-cut evidence of a structural break. If, however, there was a change in long-run demand and substitution elasticity, it occurred before, not after Croatia's EU accession. It is however possible that despite EU's efforts to boost regional trade between CEFTA members who are also candidates for EU accession, the liberalisation of trade towards the EU in the frame of association agreements has and keeps favouring a process of trade deflection towards EU Member States. Although this was not the case with previous accessions, it is likely that the lengthening of accession perspectives of Balkan candidate countries and unlikely accession as a block of remaining candidate countries is weakening efforts of Croatian firms to maintain their strategic position within CEFTA markets. Statistical evidence suggests that trade with CEFTA is mainly explained by historical trade links, particularly with ex-Yugoslav economies.

Policy action should aim at controlling cost developments, while investing in product upgrades, particularly in sectors where Croatia already enjoys a strategic advantage. In the short-run, Croatian exports remain extremely sensitive to cost developments. This poses a risk, as the economy closed its gap with potential output, which is resulting in wage and price pressures. In line with recent European Commission's recommendations[14], wage formation should closely follow productivity dynamics, which are typically best determined in the non-sheltered exporting sector (Orsini and Ostojić, 2015). This is especially important given the high labour intensity of Croatia's exports. Moreover, with Croatia's expected switchover from kuna to the euro, the already

severely limited scope to affect the terms of trade through exchange rate policy will be removed. Meanwhile, the elimination of trade frictions in the form of exchange risks and costs should benefit trade. Beyond the level of cost competitiveness, a more flexible labour market could enable the external sector to increase employment. Unlocking Croatia's labour supply potential by measures aimed at lengthening working lives and boosting participation could also help relax capacity constraints – as would investments aimed at re-skilling the workforce towards sectors where labour shortages are most acute. Reducing the intrusiveness of the state in the economy and improving the functioning of product and capital markets could boost productivity and promote the reallocation of resources towards faster growing companies and sectors. At the same time, it would also create a more attractive environment for FDI. These are key for acquiring new manufacturing technologies, equipment, and machinery and boosting technology and knowledge transfers from more advanced economic systems. In the longer run, re-orienting part of public expenditure including EU funded investments towards R&D&I could boost competitiveness, particularly in emerging industries and industries where Croatia already enjoys a comparative advantage. The recently adopted smart specialisation strategy provides an effective blueprint for accelerating Croatia's transition towards higher value added exports.

Croatia and the rest of the Western Balkans are set to benefit from the relaunch of accession talks with candidate members participating in CEFTA. Croatia continues to hold a strategic position in trade with ex-Yugoslav economies participating in CEFTA. Yet, the importance of historical trade links is being eroded by the re-orientation of trade towards the EU. Croatia has all to gain from further EU enlargement in the Western Balkans. Croatian authorities should further engage in the Berlin process in an effort to expedite accession talks, and at the same time continue to work on remaining trade barriers within CEFTA and between CEFTA and the EU.

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[1] The export-led growth (ELG) hypothesis suggests that exports have a relevant contribution to economic growth through two main channels; directly by expanding the output volume and indirectly by improving efficiency in the allocation of the factors of production. The increase in efficiency is achieved through several channels: the expansion of external and internal competition, the generation of positive externalities for other sectors by promoting the diffusion of technical knowledge and skills, facilitating the exploitation of economies of scale in production and the development of related service industries. Exports also enhance economic growth by increasing the level of investment as the relief of the foreign exchange constraint facilitate the imports of capital and intermediate goods. Undoubtedly, several middle income economies in the Far East, as well as the Central and Eastern European Economies have successfully pursued a model of export-led growth and economic convergence.

[2] Whereas recent research has highlighted the complementarity between exports of goods and exports of service, we argue that in the case of Croatia a focus on merchandise exports alone is granted. On the one hand, the bundling of goods and services (e.g. hardware and software, expensive durables and financing services or investment goods and related consultancy services) is typical of more advanced economies, while on the other hand the tourism industry (which represents about 80% of the exports of services) tend to present limited complementarity with exports of goods. This approach, incidentally, is also justified empirically: Orsini and Pletikosa (2019) show that the performance of exports of goods is

independent from the performance of export of services in the long-run. Whereas the focus of the paper was to identify possible crowding-out effects related to the so-called Beach Disease, the econometric evidence of the absence of long-run relation between goods and services also demonstrates lack of complementarity.

[3] The Central European Free Trade Agreement (CEFTA) is a trade agreement between non-EU countries, members of which are now mostly located in South-Eastern Europe. Founded by representatives of Poland, Hungary and Czechoslovakia, CEFTA expanded to Albania, Bosnia and Herzegovina, Bulgaria, Croatia, North Macedonia, Moldova, Montenegro, Romania, Serbia, Slovenia and the United Nations Interim Administration Mission in Kosovo (UNMIK) on behalf of Kosovo. Once a participating country joins the European Union (EU), its CEFTA membership ends. Following Croatia's accession to the EU, the parties of the CEFTA agreement are: Albania, Bosnia and Herzegovina, North Macedonia, Moldova, Montenegro, Serbia and the UNMIK on behalf of Kosovo.

[4] According to Ranilović (2017), "despite the violent break-up of Yugoslavia, all model estimates suggest a strong bias towards trade with former Yugoslav republics, revealing the strong inertia of existing commercial relations, which have retained their role since the Yugoslav period".

[5] A large export base does not *per se* imply a large contribution of exports to the economy. The strong integration of CEE economies in EU value chains, imply also a strong import-export link (Reininger, 2008). In the case of Croatia, this is less the case (Orsini, 2017) due to the lower integration in global value chains and the fact that a higher share of exports is linked to the relatively strong domestic agricultural sector, as well as natural resources endowments, including wood, gas and oil (European Commission, 2015).

[6] Ranilović (2017) finds that "greater distance from trading partners weakens exports more than imports suggesting that a Croatian product is more accessible to a faraway country than product of the same country to the Croatian market".

[7] An alternative explanation could be that the degree of complexity of CEFTA imports is lower and that the lower degree of complexity of Croatian exports to that trading block are driven mainly by demand factors. The empirical analysis, however, shows that the degree of complexity of CEFTA imports is not lower than the imports of the CEE10 and EU15. Actually it is the latter group of countries that features the lowest degree of complexity of imports, probably owing to the comparative advantage of their productive structure, that specialises in more complex output for both the external and the domestic markets.

[8] It is possible that in reality Croatia exports do enjoy a limited market power, at least in the short run. Indeed Orsini and Pletikosa (2019) show that prices tend to react to changes in demand levels, however the bulk of the adjustment is carried out by export volumes. In a VECM regression, the error correction term on export volumes is about three times larger than the error correction term on relative prices. The assumption of price exogeneity is therefore not likely to induce a large bias in the estimation.

[9] Cointegration means that all the series in the equation are (1) not trend stationary (i.e. not mean reverting), (2) integrated of the same order (i.e. a same number of time differentiation need be applied to yield a trend-stationary series), and (3) there is (at least) one linear combination of the variables, that is trend stationary. When this is the case, the equilibrium value of exports is defined by its long run relation with the fundamentals (income and prices). When variables are expressed in log, these long-term relations are nothing else than the long-run output and price elasticities (Granger and Engle, 1987). Before estimating the above equations, we perform a battery of tests to validate the modelling framework. Specifically, we run a series of ADF test to ensure that all series are non-stationary and integrated of order one and Engle-Granger co-integration tests to verify co-integrations. These results are not presented in this paper.

[10] Moreover, long production cycles in this industry cause much of the confusion in the export series, preventing the revelation of some fundamental regularities and basic relations among variables (Mervar, 1994). Finally, removing exports of ships allows us to insulate export performance from the impact of the restructuring of the shipbuilding industry.

[11] We also used quarterly GDP data as proxy for demand conditions. The results were qualitatively similar for the EU15, but the model failed to identify a breaking point for CEE10. It should be noted that whereas the share of imports to GDP remained more or less stable for EU15, it increased dramatically for CEE10 – which confirms our intuition that using GDP as a proxy for demand condition could interfere with our identification strategy.

[12] Using the taxonomy of Aiginger (2001), the World Bank classifies exports belonging to industries that have high, medium and low Relative Quality Elasticity (RQE). Industries with high RQE compete on quality, whereas industries with low RQE compete on price. Croatia's share of export industries that are quality-dominated (high RQE) is less than the share of industries dominated by price competition (low RQE). In contrast, the quality-dominated ratio is much higher for all other peer countries in the region except Bulgaria. This is yet another indicator that points out that Croatia has significant catching up to do (World Bank, 2016).

[13] Source: Croatian National Bank data on Foreign direct investment (accessed October 2017): http://www.hnb.hr/documents/20182/98a316fc-17d7-42a5-860b-bcae7f1950d1

[14] One of the Council's recommendations to Croatia in 2015 (2015/C 272/15) was to "tackle the weaknesses in the wage-setting framework, in consultation with the social partners and in accordance with national practices, to foster the alignment of wages with productivity and macroeconomic conditions". This line was reiterated in subsequent country-specific recommendations, with the focus on improving the public sector wage-setting framework.

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