



**Foreign Trade in Eastern Europe and Central Asia:
Adjustment and Risk Diversification**

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1. Introduction

One of the most remarkable turnarounds in economic history is that of the economies of Eastern Europe and Central Asia (hereafter, ECA) after the demise of the socialist economic system. The transition from a planned economy to a market economy and their progressive re-insertion in the world economic community provides a myriad of lessons for both academics and policy-makers. The route has not been easy as the physical and social cost of the massive restructuring of their economies have been quite expensive.

The initial shock brought upon by the collapse of political and economic systems in ECA economies and the ricocheting effects of the failure of neighboring countries, led in the early 1990s to industrial and financial disarray and soaring unemployment in all economies in the region. Reforms –implemented at different pace in the different countries—aimed mainly at allowing for a swift restructuring of domestic economy, the deregulation of markets traditionally intervened by the state, a realignment of relative prices to reflect scarcity, and the retrenchment of the public sector from the historically mismanaged production of goods and services by state firms and collective units.

A key element in this strategy was the opening of the economies to global markets. Countries benefited from the discipline brought upon firms by increasing internal market competition as well as a result of initially timid and subsequently more aggressive participation in global markets. Market de-regulation, privatization and the abovementioned retrenchment of the government from productive activities gave way to individual initiative and creativity. Some countries also benefited from ample external funds in the form of foreign direct investment. It is not surprising that the 2000s have been years of recovery in all economies and outright bonanza in a few of them.

Policy responses to the challenges of modernization in ECA have been quite heterogeneous. While some countries embraced economy wide, far reaching reforms and transformations, others have advanced more timidly. External shocks have also affected this process. High commodity prices have played a significant role in fostering growth in the last decade, in particular the windfall received by resource-rich ECA countries exporting oil, gold or diamonds. The emergence of East Asia and China as leading trade partners of the developed economies has had opposite effects: on one hand, it has increased external competition for ECA countries in semi-manufactured consumer and investment goods while on the other it has opened the door to substantially large markets.

Increased exposition and competition have fueled growth in ECA but it has also increased the vulnerability as shown in declining economic activity and rising unemployment during the recent global recession. This, of course, is a well-learned lesson from previous crisis in other regions of the world. While the upswing of open economies is sweet, the downswing tends to quite painful. Much of the harshness of the downswings depends on the ability of countries to avoid the build-up of imbalances prior to the crisis and to adjust quickly to changing environments during the downturn. A poorly operating labor market can play a crucial role in deepening the crisis, while a well-oiled one can soften the costs by allowing changes in the intensive margin (intensity of use of

workers) to cushion against the otherwise inevitable adjustment in the extensive margin (layoffs). In this regard, ECA economies portray precisely this tension: a number of countries entered the crisis with high and possibly chronic unemployment levels (e.g., the Balkans and the smaller CIS² economies) while others had already achieved single-digit unemployment rates by the mid-2000s. In almost all economies unemployment increased as a result of the crisis but in those where adjustments in the intensive margin were significant, unemployment rates are returning to pre-crisis levels faster.

This paper reviews the long-run trends in the external trade of ECA economies in the last two decades. The task is ambitious as there is a remarkable heterogeneity among these countries in initial conditions, the quality of the implemented policies and reforms, and their economic outcomes. Therefore the goals are three. I first study the stylized facts characterizing the evolution of external trade in the different economies from a macroeconomic viewpoint and in terms. Second, I use an econometric model of the world economy to study the determinants of foreign trade in goods (exports and imports) as well as in terms of the trade partners. The models allow to study whether current trade patterns in each ECA country correspond to “normal trade” patterns. The third objective is to evaluate if an eventual convergence to such normal patterns could have significant impacts on labor creation and employment levels.

2. The Evolution of Foreign Trade

One of the most important aspects of the transition from socialist rule to market economy is the opening to foreign trade and the intensification of market competition. Several countries literally abandoned trade autarky whilst others that had previously traded with the global economy saw themselves competing without the support of the government in terms of subsidized exchange rates, forced trading with members of the political coalition, and soft-budget constraints that would allow surviving despite systematic losses.

Among other things, foreign competition has increasingly brought discipline to ECA economies, it has demanded improvements in the quality of the goods sold and in the delivery conditions, it forced firms to become more efficient and required exporters to meet environmental standards. Some countries have been more successful than others and some industries within countries have been less apt to adapt than others.

Foreign trade has undoubtedly become a key aspect of economic development for most ECA economies. As shown in Table 1, foreign trade has increased markedly during the past two decades in most economies. First, note that on average for all countries, imports are significantly larger than exports, i.e., ECA has a systematic trade deficit. Such deficits are financed in the long run by surpluses in the services accounts; in the short-run capital flows can be used to finance deficits but considering the size of such imbalances the latter option would amount to accumulating unsustainable debt levels. Historically such trade deficits would have been a source of concern but

² Commonwealth of Independent States

nowadays trading in services has become a major industry: for example, several Eastern European economies have well developed tourism facilities that provide significant returns to the economy.

Second, note that larger economies tend to trade less than smaller economies. Trade in Russia, Turkey and Poland is significantly less than in smaller economies with similar levels of development such as Slovenia or the Czech Republic. This is a worldwide empirical regularity as documented in the literature on “gravity models of trade” which I discuss below: large-size economies can rely on domestic markets for a stable demand on which to base the development of industries and, more often than not, they count on the natural resources contained in extensive geographical areas. Economies, particularly in the western regions of ECA, are small in both size and population.

Table 1
Foreign Trade: Export and Import Values

	Exports (as % of GDP)		Imports (as % of GDP)	
	1990-2000	2001-2011	1990-2000	2001-2011
Balkans				
Albania	13.0	25.2	41.0	48.9
Bosnia	24.4	34.4	83.2	70.8
Macedonia	38.0	44.4	47.5	63.7
Montenegro	36.8	38.2	51.1	67.4
Serbia	20.4	27.8	30.9	48.4
<i>Average</i>	<i>26.5</i>	<i>34.0</i>	<i>50.7</i>	<i>59.8</i>
CIS				
Armenia	30.2	23.9	57.4	44.2
Azerbaijan	39.5	55.1	47.9	39.6
Belarus	56.8	61.6	60.9	67.7
Georgia	29.2	31.3	50.5	50.4
Kazakhstan	43.1	48.5	45.6	39.5
Kyrgyzstan	35.1	46.2	47.5	67.3
Moldova	44.4	46.6	56.6	84.8
Russia	32.6	32.5	25.3	22.2
Tajikistan	53.2	35.1	59.0	65.8
Turkmenistan	66.1	65.1	67.5	52.7
Ukraine	39.1	51.7	39.2	52.5
Uzbekistan	26.3	35.8	30.6	32.0
<i>Average</i>	<i>41.3</i>	<i>44.4</i>	<i>49.0</i>	<i>51.6</i>
EU members, Croatia and Turkey				
Bulgaria	49.3	53.2	50.5	64.5
Croatia	45.4	41.0	50.3	46.5
Czech Republic	49.3	64.4	49.8	62.7
Estonia	71.9	74.4	79.9	77.8
Hungary	45.7	74.8	47.3	74.2
Latvia	49.8	45.8	51.0	57.0
Lithuania	47.3	57.9	53.5	64.3
Poland	23.5	36.6	24.5	38.9
Romania	25.3	31.2	31.5	39.7
Slovak Republic	56.1	78.8	60.7	81.7
Slovenia	59.8	62.1	58.1	62.5
Turkey	18.5	23.2	21.5	26.0
<i>Average</i>	<i>45.2</i>	<i>53.6</i>	<i>48.2</i>	<i>58.0</i>

Source: own elaboration based on World Bank database.

Third, the countries in the EU+ group tend to trade significantly more than those in the CIS or the Balkans. Exports by EU+ economies in the period 2000-2011 are ten percentage points of GDP higher than those of the CIS (which include energy exporters) and twenty percentage points higher than the Balkan countries. Naturally, accessing the EU provides ample opportunities to sell products in a very large and rich trade area and can explain the leadership of EU+ economies in trade. However, in order to use such opportunities producers ought to be as efficient as the “domestic” producers; therefore, the higher share of exports in EU+ countries also indicates the higher competitiveness levels.

Fourth and related to the previous issue, it can be seen that exports as share of GDP have increased quite significantly in the EU+ group and the Balkans but have stagnated in the CIS. The same is observed in terms of imports. As discussed below, the very different structures in terms of trade partners in ECA could provide an explanation for this regularity.

Fifth, as is the case with most markets in ECA, there is substantial heterogeneity among countries vis-à-vis trade volumes. In the last decade, a large number of economies exported around 30% to 40% of GDP, whilst very few surpassed the 50% mark typically EU+ countries.

These stylized facts ought to be linked with the trade structure of the countries in terms of goods exported and imported as well as the trade partners of each country for several reasons. On one hand, elements such as geographical proximity, historical and cultural ties, and trade agreements usually have influence on the type of goods traded and the origin and destination of such trade. On the other hand, the endowment of natural resources and the relative availability of production factors (manpower, land and capital) also shape the nature of trade among countries. In the case of ECA the potentially overwhelming influence of Russia and the EU can also affect trade patterns as smaller economies tend to gravitate around large-size countries. In Table 2 I provide a summary of trade structures –in partners and goods—to identify some stylized facts, leaving a formal modeling and forecasting to be developed in a subsequent section.

The results are quite clear. It can be seen that the EU is the major trading partner of all economies except a few countries in the CIS group for which Russia is the main source of imports and an important destination for exports. The importance of EU is, not surprisingly, the largest in those countries that have joined the trade union: around 60% of exports are directed to the EU from where it comes 55% of imports. However, note that Balkan countries, which are not part of the EU, trade only slightly less with around 50% of total export and imports linked to the EU. Indeed, and more strikingly, while in the CIS trade with the EU is not as important as elsewhere, the main trade partner of Russia is the EU: around 50% of all Russian imports come from the EU and, even when excluding energy, almost 40% of Russian exports go to the EU.

Russia, on the other hand, is not a major trade partner of the Balkans or the EU+ countries both in terms of a destination for exports and as a source of imports. On average less than 5% of export volumes and 10% of import volumes correspond to trading with Russia. Some EU+ economies are more dependent on Russia’s exports: the Baltic countries import up to 20% of total imports from their giant neighbor.

Russia, nevertheless, is the major trade partner for the smaller economies of the CIS with only a few significant exceptions. As a destination for exports, some economies are quite integrated with Russia: Belarus, Kyrgyzstan, Moldova, Ukraine and Uzbekistan sell over 20% of total exports to the Russian markets, a figure that increases significantly if energy transactions are excluded. These economies, particularly Belarus, also import a sizable proportion of their foreign purchases from Russia. For other economies such as Armenia, Azerbaijan, Kazakhstan, Moldova and Tajikistan the Russian market is important but not dominant. Finally, for Georgia and Turkmenistan Russia represents a small share of their trade volumes.

Table 2
Foreign Trade: Goods and Partner Structures, 2010

	Exports to (as % of total exports)		Non-Energy Exports to (as % of total non-energy exports)		Imports from (as % of total imports)	
	Russia	European Union	Russia	European Union	Russia	European Union
Balkans						
Albania	0.5	58.1	0.6	56.9	3.4	62.0
Bosnia	0.3	43.8	0.3	43.9	1.9	36.4
Macedonia	1.3	57.1	1.3	58.5	7.2	43.4
Serbia	5.4	44.4	5.4	45.1	9.3	43.8
Average	1.9	50.9	1.9	51.1	5.5	46.4
CIS						
Armenia	14.3	52.1	14.3	51.8	18.7	33.3
Azerbaijan	2.7	67.4	30.2	12.3	18.2	34.9
Belarus	37.2	27.7	54.4	10.4	62.7	18.1
Georgia	5.5	32.5	7.1	26.4	10.7	29.1
Kazakhstan	10.3	53.5	24.6	26.9	34.7	28.4
Kyrgyzstan	33.6	7.1	34.3	6.9	20.0	8.3
Moldova	26.3	27.0	26.4	27.1	12.0	27.6
Russia	-	49.4	-	37.0	-	52.1
Tajikistan	17.6	40.7	17.6	40.8	25.3	6.8
Turkmenistan	1.4	10.8	8.9	12.3	17.4	27.4
Ukraine	23.7	20.4	24.3	19.4	26.5	30.8
Uzbekistan	23.6	12.7	30.0	15.6	24.9	16.7
Average	17.8	33.4	24.7	23.9	24.6	21.1
EU members, Croatia and Turkey						
Bulgaria	2.4	55.8	2.7	60.3	9.9	50.0
Croatia	1.5	52.1	1.6	55.7	7.2	56.2
Czech Rep.	2.3	70.3	2.3	70.5	4.3	65.8
Estonia	8.8	61.8	9.8	60.5	12.0	55.4
Hungary	3.2	67.0	3.2	67.3	6.2	63.0
Lithuania	10.3	49.8	13.3	49.2	22.4	44.5
Latvia	7.2	52.1	8.4	49.9	15.1	41.2
Poland	4.4	69.8	4.4	69.8	8.6	65.8
Romania	1.7	62.8	1.8	66.6	5.3	58.1
Slovak Rep.	3.1	62.8	3.2	63.7	8.5	47.6
Slovenia	3.6	61.7	3.6	61.9	1.1	72.5
Turkey	4.1	58.5	4.2	59.6	11.9	50.5
Average	4.4	60.4	4.9	61.3	9.4	55.9

Source: own elaboration based on UN TRADECOM database.

Beyond identifying stylized facts, the importance of scrutinizing the structure of trade in terms of partners and goods lies in determining the diversification of ECA economies: trade diversification is an important mechanism to reduce the risk inherent to participating in international markets. The risk can be split in two components. First, the lack of diversification in terms of exported goods, whereby countries that concentrate on a few goods (in the limit, mono-exporters) tend to pass-on to the economy the wide fluctuations that characterize commodity prices. Second, the lack of diversification in terms of partners, whereby economies tend to become dependent on the business cycles of another country (e.g., Russia or the EU). These issues are addressed in subsequent sections.

3. Trade volumes and composition in goods and partners

Observed trade volumes in ECA economies do not necessarily correspond to their long-run, equilibrium levels for several reasons. First and foremost, because some ECA countries are still in a process of transition from centralized command to decentralized market economy and, therefore, exports and import volumes can hardly be considered those that would prevail in a normal, equilibrium case. Second, because trade volumes tend to be distorted by country policies as well as regional effects, of which trade pacts, monetary unions, and customs agreements can play a significant influence on traded volumes. Third, because not only trade volumes matter but also the structure of trade partners affect foreign trade: excessive reliance in one or a few partners tend to increase vulnerability, as shown in the response of ECA countries to recent recession in the OECD, and hamper exporting industries.

In this section I use a “gravity” specification to model trade volumes and trade partners and use the estimated equations to provide a benchmark of the normal equilibrium trade structure. Once determined these normal trade structures, I borrow the labor market models in Soto (2014) to compute the most likely changes in employment as a result of trade volumes and partners approaching stationary levels.

3.1. Modeling Trade Partners and Trade Volumes

Open economies, particularly if they are small, largely depend on foreign trade for economic growth. Foreign markets provide a large demand for exportable products which, in turn, allow domestic producers to reap scale economies, incentivize the adoption of better and advanced production techniques, and reward prudent investment and creativity of exporting firms. Further, foreign trade imposes discipline on firms by forcing them to operate in more competitive environments. Finally, through foreign trade, international business contacts can stimulate new indigenous technologies and improve entrepreneurial and managerial skills. Overall, this has the effect of boosting the efficiency and productivity capacity of domestic firms thereby enhancing their competitiveness in the global markets.

Economists have devoted substantial efforts to produce trade theories of a sufficiently general nature to explain and predict the particularities of observed export and import flows among countries. Elegant theories have been proposed that explain foreign trade on the basis of the advantages provided by the endowment of resources (either natural, such as oil, or acquired, such as the availability of workers). Alternative theories, based on the preferences of consumers for variety (product differentiation), have been postulated to explain why economies producing similar products will trade with each other (e.g. Germany and USA exporting and importing automobiles). None of these theories, however, perform very satisfactorily from an empirical viewpoint, usually failing when modeling the determinants of aggregate trade volumes or when forecasting them.

In particular, these models perform poorly when compared to the data-based “gravity models”. Gravity models have become the workhorse of the empirical literature on the determinants of international trade (Anderson, 2011). Despite their lack of solid theoretical foundations, their formidable abilities to replicate and forecast trade flows have made these models quite popular.

The basic intuition of a gravity model, which gives its name to this type of econometric models, is that trade between two countries resembles the gravitational interaction between planets: the attraction force (equivalently, bilateral trade) is determined positively by their relative masses (i.e., economic size or trade potential) and negatively by the distance which separate them (i.e. the transportation cost). The standard gravity model considers all bilateral flows at time t between each reporter and its numerous partners. Let T_{ijt} be the observed bilateral flow of exports, imports, or re-exports which depends positively on the size of reporter (Y_{it}) and partner (Y_{jt}) and negatively on the trading costs usually represented by physical distance D_{ij} in the following form:

$$\log T_{ijt} = k + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} - \beta_3 \log D_{ij} \quad (6)$$

The gravity model is typically augmented to include a n -dimensional set of idiosyncratic factors (F_{ijt}) thought as having an important effect in determining trade volumes between two countries:

$$\log T_{ijt} = k + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} - \beta_3 \log D_{ij} + \sum_n \beta_n \log F_{ijt}^n \quad (7)$$

Typical factors included in the augmented gravity models are the level of economic development, membership in preferential trade areas (bilateral or multilateral arrangements), cultural affinity, vicinity (countries sharing a common border), and geographical particularities such as a reporter or a partner and being an island or landlocked.

I use gravity models to answer the following questions: have EU+ countries benefit from accessing to the EU, increasing trade volumes beyond “normal” and thereby expanding economic activity and employment? Have the CIS countries been hampered by their concentration in self-trade?

3.2. Estimation results

The gravity model is estimated for exports, non-energy exports and imports separately, instead of the total trade turnover with every partner, as it is presumed that the effects of the fundamentals might differ in each case. The estimations are based on five-year average values of real trade of 174 developed and developing countries with a total of 189 partners for each country (thus each regression uses around 23,500 observations). Averaging over a five year period of time reduces the effects of transient phenomena (e.g., world business cycles) and the complexities of estimating a model with the roughly 450,000 observations on bilateral trade. I *exclude all ECA countries from the estimation* so as to avoid any biases later in the projections and forecasts derived from the estimated models. This is a routine preventive measure adopted in previous similar studies. Consequently, the gravity model predicts trade in each economy in ECA with every trade partner in the world based solely on the trade experience of the rest of the countries in the globe.

Table 3 collects the econometric results. The first column of results corresponds to the gravity model for total export. The estimates of the parameters are in line with those found by previous studies, in that the elasticity of total exports with respect to distance is negative while it is positive for the proxies of economic size and slightly above one. The estimated parameters are directly the elasticities so that, for example, a 10% increase in GDP in a reporter ECA country would be consistent with around 15% higher export volumes. On average, GDP in ECA grew by around 35% in the period 2010-2010: according to the econometric model, real exports ought to have increased by around 65% due to regional economic growth only. Of course, other factors such GDP in the rest of the world, development levels, and accession to trade pacts (such as the EU) explain the rest of the actual increase in exports of around 140%.

The second column in Table 3 presents the results of the estimation of the gravity model for non-energy exports: energy exports usually do not conform well this form of econometric modeling due to trade being mainly done through stock exchanges, the presence of cartels, and the reliance on long-term contracts. It can be seen that the models in columns 1 and 2 are quite similar. The last column presents the results for the estimated model for imports.

I use the estimated models for two purposes. First, I study the deviations from the “normal trade pattern” as predicted by the econometric models and based on the historical trade patterns of the rest of the countries. Second, I compute the potential employment effects of trade converging to such normal trade patterns in ECA economies.

Table 4 presents the results of the first exercise. I use the gravity model to predict export volumes in each ECA economy with each of the 173 trade partners using the actual value of the fundamentals. Then I compute the regional total as share of total volumes. For the three economies that are energy exporters, I also provide the forecast for non-oil exports. For comparisons, I consider any difference of 10 percentage points or more between actual and predicted values to be economically significant.

The results on the actual and predicted partner structure of ECA countries are striking. Average total trade observed and predicted among ECA economies is 37% and 31% respectively,

while trade with the developed economies is 45% and 54% respectively. This naturally is the result of the significant differences in economic size as well as the proximity to the European Union which gives ECA economies a significant edge when placing their products (in particular for those economies that are neighbors of Germany, as discussed below).

Table 3
Estimated Gravity Models for Exports and imports, 2005-2009

	Total Exports	Non-energy Exports	Total Imports
Distance	-1.74***	-1.70***	-1.61***
GDP reporter	1.50***	1.51***	1.16***
GDP partner	1.18***	1.15***	1.52***
Population reporter	-0.01***	0.02	0.15***
Population partner	0.12***	0.13***	-0.03***
Area reporter	0.05***	0.04***	-0.07***
Area partner	-0.11***	-0.10***	0.03**
Landlocked	-0.31***	-0.26***	-0.57**
Common Language	0.70***	0.69***	0.81***
Island reporter	0.51***	0.61***	0.15***
Island partner	0.46***	0.36***	0.35***
European Union	-0.64***	-0.48***	-0.31***
CIS	3.42***	3.39***	3.63***
Oil producer	-1.09***	-1.65***	-0.65***
CARICOM	2.68***	2.67***	3.39***
ECOWAS	3.19***	2.70***	2.27***
Lome	-0.11	0.03	0.21**
CACM	1.61**	1.79***	1.95***
UDEAC	2.82***	3.02***	2.59***
Constant	-36.61***	-37.14***	-38.25***
Observations	23,752	23,752	23,752
Censored	1,107	1,165	1,234
Not censored	22,645	22,587	22,518
Likelihood Function	-59,686	-59,408	-60,075
Std. Error regression	3.12	3.09	3.20
Pseudo R ²	0.392	0.487	0.635

Source: own elaboration.

Actual and predicted trade with Latin America, Middle East & North Africa (MENA), Asia, and Africa is very small in almost all countries excluding Albania and Armenia and the non-oil exports of Russia. In the case of Albania, there is a significant volume of exports directed to Africa (at the cost of trading less with the OECD economies), while in the case of Armenia, trading with MENA economies is much higher than predicted (at the cost of trading less with the CIS economies).

Likewise, current exporting to non-EU developed economies (mainly the US, Canada, and Japan) is also very similar to the forecasted levels in almost all economies. The general pattern is, of course, is a reflection of the costs of transportation and lack of differentiation in terms of economic development and production. Naturally, the model is of a general nature and cannot account for the specifics in the trade relationships between two countries. However, the econometric model is representative of the trade experience of the average economy and to that extent is representative of the “normal case”.

One important implication of this result is that it indicates that any deviations of trade in ECA economies from the normal trade pattern as implied by our gravity model are the result of the economic linkages among ECA countries and between ECA and the EU.

When analyzing the results on a country-by-country basis, it is easy to see that only a few countries actually conform to the predictions of the model based on the trade experiences of the rest of countries in the world. These are Belarus, Hungary, Kyrgyzstan, Latvia, Moldova, Romania, Russia, Tajikistan, and Turkey. Non-energy exports by Kazakhstan are also in line with the predictions of the model but oil exports are highly biased towards OECD economies.

The majority of countries in fact exports more to ECA countries than the normal pattern and disregards the EU15 markets. Among the latter are Azerbaijan (when excluding oil), Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Lithuania, Macedonia, Poland, Serbia, Slovak Republic, Slovenia, and Uzbekistan. This is a significant result that could result from several forces at work, mostly at the microeconomic level. On one hand, it could be a reflection of historical ties (also dubbed “regionalism”) that induce producers in the different countries to trade primarily with their long-term partners instead of venturing into new markets (Eichengreen and Irwin, 1998). De Groot et al. (2004) indicate that deviations from normal trade patterns can also be the result of countries sharing similar institutions. They find that having a similar institutional framework promotes bilateral trade by 13%, on average, for a group of 100 economies and that better quality of formal institutions tends to coincide with more trade. It could also reflect trade specialization patterns dating from before the collapse of the socialist regimes whereby some countries allocated the responsibility to provide certain type of goods to the entire union. Finally, it can also be the result of difficulties in penetrating the more sophisticated markets of developed economies, where quality and in-time delivery are crucial but hard to achieve abilities.

A few countries trade less with ECA than predicted by the model and focus on exporting to the EU15 countries (e.g., Armenia and Georgia) or to other regions of the world (e.g., Albania in Africa and Ukraine in MENA). Possibly, geopolitical issues could explain the interest of these economies in establishing long-term trade ties to countries in MENA, a region with relatively small and underdeveloped markets. Azerbaijan and Kazakhstan also export more than expected to the EU15 countries but this is largely the result of oil and energy export activities.

When analyzing the trade structure of those ECA countries that concentrate exports in other ECA economies it is striking to note that Russia is not a pole of attraction capable of distorting trade patterns. In most economies (Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Macedonia, Serbia, Slovakia and Slovenia) both current and predicted export volumes to Russia are

quite small and cannot account for any significant trade bias in favor of the ECA region. Only in Uzbekistan exporting to Russia is more than anticipated by the model and the magnitude explains most of the country's trade wedge.

If Russia is not a significant partner to these economies, where do they concentrate exports? The answer seems to be directly connected to countries that gained access to the EU. Note that, despite trading more within ECA than predicted by normal trade patterns, the Czech Republic, Estonia, Lithuania, Poland, Slovakia and Slovenia trade significantly more with the other ECA countries that have been recently accepted in the EU than with the rest of the ECA countries. On the contrary, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, and Serbia trade more than expected with ECA and significantly more with the CIS countries than with the EU10+ group.

Table 5 presents the predictions for imports. It can be seen that a similar yet less marked pattern emerges, with 12 ECA economies trading significantly more with the OECD than predicted (above 80% of total imports) and only seven countries trading as predicted by the model.

Table 4
Partner Structure of ECA countries in Exports (2005-2009)

	Albania		Armenia		Azerbaijan		Azerbaijan (excl oil)		Belarus		Bosnia Herzeg.	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	9.5	8.8	26.6	68.0	16.8	54.9	76.9	56.1	63.5	76.0	54.0	12.6
EU10+	3.9	6.7	4.0	6.2	8.9	4.9	18.0	5.0	12.8	5.8	27.8	10.2
Russia	0.5	0.7	14.2	21.8	2.7	28.2	30.2	28.1	37.1	45.3	0.3	0.5
Other	5.1	1.3	8.4	40.0	5.2	21.7	28.7	23.0	13.6	24.9	26.0	1.9
OECD	58.1	86.9	51.9	22.3	67.3	28.0	12.3	27.1	27.5	22.3	43.8	84.0
EU15	56.4	77.4	45.1	13.7	52.4	15.6	9.0	15.6	24.3	18.5	40.2	76.3
Other	1.7	9.5	6.8	8.6	14.9	12.4	3.3	11.5	3.2	3.8	3.6	7.7
Americas	0.3	0.3	1.0	0.2	1.3	0.3	0.1	0.3	2.8	0.1	0.1	0.2
Mena	0.3	1.9	17.0	5.0	6.0	9.4	7.5	8.9	1.1	0.4	0.9	1.2
Africa	28.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.4	0.0	0.1	0.1
Asia	3.6	2.0	3.2	4.5	8.4	7.3	3.1	7.5	4.7	1.2	1.1	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Bulgaria		Croatia		Czech Republic		Estonia		Georgia		Hungary	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	33.9	22.6	40.6	14.7	25.0	6.2	32.1	8.5	57.2	71.1	27.7	19.4
EU10+	21.1	18.5	7.6	8.6	19.8	5.2	14.0	4.6	27.9	5.5	19.4	16.1
Russia	2.4	1.1	1.5	0.4	2.3	0.4	8.8	2.8	5.3	25.7	3.1	1.0
Other	10.3	3.0	31.6	5.7	2.9	0.6	9.3	1.1	24.0	39.9	5.2	2.3
OECD	55.8	69.7	52.2	82.9	70.3	91.7	61.7	86.8	32.4	20.8	65.9	75.7
EU15	50.9	56.2	45.4	75.9	65.2	84.5	51.3	72.8	21.0	12.8	59.9	63.3
Other	5.0	13.5	6.9	7.0	5.1	7.2	10.4	13.9	11.4	8.0	6.0	12.4
Americas	1.1	0.4	0.6	0.2	0.7	0.1	0.9	0.3	2.1	0.2	0.6	0.3
Mena	4.3	3.1	3.7	0.8	1.5	0.6	0.9	0.9	3.1	3.7	2.5	1.5
Africa	0.9	0.1	1.6	0.1	0.4	0.0	2.0	0.1	1.2	0.1	0.7	0.1
Asia	4.0	4.1	1.3	1.4	2.1	1.3	2.4	3.5	4.0	4.1	2.6	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Kazakhstan		Kazakh. (excl.oil)		Kyrgyzstan		Latvia		Lithuania		Macedonia	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	26.8	57.0	43.7	44.1	77.3	75.6	65.3	55.0	45.5	28.1	41.2	17.6
EU10+	8.9	1.2	7.1	1.7	6.2	0.6	50.0	50.0	27.4	16.7	17.8	14.9
Russia	10.3	33.2	24.6	16.0	33.5	20.2	4.2	2.6	10.3	4.4	1.3	0.7
Other	7.6	22.7	12.0	26.3	37.6	54.8	11.1	2.3	7.8	6.9	22.1	2.1
OECD	53.4	23.5	26.8	31.1	7.1	13.1	30.4	41.2	49.7	65.3	57.1	77.3
EU15	40.3	6.9	19.5	9.9	4.8	5.3	25.9	30.8	40.0	48.9	54.2	67.9
Other	13.0	16.6	7.3	21.2	2.3	7.9	4.5	10.4	9.7	16.4	3.0	9.4
Americas	0.1	0.2	0.2	0.3	0.1	0.2	1.1	0.2	0.8	0.4	0.2	0.3
Mena	5.8	1.2	6.4	1.8	4.9	1.1	1.7	0.8	1.1	1.5	0.4	2.0
Africa	0.1	0.1	0.2	0.1	0.1	0.0	0.3	0.1	0.6	0.1	0.1	0.1
Asia	13.8	18.0	22.6	22.6	10.6	10.0	1.3	2.8	2.4	4.6	1.1	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Moldova		Poland		Romania		Russia		Russia (excl oil)		Serbia	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	69.3	72.7	26.4	11.1	28.6	24.5	35.0	41.5	38.6	38.8	53.1	18.2
EU10+	22.9	7.4	15.2	6.4	20.5	20.0	17.3	4.4	13.5	4.9	19.6	15.4
Russia	26.3	23.0	4.2	1.9	1.7	1.6	-	-	-	-	5.4	0.7
Other	20.2	42.3	7.0	2.7	6.4	2.9	17.7	37.0	25.0	33.8	28.1	2.1
OECD	26.9	24.7	68.9	83.7	62.7	66.6	49.5	50.9	37.0	54.3	44.5	77.6
EU15	23.3	20.1	63.6	69.9	57.3	51.4	38.9	38.0	24.7	40.8	42.0	68.7
Other	3.6	4.7	5.4	13.8	5.4	15.2	10.6	12.9	12.3	13.5	2.5	8.9
Americas	0.6	0.1	0.9	0.3	0.8	0.4	1.1	0.4	2.1	0.5	0.1	0.2
Mena	2.1	0.9	1.4	1.3	4.6	3.4	3.2	1.4	5.9	1.7	1.5	1.5
Africa	0.4	0.0	0.5	0.1	0.7	0.1	0.3	0.1	0.5	0.1	0.3	0.1
Asia	0.6	1.6	1.9	3.5	2.6	4.9	11.0	5.7	16.0	4.6	0.5	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Slovak Republic		Slovenia		Tajikistan		Turkey		Ukraine		Uzbekistan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	35.5	12.3	34.4	17.2	43.3	43.1	19.5	9.9	55.3	74.9	66.9	55.4
EU10+	29.1	10.7	21.4	15.8	21.1	2.1	8.5	6.6	19.7	5.4	19.9	1.8
Russia	2.9	0.5	3.6	0.5	16.9	16.6	4.1	1.6	22.6	56.5	21.3	15.3
Other	3.5	1.1	9.4	0.8	5.3	24.4	6.9	1.7	13.0	13.1	25.7	38.3
OECD	61.2	85.3	61.7	79.3	40.4	30.4	58.6	72.2	20.3	22.7	11.9	26.0
EU15	56.7	78.2	57.7	67.3	18.8	11.0	50.3	53.5	15.9	18.1	8.2	9.5
Other	4.5	7.0	4.0	12.0	21.6	19.4	8.4	18.6	4.4	4.7	3.7	16.5
Americas	0.5	0.2	0.5	0.2	0.1	0.3	1.2	0.5	1.8	0.1	0.1	0.3
Mena	0.8	0.7	1.7	1.1	5.7	2.8	14.9	9.9	12.1	0.7	1.8	1.9
Africa	0.3	0.0	0.2	0.1	0.0	0.1	1.7	0.2	1.7	0.0	0.0	0.1
Asia	1.8	1.5	1.4	2.1	10.6	23.4	4.0	7.3	9.0	1.5	19.3	16.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5
Partner Structure of ECA countries in Imports (2005-2009)

	Albania		Armenia		Azerbaijan		Belarus		Bosnia Herzeg.		Bulgaria	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	26.9	4.5	43.9	51.4	49.1	45.6	77.8	67.5	58.1	6.2	38.7	11.3
EU10+	15.0	3.4	9.1	4.9	15.2	3.3	6.7	3.5	34.3	5.2	20.5	9.7
Russia	3.4	0.8	18.8	33.3	18.2	33.8	62.7	52.9	1.9	0.5	9.8	1.0
Other	8.5	0.3	16.1	13.3	15.7	8.4	8.3	11.1	21.8	0.5	8.4	0.7
OECD	62.1	91.8	33.4	38.7	34.9	41.2	18.2	30.3	36.6	90.3	49.9	82.2
EU15	58.3	70.9	25.5	17.2	27.4	16.2	15.7	21.1	33.2	74.5	45.8	57.4
Other	3.9	20.9	7.8	21.5	7.5	24.9	2.4	9.2	3.4	15.8	4.1	24.8
Americas	1.7	0.4	2.4	0.3	1.2	0.3	0.6	0.1	1.3	0.2	3.8	0.4
Mena	1.2	1.0	10.6	3.2	3.9	4.7	0.2	0.3	0.3	0.7	0.9	1.5
Africa	1.1	0.1	0.3	0.0	0.5	0.1	0.1	0.0	0.1	0.0	0.3	0.1
Asia	7.0	2.3	9.4	6.3	10.5	8.2	3.2	1.8	3.7	2.6	6.4	4.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Croatia		Czech Republic		Estonia		Georgia		Hungary		Kazakhstan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	33.6	6.3	23.2	3.4	34.8	5.6	57.2	54.1	24.8	9.1	50.3	27.8
EU10+	12.6	4.5	16.6	2.8	12.3	3.0	22.8	4.4	15.5	7.6	5.7	1.1
Russia	7.2	0.4	4.3	0.4	12.0	2.2	10.2	35.5	5.9	0.9	34.6	18.4
Other	13.9	1.4	2.2	0.2	10.5	0.4	24.1	14.2	3.4	0.6	9.9	8.2
OECD	56.2	90.9	65.9	94.6	55.3	89.5	28.7	37.1	62.3	86.6	28.4	49.2
EU15	51.4	76.9	58.9	83.6	49.2	65.3	19.8	16.6	56.2	66.2	20.5	9.8
Other	4.8	14.0	7.0	11.1	6.1	24.2	8.9	20.5	6.1	20.4	7.9	39.4
Americas	1.2	0.2	0.5	0.1	0.6	0.3	2.6	0.3	0.4	0.3	0.8	0.3
Mena	0.6	0.5	0.3	0.3	0.2	0.5	4.7	2.5	0.3	0.7	0.9	1.0
Africa	0.2	0.0	0.2	0.0	1.2	0.0	0.4	0.0	0.0	0.0	0.2	0.0
Asia	8.2	2.1	9.8	1.5	7.9	4.1	6.5	6.0	12.2	3.3	19.4	21.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Kyrgyzstan		Latvia		Lithuania		Macedonia		Moldova		Poland	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	35.8	60.6	53.6	10.4	49.4	14.3	48.3	8.8	65.4	60.0	22.4	5.1
EU10+	3.4	0.5	17.0	6.1	22.5	9.6	23.4	7.5	25.8	5.1	10.2	2.9
Russia	19.9	39.5	15.0	3.3	22.4	3.2	7.2	0.7	12.0	35.0	8.3	1.4
Other	12.4	20.6	21.5	1.0	4.5	1.5	17.7	0.5	27.6	19.9	3.9	0.7
OECD	8.2	27.8	41.2	83.5	44.5	79.7	43.3	86.2	27.6	36.7	65.5	90.4
EU15	4.9	7.6	36.7	54.9	40.3	52.7	38.9	66.1	24.6	24.7	59.6	68.8
Other	3.3	20.2	4.5	28.7	4.2	27.0	4.4	20.1	3.0	12.1	5.9	21.6
Americas	0.2	0.3	0.4	0.3	0.7	0.3	1.6	0.3	1.1	0.2	1.3	0.3
Mena	0.5	0.8	0.3	0.7	0.4	0.7	0.5	1.1	0.6	0.6	0.5	0.6
Africa	0.1	0.0	0.1	0.0	0.1	0.0	0.3	0.0	0.1	0.0	0.5	0.0
Asia	55.2	10.5	4.6	5.0	4.9	4.9	5.9	3.6	5.2	2.5	9.8	3.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Romania		Russia		Serbia		Slovak Republic		Slovenia		Tajikistan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	31.7	13.1	25.2	16.3	47.3	8.9	41.4	7.0	20.7	6.5	50.5	33.3
EU10+	20.7	11.0	9.7	2.8	24.1	7.6	29.8	6.1	15.9	5.8	6.5	1.4
Russia	5.3	1.4	-	-	9.3	0.7	8.2	0.5	1.1	0.5	24.1	20.3
Other	5.8	0.7	15.6	13.5	13.9	0.6	3.4	0.4	3.6	0.2	19.9	11.6
OECD	58.3	79.5	52.1	77.1	43.7	86.7	46.8	90.2	72.4	90.2	6.6	45.3
EU15	54.3	52.2	40.5	44.0	39.5	68.0	43.3	76.3	69.0	72.7	4.1	11.1
Other	4.1	27.3	11.6	33.1	4.2	18.7	3.5	13.9	3.4	17.6	2.5	34.2
Americas	1.1	0.4	3.4	0.5	1.0	0.3	0.3	0.2	1.1	0.2	0.4	0.3
Mena	1.1	1.6	0.8	0.9	0.5	0.8	0.2	0.4	0.8	0.6	7.6	1.4
Africa	0.2	0.1	0.4	0.1	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.0
Asia	7.6	5.3	18.2	5.1	7.2	3.2	11.1	2.1	4.8	2.4	34.8	19.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Turkey		Ukraine		Uzbekistan							
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	23.3	4.7	56.0	65.9	52.9	37.7						
EU10+	6.4	2.8	15.3	3.4	7.8	1.3						
Russia	11.9	1.4	25.2	57.7	24.2	20.9						
Other	5.0	0.5	15.6	4.7	20.9	15.5						
OECD	50.5	82.4	30.3	31.3	16.6	43.5						
EU15	40.3	47.7	24.7	20.3	12.8	10.7						
Other	10.2	34.7	5.6	11.0	3.9	32.8						
Americas	1.6	0.5	0.9	0.1	0.2	0.3						
Mena	8.7	4.3	0.6	0.4	1.7	1.1						
Africa	0.8	0.1	0.8	0.0	0.1	0.0						
Asia	15.2	8.0	11.3	2.2	28.5	17.3						
	100.0	100.0	100.0	100.0	100.0	100.0						

4. How have trade patterns changed in the last decades?

At the world level, foreign trade in the last decades has shown significant dynamism. The most cited examples are the consolidation of China as a major trade force, the integration of East and South Asian countries into the Chinese manufacturing sector, and the emergence of the BRICs as new contenders in international markets.

The ECA region has not been immune to these trends, despite the relatively low levels of trade beyond the confines of Europe and Central Asia. Trade volumes and trade partners have also evolve dynamically in time. It is natural to think of trade structures as evolving from the highly distorted situation of the socialist period into an equilibrium dictated by market forces. Therefore, it would be enlightening to study how trade structures in ECA countries have evolved in the last decades.

In order to discuss trade dynamics, I replicated the previous econometric exercise for the period 1995-1999 and computed actual and forecast trade structures. The results are presented in Tables 6 for exports and 7 for imports. Some of the previous results hold. For example, ECA countries that did not exhibit trade deviations in the period 2005-2009 also did not exhibit deviations in the period 1995-1999. One could safely conclude that these countries have achieved some relative stability in terms of partner structures. The only countries that moved away from normal trade patterns are Albania and Georgia which re-focused exports away from ECA and in favor of the EU.

All ECA economies that presented significant deviations from normal trade patterns in the period 2005-2009 also were in disequilibria in the previous decade. The main reason is that trade patterns are remarkably stable as deduced from comparing the actual export structures in Tables 4 and 6. It can be seen that in general the trade partners of ECA economies remain relatively stable in time even when considering the fast growth rates observed in most economies in the last decade. Although this has changed the force of attraction of the different economies in the region it has been unable to change observed trade patterns. One possible explanation is that most of the recent economic growth has been –as discussed previously—in the development of non-traded goods sectors, particularly in services that do not use significant levels of foreign intermediate goods for production. Therefore, massive trade relocations are not observed.

In only two economies there has been some significant change in partners' structures – Slovenia and the Slovak Republic—where exports relocated from the ECA region towards EU15 countries. Although this may be linked to their accession to the EU market, other countries that were perhaps in better position to benefit from accessing such European markets (e.g., Czech Republic, Lithuania) have not experienced major changes in trade structures.

Table 6
Partner Structure of ECA countries in Exports (1995-1999)

	Albania		Armenia		Azerbaijan		Belarus		Bosnia Herzegovina		Bulgaria	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	7.1	7.0	44.3	75.5	55.2	68.3	83.3	84.5	63.3	10.2	32.7	15.8
EU10+	4.2	5.6	2.4	3.9	9.6	2.9	10.8	3.0	23.0	8.7	12.9	13.7
Russia	0.2	0.6	23.9	32.4	21.2	41.1	63.4	54.6	0.6	0.4	5.6	0.6
Other	2.7	0.8	18.0	39.2	24.4	24.3	9.1	26.8	39.7	1.1	14.2	1.5
OECD	91.4	89.5	35.9	19.3	23.6	23.3	11.8	14.7	32.9	86.8	56.3	79.6
EU15	87.1	78.2	28.9	11.6	21.1	12.8	9.9	11.9	30.8	77.6	49.7	66.8
Other	4.4	11.3	7.0	7.7	2.5	10.5	1.9	2.8	2.1	9.3	6.6	12.7
Americas	0.3	0.4	0.3	0.2	0.6	0.2	0.7	0.1	0.6	0.2	1.5	0.3
MENA	0.6	1.6	18.5	2.9	18.5	4.9	1.0	0.2	3.1	1.2	5.7	2.0
Africa	0.1	0.1	0.2	0.0	0.3	0.1	1.1	0.0	0.1	0.0	0.7	0.1
Asia	0.4	1.4	0.8	2.1	1.8	3.2	2.1	0.5	0.1	1.4	3.1	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Croatia		Czech Republic		Estonia		Georgia		Hungary		Kazakhstan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	34.8	11.3	26.8	4.4	30.4	5.9	69.2	77.8	18.0	13.4	58.0	80.5
EU10+	16.3	10.5	22.1	4.0	13.6	4.2	20.9	3.2	11.0	12.3	6.3	0.5
Russia	3.2	0.3	2.5	0.2	11.1	1.3	23.6	40.6	3.7	0.5	40.3	59.2
Other	15.4	0.5	2.1	0.2	5.7	0.4	24.7	34.0	3.3	0.7	11.4	20.8
OECD	56.8	86.8	68.3	94.7	67.5	91.7	21.2	17.9	78.0	84.2	27.1	13.8
EU15	51.7	78.2	63.2	89.8	60.0	80.4	15.9	10.8	70.3	75.0	21.0	4.2
Other	5.1	8.5	5.1	4.9	7.5	11.3	5.2	7.1	7.8	9.2	6.1	9.6
Americas	1.2	0.2	0.7	0.1	0.6	0.2	1.3	0.2	0.7	0.2	1.2	0.1
MENA	1.5	0.7	1.9	0.3	0.4	0.6	3.1	2.2	1.4	0.8	2.4	0.5
Africa	4.8	0.0	0.3	0.0	0.2	0.0	3.3	0.0	0.2	0.1	0.2	0.0
Asia	0.8	1.0	2.1	0.5	0.9	1.6	2.0	1.9	1.6	1.3	11.1	5.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Kyrgyzstan		Latvia		Lithuania		Macedonia		Moldova		Poland	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	72.4	84.7	30.4	13.0	49.2	18.4	41.0	13.2	78.2	80.8	19.3	6.8
EU10+	5.3	0.4	11.6	9.9	15.6	14.0	18.2	11.6	13.4	3.8	9.4	5.2
Russia	28.2	27.1	11.8	2.1	15.3	2.0	3.4	0.5	53.0	28.3	5.1	0.8
Other	39.0	57.2	7.0	1.0	18.3	2.4	19.4	1.1	11.8	48.7	4.8	0.8
OECD	12.3	10.7	65.2	83.7	48.4	78.2	55.9	82.9	18.5	17.9	74.5	90.8
EU15	10.1	4.4	58.5	69.2	43.6	64.9	43.6	71.2	12.2	14.2	68.8	80.8
Other	2.2	6.4	6.7	14.5	4.7	13.4	12.3	11.6	6.4	3.7	5.6	10.0
Americas	0.0	0.1	0.7	0.3	0.6	0.3	0.4	0.3	0.2	0.1	1.2	0.2
MENA	2.2	0.5	0.9	0.9	0.2	0.9	1.4	1.7	1.5	0.5	1.7	0.7
Africa	0.2	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.5	0.0
Asia	12.9	3.8	2.6	2.1	1.5	2.0	1.1	1.8	1.4	0.7	2.9	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Romania		Russia		Serbia		Slovak Republic		Slovenia		Tajikistan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	15.6	16.5	36.4	54.7	52.0	14.1	43.7	9.8	25.9	10.3	48.8	57.9
EU10+	9.6	14.2	17.8	2.8	11.3	12.6	38.0	9.3	16.2	9.7	13.4	1.4
Russia	1.6	0.9	0.0	0.0	6.6	0.5	2.6	0.2	3.1	0.3	26.7	26.0
Other	4.4	1.4	18.6	52.0	34.1	1.0	3.1	0.3	6.6	0.3	8.6	30.5
OECD	66.7	78.1	47.5	41.2	39.7	82.6	53.6	89.0	71.1	87.9	40.9	29.2
EU15	60.4	63.4	33.4	30.0	34.5	71.8	50.1	83.6	65.8	79.3	29.3	10.6
Other	6.3	14.7	14.2	11.1	5.2	10.8	3.5	5.4	5.3	8.6	11.6	18.6
Americas	1.6	0.4	1.1	0.3	0.5	0.3	0.6	0.1	0.5	0.2	0.4	0.2
MENA	9.5	2.3	2.7	0.9	3.0	1.3	0.9	0.4	1.5	0.6	4.6	2.0
Africa	1.2	0.1	0.4	0.1	0.9	0.1	0.2	0.0	0.1	0.0	0.0	0.0
Asia	5.2	2.6	11.8	2.8	3.9	1.6	1.0	0.7	0.9	0.9	5.3	10.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Turkey		Ukraine		Uzbekistan							
	Actual	Forecast	Actual	Forecast	Actual	Forecast						
ECA	13.6	7.6	58.8	83.1	55.8	69.5						
EU10+	4.0	5.5	18.1	2.7	13.1	1.1						
Russia	4.4	1.1	28.7	68.2	26.9	22.5						
Other	5.3	0.9	12.0	12.1	15.8	45.8						
OECD	67.6	79.2	20.8	15.8	25.9	22.2						
EU15	55.0	57.4	15.4	12.3	22.3	8.1						
Other	12.5	21.9	5.5	3.5	3.6	14.1						
Americas	0.9	0.6	1.3	0.1	3.5	0.2						
MENA	12.6	7.8	7.2	0.4	1.3	1.3						
Africa	0.9	0.2	0.8	0.0	0.0	0.0						
Asia	4.5	4.6	11.1	0.6	13.4	6.7						
Total	100.0	100.0	100.0	100.0	100.0	100.0						

Source: own elaboration based on UN COMTRADE and World Bank data.

Table 7
Partner Structure of ECA countries in Imports (1995-1999)

	Albania		Armenia		Azerbaijan		Belarus		Bosnia Herzegovina		Bulgaria	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	15.9	3.2	38.3	59.7	56.0	55.7	79.0	74.8	62.5	4.5	37.6	7.5
EU10+	12.7	2.6	10.0	3.0	24.8	2.0	12.0	1.9	43.2	4.0	9.4	6.7
Russia	0.3	0.5	20.7	42.9	15.6	43.7	56.3	59.5	0.8	0.4	20.7	0.5
Other	3.0	0.1	7.5	13.8	15.6	10.1	10.7	13.4	18.5	0.2	7.5	0.3
OECD	81.2	94.2	43.0	35.5	26.7	38.1	19.3	24.2	33.5	93.0	53.8	88.8
EU15	77.7	71.0	29.1	15.0	18.8	14.2	17.8	16.1	30.0	74.4	48.1	62.8
Other	3.5	23.2	13.9	20.5	8.0	23.9	1.5	8.1	3.5	18.6	5.7	26.0
Americas	0.3	0.4	2.3	0.2	0.2	0.3	0.4	0.1	0.2	0.3	2.2	0.4
MENA	1.0	0.8	14.5	1.8	14.2	2.4	0.3	0.2	3.5	0.6	2.0	1.0
Africa	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.6	0.0
Asia	1.5	1.3	1.5	2.7	2.8	3.4	1.0	0.7	0.2	1.6	3.8	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Croatia		Czech Republic		Estonia		Georgia		Hungary		Kazakhstan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	23.5	4.5	22.6	2.4	24.6	3.8	59.1	61.6	18.4	6.1	66.2	38.6
EU10+	17.4	4.1	14.8	2.1	6.8	2.6	25.9	2.6	8.2	5.5	8.2	0.8
Russia	3.5	0.3	6.6	0.2	14.0	1.1	12.8	46.3	8.3	0.4	46.4	27.0
Other	2.6	0.1	1.2	0.1	3.8	0.1	20.5	12.8	1.9	0.2	11.6	10.8
OECD	70.1	93.7	72.6	96.5	70.6	93.4	34.8	34.1	74.1	91.6	25.5	51.6
EU15	64.0	77.1	65.8	85.9	63.2	67.7	22.8	14.5	66.4	72.3	19.4	9.7
Other	6.1	16.6	6.8	10.6	7.3	25.7	12.0	19.6	7.7	19.3	6.1	41.9
Americas	1.5	0.2	0.6	0.1	0.7	0.3	0.9	0.2	1.2	0.2	0.7	0.3
MENA	2.2	0.4	0.4	0.2	0.2	0.4	3.1	1.5	0.4	0.5	1.3	0.6
Africa	0.4	0.0	0.3	0.0	1.7	0.0	0.3	0.0	0.4	0.0	0.1	0.0
Asia	2.3	1.2	3.5	0.7	2.3	2.1	1.8	2.6	5.6	1.5	6.2	8.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Kyrgyzstan		Latvia		Lithuania		Macedonia		Moldova		Poland	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	61.0	70.8	44.4	6.6	48.0	9.1	43.7	6.1	72.9	67.9	15.7	3.2
EU10+	8.0	0.3	19.3	4.8	16.5	7.0	26.4	5.5	21.4	2.8	7.4	2.3
Russia	20.8	51.1	19.8	1.5	24.4	1.5	2.9	0.4	26.7	41.2	6.3	0.7
Other	32.2	19.3	5.3	0.3	7.1	0.6	14.5	0.2	24.8	24.0	1.9	0.2
OECD	20.8	24.7	53.2	90.2	49.6	87.8	51.8	90.6	25.3	30.5	74.7	94.5
EU15	12.4	6.6	46.4	61.9	44.9	60.8	45.5	67.0	22.1	19.6	67.2	73.9
Other	8.4	18.1	6.8	28.3	4.7	26.9	6.3	23.6	3.3	10.9	7.5	20.6
Americas	1.6	0.2	0.5	0.3	0.6	0.3	1.6	0.3	0.4	0.1	1.1	0.2
MENA	2.4	0.4	0.6	0.5	0.4	0.5	1.0	0.9	0.5	0.4	0.7	0.4
Africa	0.1	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.7	0.0
Asia	14.0	3.9	1.2	2.4	1.4	2.3	1.6	2.0	0.7	1.0	7.1	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Romania		Russia		Serbia		Slovak Republic		Slovenia		Tajikistan	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
ECA	23.1	8.5	35.3	20.8	42.7	6.4	45.5	5.2	16.8	4.3	70.5	42.1
EU10+	10.2	7.4	11.7	2.0	18.8	5.7	30.3	4.9	13.3	3.9	9.2	1.0
Russia	9.5	0.7	0.0	0.0	9.0	0.4	12.6	0.3	1.9	0.2	24.0	28.4
Other	3.4	0.3	23.6	18.9	14.9	0.2	2.5	0.1	1.6	0.1	37.3	12.7
OECD	64.3	87.3	50.9	75.4	48.3	90.8	50.8	93.2	78.1	94.0	16.4	48.3
EU15	57.3	58.3	40.4	41.9	42.3	68.8	46.4	79.3	71.9	77.7	11.3	11.0
Other	7.0	29.0	10.5	33.5	5.9	21.9	4.4	13.9	6.2	16.3	5.1	37.3
Americas	1.9	0.4	2.4	0.5	3.2	0.3	0.8	0.2	0.9	0.2	0.0	0.1
MENA	4.1	1.1	1.1	0.7	1.8	0.7	0.2	0.3	1.0	0.4	6.9	1.1
Africa	0.4	0.0	0.5	0.0	0.8	0.0	0.3	0.0	0.2	0.0	0.1	0.0
Asia	6.2	2.7	9.8	2.5	3.2	1.8	2.5	1.1	3.0	1.1	6.0	8.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Turkey		Ukraine		Uzbekistan							
	Actual	Forecast	Actual	Forecast	Actual	Forecast						
ECA	11.2	3.2	69.7	71.4	46.1	46.5						
EU10+	2.9	2.1	15.1	2.0	10.9	0.9						
Russia	5.1	0.8	45.2	64.8	22.3	29.8						
Other	3.2	0.2	9.5	4.6	13.0	15.8						
OECD	71.7	88.9	25.5	27.2	33.0	45.2						
EU15	55.2	49.0	21.2	16.9	22.5	10.3						
Other	16.4	39.9	4.4	10.3	10.4	34.8						
Americas	1.6	0.5	0.8	0.1	0.3	0.2						
MENA	7.3	3.1	0.7	0.3	3.0	0.9						
Africa	0.6	0.1	0.4	0.0	0.0	0.0						
Asia	7.6	4.3	2.9	1.0	17.6	7.2						
Total	100.0	100.0	100.0	100.0	100.0	100.0						

Source: own elaboration based on UN COMTRADE and World Bank data.

5. Employment Creation: what Role for Foreign Trade?

I now turn to the issue of the most likely impact of trade development on labor markets. Historical evidence suggests a tendency of countries to converge to the long run patterns described and predicted by gravity models. Because trade volumes are a significant determinant of employment, such convergence to world trade patterns can have an effect on employment levels. I combine the results in Tables 4 and 5 with the econometric model developed in Soto (2014) to forecast the potential evolution of employment as a result of trade changes (exports and imports). The exercise is of partial equilibrium and, therefore, only indicative of the impacts in the labor market: the reason is that changes in labor demand induced by fluctuations in trade and economic activities will induce both changes in the extensive (number of workers) and intensive margins (i.e., in real wages and in productivity levels). Using annual macroeconomic data it is not possible to model properly these latter effects. Therefore, I only compute the partial effect on employment of the convergence of current total trade to its predicted long run level keeping wages and productivity levels fixed.

The employment model has the following specification:

$$\text{Labor demand:} \quad \log L_t^d = \alpha_0 + \alpha_1 \log Y_t - \alpha_2 \log q_t - \alpha_3 \log w_t - \alpha_4 \log x_t + \varepsilon_{it} \quad (1)$$

$$\text{Labor supply:} \quad \log L_t^s = \beta_0 + \beta_1 \log Y_t + \beta_2 \log w_t + \beta_3 \log(1 - \mu_t) + \eta_{it} \quad (2)$$

$$\text{Equilibrium condition:} \quad \log(1 - \mu_t) = \log L_t^d - \log L_t^s \quad (3)$$

where sub-indices it refer to country and year, respectively; α_i is the country specific effect and ε_{it} and η_{it} are country specific perturbation terms.

The labor demand is specified so as to include a scale variable (typically GDP), factor prices (real wages and cost of capital) and an indicator of the cost of intermediate inputs. The supply of labor follows the classic specification of a representative agent that maximizes a utility function that depends on consumption and leisure (the time complement of work) and subject to a wealth restriction and the expected wage, i.e., the wage times the probability of finding a job which is set at $(1 - \mu_t)$ and where μ_t is the unemployment rate. Higher levels of non-labor income, wages and lower unemployment increase the supply of labor. The demand and supply for labor interact to determine employment levels in a context of unemployment.

As derived, the model mostly describes the labor market in the private sector. The demand for labor in the public sector in ECA does not follow this type of economic rationale and, in particular in the period of analysis, it has been largely determined by political and administrative considerations rather than by the strict economic calculus. Therefore I modify the model in two ways: first, I restrict the dependent variable to be *private employment* and, second, I include public employment (L^g) as a regressor. There are two reasons for the latter adjustment. First, to acknowledge the fact that some workers had been transferred to the private sector during the reforms. Second, in most ECA economies the supply of manpower is quite limited and, whenever unemployment levels are low, the public sector competes with the private sector for workers:

therefore, the retrenchment in public employment equates to an increase in the supply of labor for the firms.

I also extend the analytical model to acknowledge the importance of foreign trade. As discussed above, trade volumes have changed quite noticeably since the transition to market economies started in the early 1990s. I use exports and imports as share of GDP to capture the economic transformation of ECA countries. I expect exports to have a positive impact on private employment, although the ability of ECA exporters could be precisely in modernizing and laying off low-productive workers. The a-priori impact of imports on employment is ambiguous: on one hand, higher import levels could indicate a contraction in import-substituting exports and a subsequent decline in the demand for labor. On the other hand, higher import levels could also reflect an expansion in the purchase of imported intermediate goods to be used in producing exportable and non-traded goods, thereby an expected expansion in employment.

The empirical estimation uses *total GDP in real terms (US\$ of 2005)* as the scale variable, the *real wage index* whenever available (or the nominal wage index adjusted by CPI inflation), the *real, ex-post interest rate on loans of 1 year maturity* (supplemented by the deposit rate, when needed), and the *real exchange rate (2005=100)* as a measure of imported intermediate goods. To this, Soto (2014) adds public employment and foreign trade. The estimation period is 1992 to 2011 and excludes two countries –Turkmenistan and Uzbekistan— for lack of data on real wages, private employment, and interest rates.

Based on the estimated labor market model (see Appendix 3) and the gravity equation forecast, it is possible to compute the trade-induced changes in employment in ECA economies. The results in Table 8 include in the first four columns the actual and forecast trade of each economy. Given the nature of the data, I only consider variations in total trade above ten percent to be economically significant.

First, the forecast of the long-run trade levels indicates that there is ample space for trade to expand in ECA (on aggregate, it would more than double). In 14 economies there is a predicted long-run trade level which is significantly higher than observed levels in the period 2005-2009 (in real terms). On average, these economies could expand trade by around 45%. In five countries current trade levels match long-term forecasts, while in eight countries current trade levels are above those considered normal by world standards (48% on average). Notably, these include countries that are energy exporters (Azerbaijan and Kazakhstan) which could explain higher than predicted trade volumes.

As shown in the last column of Table 8, the effects of higher trade volumes on employment are moderate in the economies of the EU group with three exceptions (Croatia, Poland, and Turkey) to which I return below. In the rest of the economies, trade effects and therefore employment impacts are not very significant (less than 10%); this indicates that trade levels will not be a major force in expanding employment should these economies converge to their trade potential. Regarding the other three economies, the estimated large impact on employment is the result of trade being significantly below potential. Trade in Croatia is quite undeveloped when compared to its neighbors and, being very close to major Western European economies (Italy and France), the

econometric model predicts it could expand exports and imports quite significantly and, consequently, have a significant impact on employment. Likewise, Poland is a large and populous country for European canons, neighbor and partner of the giant German economy but still showing low trade levels for the international standards of an economy of 40 million inhabitants. Turkey, finally, is a very large economy with incipient trade levels but a lot of potential that started to unveil only recently. Of course, these large employment effects will not materialize as described: such a significant demand pull will lead to rising wages and productivity gains that most likely reduce employment effects quite dramatically in particular in Croatia and Poland where population is stagnant and participation rates already high. A more proper interpretation of the results is that there is ample space for productivity gains and wage increases in these three economies, while labor demand in the other EU+ economies will not be significant.

With regards to the CIS economies the situation is quite different. In four economies, predicted trade levels are below current levels, which indicate that not all determinants of bilateral trade had been included in the model. In these cases, employment effects are negative but small enough to be considered as insignificant as the effects in Armenia, Georgia, Russia and Uzbekistan. On the contrary, in Belarus and Ukraine the effects are quite significant because trade in these two economies is still far from the levels suggested by the world economy for countries of such characteristics (population, education, development levels, etc.). Again, the interpretation of the results is that one should not expect trade to become a major force in increasing employment in the future in the CIS economies with the only exception of Belarus and Ukraine; but for this to materialize, other economic and political conditions are needed so that trade can expand on a sustainable basis.

Finally, the Balkans present to polar cases: two economies are in a position of expanding trade significantly (Albania and Bosnia and Herzegovina) and, thereby, labor demand could expand by around 10% if this trade potential materializes. On the contrary, Macedonia and Serbia seem to have achieved (and slightly surpassed) their trade potential and therefore employment would not be significantly affected by trade.

Table 8
Employment Creation as function of Current and Forecast Trade Volumes, 2005-2009

	Total Exports		Total Imports		Total Trade		Employment growth
	Current	Forecast	Current	Forecast	Current	Forecast	
Albania	978	1,333	3,193	5,585	4,172	6,918	11.1%
Bosnia	3,192	4,258	7,313	14,902	10,505	19,160	13.8%
Macedonia	2,212	873	3,851	2,925	6,063	3,798	-6.3%
Serbia	6,224	3,108	13,050	8,354	19,274	11,462	-6.8%
Armenia	779	834	2,036	2,555	2,815	3,388	1.8%
Azerbaijan	13,018	1,547	5,836	6,121	18,854	7,669	-5.3%
Belarus	18,730	29,922	22,904	54,072	41,634	83,994	9.1%
Georgia	1,322	1,749	3,896	6,147	5,217	7,896	4.6%
Kazakhstan	70,266	44,006	25,404	11,166	95,669	55,172	-3.8%
Kyrgyzstan	655	228	3,800	778	4,456	1,006	-6.9%
Moldova	1,156	565	3,101	2,197	4,258	2,762	-3.1%
Russian	268,351	244,951	162,257	320,478	430,609	565,429	2.8%
Tajikistan	844	118	1,894	618	2,738	737	-6.5%
Ukraine	43,033	104,017	51,656	229,290	94,689	333,307	22.4%
Uzbekistan	4,879	2,187	5,413	7,984	10,292	10,171	-0.1%
Bulgaria	14,288	8,055	20,903	25,906	35,191	33,960	-0.4%
Croatia	9,166	39,131	19,990	84,803	29,156	123,935	33.5%
Czech Rep.	92,237	124,649	89,239	224,937	181,476	349,586	9.5%
Estonia	8,899	3,641	12,440	12,266	21,339	15,907	-2.6%
Hungary	70,266	44,006	69,154	82,138	139,420	126,144	-1.0%
Latvia	6,732	4,331	12,412	15,602	19,144	19,933	0.4%
Lithuania	13,464	7,921	18,120	25,721	31,583	33,642	0.7%
Poland	106,378	414,459	131,828	749,616	238,205	1,164,074	40.0%
Romania	32,910	37,364	50,361	92,382	83,270	129,746	5.7%
Slovak Rep.	42,827	49,002	42,380	79,745	85,207	128,747	5.3%
Slovenia	19,678	20,949	22,404	60,681	42,082	81,630	9.7%
Turkey	82,444	480,040	121,996	649,171	204,441	1,129,211	46.6%

Note: trade volumes are expressed in US\$ of 2005 and correspond only to bilateral transactions identified and used in the econometric regressions.

6. Conclusions and Stylized facts

The previous analysis contains a number of results which I resume in the following set of stylized facts.

First, the development of ECA economies has been very different to other emerging regions. For most economies the 1990s amounted to a decade lost in terms of economic growth at a period where other emerging economies were growing fast. On the contrary, for all economies in the region, the 2000s had been a decade of sustained growth and a significant catch-up with the mature economies of the European Union.

Second, foreign trade has undoubtedly become a key aspect of economic development for most ECA economies. Trade has increased markedly during the past two decades in most economies yet in an unbalanced manner: on average, in all countries imports are significantly larger than exports. Therefore, as a region ECA has a systematic trade deficit which is balanced, in the long run by significant surpluses in the services accounts.

Third, larger countries tend to trade less than smaller economies. Trade in Russia, Turkey and Poland is significantly less than in smaller economies with similar levels of development such as Slovenia or the Czech Republic. This is a worldwide empirical regularity: large-size economies can rely on domestic markets for a stable demand on which to base the development of industries and, more often than not, they count on the natural resources contained in extensive geographical areas. Economies, particularly in the western regions of ECA, are small in both size and population.

Third, among ECA economies, countries in the EU+ group tend to trade significantly more than those in the CIS or the Balkans. Exports by EU+ economies in the period 2000-2011 are ten percentage points of GDP higher than those of the CIS (which include energy exporters) and twenty percentage points higher than the Balkan countries. Naturally, access to the EU provides ample trade opportunities and can explain the leadership of EU+ economies in trade. However, in order to use such opportunities producers ought to be as efficient as the “domestic” producers; therefore, the higher share of exports in EU+ countries also indicates the higher competitiveness levels.

Fourth and related to the previous issue, it can be seen that exports as share of GDP have increased quite significantly in the EU+ group and the Balkans but have stagnated in the CIS. The same is observed in terms of imports.

Fifth, in terms of destination markets and risk diversification, trade patterns in most ECA economies deviate significantly from world trade configurations even when taking into account differences in economic size, development levels, and transportation costs. Only a few countries exhibit trade patterns in line with world standards (Belarus, Hungary, Kyrgyzstan, Moldova, Romania, Russia, Tajikistan, and Turkey). The majority of countries concentrate in exporting to ECA countries to the disregard of developed economies (Azerbaijan, Bosnia and Herzegovina, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Macedonia, Poland, Serbia, Slovak Republic, Slovenia, and Uzbekistan). In turn, this increases external risks as shocks to regional economies tend to be

positively correlated, that is, shocks are similar in the different economies within a region and, therefore, a country that concentrates in trading with countries in its region does not diversify risk away. Five economies trade less with ECA than predicted by our model and concentrate in exporting to the developed economies (e.g., Armenia and Georgia) or to other regions of the world (e.g., Albania in Africa and Turkey and Ukraine in MENA).

Sixth, the fact that trade patterns have changed quite significantly since the collapse of the socialist regime has had significant effect on labor demand and employment levels. Observed trade levels in ECA economies are not necessarily those that would prevail in equilibrium according to our econometric estimates. Economic forces, nevertheless, push in the direction of such equilibria and, eventually, labor markets could be affected by the convergence of trade to long-run levels. Our findings indicate that should these countries converge to world trade patterns (in both volumes and partner structures), labor markets would only be affected in a significant manner in a few ECA countries. In the countries of the EU+ group the effects would be negligible in all but three cases (Croatia, Poland, and Turkey) because their trade pattern is not significantly deviated from normal levels and also due to the relatively small elasticity of employment to trade volumes. Regarding the other three economies, the estimated impact of countries achieving their trade potential would fall largely on wages in Croatia and Poland (where population is stagnant and participation rates stationary), while in Turkey would improve both employment and wages.

With regards to the Balkans and the CIS economies the situation is more heterogeneous. In six economies (Armenia, Georgia, Macedonia, Russia, Serbia and Uzbekistan), employment effects are rather insignificant. On the contrary, in Albania, Bosnia and Herzegovina, Belarus and Ukraine the labor effects are quite significant because trade in these economies is still far from the levels suggested by the world economy for countries of such characteristics (population, education, development levels, etc.). But for this to materialize, other economic and political conditions are needed so that trade can expand on a sustainable basis.

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Appendix 1: List of countries used in International Comparisons.

ECA	MENA	LAC	SA	EAP	SSA	Developed
Albania	Algeria	Antigua-Barbuda	Afghanistan	Brunei	Angola	Andorra
Armenia	Bahrain	Argentina	Bangladesh	Cambodia	Benin	Australia
Azerbaijan	Egypt	Bahamas	Bhutan	China	Botswana	Austria
Bulgaria	Iran	Barbados	India	Hong Kong	Burkina Faso	Belgium
Bosnia-Herzegovina	Iraq	Belize	Sri Lanka	Macao	Burundi	Canada
Belarus	Israel	Bolivia	Maldives	D.P.R. Korea	Cameroon	Cyprus
Czech Republic	Jordan	Brazil	Nepal	Indonesia	Cape Verde	Denmark
Estonia	Kuwait	Chile	Pakistan	Lao	C.A.R.	Finland
Georgia	Lebanon	Colombia		Malaysia	Chad	France
Croatia	Libya	Costa Rica		Mongolia	Comoros	Germany
Hungary	Morocco	Cuba		Myanmar	Congo	Greece
Kazakhstan	Oman	Dominica		Philippines	Cote d'Ivoire	Iceland
Kyrgyz Republic	Qatar	Dominican Rep.		Korea	D.R. Congo	Ireland
Kosovo	Saudi Arabia	Ecuador		Singapore	Djibouti	Italy
Lithuania	South Sudan	El Salvador		Thailand	Eq. Guinea	Japan
Latvia	Sudan	Grenada		Timor-Leste	Eritrea	Liechtenstein
Moldova		Guatemala		Viet Nam	Ethiopia	Luxembourg
Macedonia		Guyana		Fiji	Gabon	Malta
Montenegro		Haiti		Kiribati	Gambia	Monaco
Poland		Honduras		Micronesia	Ghana	Netherlands
Romania		Jamaica		Nauru	Guinea	New Zealand
Russia		Mexico		Palau	Guinea-Bissau	Norway
Serbia		Nicaragua		P. Guinea	Kenya	Portugal
Slovakia		Panama		Samoa	Lesotho	San Marino
Slovenia		Paraguay		Solomon Is.	Liberia	Spain
Tajikistan		Peru		Tonga	Madagascar	Sweden
Turkmenistan		S. Kitts & Nevis		Tuvalu	Malawi	Switzerland
Turkey		Saint Lucia		Vanuatu	Mali	UK
Ukraine		S. Vincent			Mauritania	USA
Uzbekistan		Suriname			Mauritius	
		Trinidad & Tobago			Mozambique	
		Uruguay			Namibia	
		Venezuela			Niger	
					Nigeria	
					Rwanda	
					Saint Helena	
					Sao Tome	
					Senegal	
					Seychelles	
					Sierra Leone	
					Somalia	
					South Africa	
					Swaziland	

Appendix 2: Estimating Gravity models

The basic intuition of a gravity model is that trade between two countries resembles the gravitational interaction between planets: the attraction force (equivalently, bilateral trade) is determined positively by their relative masses (i.e., economic size or trade potential) and negatively by the distance which separate them (i.e. the transportation cost). In addition to this basic framework, other variables are introduced to acknowledge the effects of bilateral trade arrangements, colonial and cultural ties, dissimilar factor endowments and political factors. Furthermore, frequently the gravity model is specified in log-linear form:

$$\log T_{ijt} = k + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} - \beta_3 \log D_{ij} + \sum_n \beta_n \log F_{ijt}^n \quad (2)$$

Typical factors included in the augmented gravity models are the level of economic development, membership in preferential trade areas (bilateral or multilateral arrangements), cultural affinity, vicinity (countries sharing a common border), and geographical particularities such as a reporter or a partner and being an island or landlocked. In general, these factors are seen as enhancing or reducing trade frictions and are signed a-priori accordingly. Population of both the reporter and the partner are also used in the augmented gravity models. In most papers the elasticities of trade to population are expected to be positive because it is believed that larger countries trade more.

The gravity model predicts that countries have positive trade in both directions, even if this predicted trade may be small. Scrutiny of bilateral trade flows, nevertheless, indicates that recorded trade flows are sometimes zero or missing. According to gravity theories as conventionally specified, zero trade would only occur if the GDP of one or both countries equals zero which is obviously untrue. This is a characteristic analytical weakness of gravity theories. Zeroes could be the result of the presence of fixed export-costs inhibiting foreign trade by firms operating in monopolistic competitive markets, or lower productivity of domestic firms which raises their cost of production, thus unable to export. Naturally, at the empirical levels zeros may correspond not only to actual inactivity (a true zero) but they may also reflect that no recording is made if shipments fall below a certain positive threshold (e.g., as imposed when compiling the statistics).

The occurrence of zero-trade flows in a study presents two distinct issues: appropriate specification of the economic model and appropriate specification of the error term on which to base econometric inference. In terms of model specification, it is obvious that the conventional log-linear formulation of the gravity model cannot handle zero-valued bilateral trade flows, since the logarithm of zero is undefined. Furthermore, if the gravity model is specified with an additive, normally distributed disturbance term, instead of a log-normal error structure, the gravity model could in principle predict negative trade flows by means of the random error (Linders and de Groot, 2006). The econometric estimation of gravity models has largely focused on the OLS and Tobit estimators in static setups. OLS techniques applied to equation (2) are inappropriate in this context because estimators are inconsistent if the dependent variable is censored from below by zero. The most popular alternative is to use a Tobit model.

Appendix 3: Estimated Labor Market Models from Soto (2014)

Econometric estimation of labor demand models Fixed effects panel-data, 1990-2011

	All countries	EU+	Balkans	CIS
GDP	0.290*** (0.058)	0.210*** (0.058)	1.399*** (0.319)	0.256*** (0.098)
Real wages	0.074*** (0.017)	-0.078** (0.030)	-0.416** (0.125)	0.117*** (0.025)
Cost of Capital	-0.022 (0.044)	-0.0030 (0.064)	0.023* (0.014)	-0.001 (0.001)
Real Exchange Rate	0.018 (0.025)	0.073*** (0.023)	0.032 (0.075)	-0.191*** (0.056)
Public Employment	-0.534*** (0.046)	-0.576*** (0.058)	-0.741*** (0.116)	-0.799*** (0.097)
Exports	0.217*** (0.029)	0.112** (0.043)	-0.081 (0.080)	0.281*** (0.044)
Imports	-0.171*** (0.046)	-0.032 (0.054)	-0.153 (0.134)	-0.275*** (0.086)
Unemployment	0.041 (0.184)	-0.505*** (0.208)	-1.497* (0.550)	0.725*** (0.288)
Observations	387	202	56	129
Countries	27	12	5	10
Within R ²	0.79	0.86	0.91	0.78
F-test	171.47	254.02	41.51	195.66
Hausman test	177.40	107.68	37.33	87.24

Note: ***, **, * significant at 99%, 95% and 90%, respectively.

Appendix Table 1: Data Sources and Coverage

Variable	Source	Definition	Sample
Gross Domestic Product	World Bank (2012a), IMF 2012	National Accounts	1990-2011 for all countries except Montenegro (1997-2011)
Gross Domestic Fixed Capital Formation	World Bank (2012a), IMF 2012	National Accounts	1990-2011 for all countries except Bosnia and Herzegovina (1994-2011), Kazakhstan (1991-2011), Montenegro (1997-2011) and Serbia (1996-2011).
Employment	World Bank (2012b), ILO (2012)	Employees 15 years and older.	1990-2011 for all countries except Bosnia and Herzegovina, Montenegro and Serbia (1991-2011).
Human Capital	Barro and Lee (2011) UNESCO (2012)	Labor force education achievement	1990-2011 for all countries except Azerbaijan, Belarus, Georgia, Macedonia, and Uzbekistan for which I use tertiary education enrolment.