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Tariff changes and non-tariff trade costs: An Assessment of the Eurasian Customs Union

Arevik Mkrtchyan

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Tariff changes and non-tariff trade costs. An Assessment of the Eurasian Customs Union

Arevik Mkrtchyan[☆]

Department of Economics, European University Institute, 50133 Florence, Italy

Abstract

The recently established Eurasian Customs Union of Russia, Belarus and Kazakhstan has generated considerable research interest. Using a rich panel data, this paper analyses the determinants of the common external tariff, and its subsequent impact on trade. We find that the CET reflects a compromise of existing national regimes, and that the CU itself caused a mild increase in tariff levels above the weighted average. We identify sectors for each country where domestic protection translates into mutual protection by customs union members. We also analyse trade flow changes, and find strong impact of the customs union and elimination of internal customs controls on intra-CU bilateral trade. As we account for tariff changes faced by non-members, we attribute this growth to reduced trade costs, that is, not driven by trade diversion due to tariff changes.

1. Introduction

Just 2 years prior to joining WTO, Russia formed the Eurasian Customs Union (ECU) with Belarus and Kazakhstan – pointing to a more regionally oriented approach. Since the Customs Union between Russia, Belarus and Kazakhstan (RBKCU) was ratified in November 2009, regional integration within this institution has proceeded at a rapid pace. A common external

[☆]arevik.mkrtchyan@eui.eu.

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tariff was implemented in January 2010 and was able to harmonise more than 85% of tariff from the outset. This meant, on average, small external tariff declines for Russia and Belarus, while increases for Kazakhstan were very pronounced Internal customs controls in the union were abolished in Kuly 2010 (between Russia and Belarus) and July 2011 (between Russia and Kazakhstan). There are far–reaching plans to further develop the customs union into a "Common Economic Space" modelled after early European integration policies. There are current attempts to extend the membership of the Customs Union to other CIS countries, in particular Kyrgyzstan, Armenia and Ukraine and possible associated revision of bound tariffs for these countries. While Russia is a prime import partner of Belarus and Kazakhstan, the reverse is not true. This pattern prompted concerns of trade diversion towards Russia (Tarr, 2012) as a result of the CU; supporting evidence for this is provided by Isakova and Plekhanov (2012) for the case of Kazakhstan.

The most immediate result of the establishment of customs union of Russia, Belarus and Kazakhstan has been an increase in the external tariff applied by Kazakhstan in a number of sectors and by Russia and Belarus in few other sectors. This work describes theoretical reasoning for determining common external tariff in a customs union and tests empirically several hypotheses based on tariffs on product level. We identify for each country the sectors that we subject to such mutual protectionism

We also determine the creation of the common external tariff (CET) and impacts each member had, both on aggregate and for sectors. We find that, contrary to popular belief, the CET was not based solely on Russian tariffs. Interestingly, 40% of the tariff lines (HS 6 level) were identical prior to the customs union for all members. We believe that, hence, direct comparison of Russia's tariffs in 2009 and CET in 2010 to determine Russia's impact would lead to overestimation as the already harmonised 40% would be attributed to Russia in such analysis. To avoid it, we regress the CET on past individual tariffs under several specifications.

Further, we analyse how strong is the impact of the tariffs on trade flows in a rich panel encompassing main trade partners of the customs union members and internal trade for several years. As expected, we find a negative impact of tariffs on trade. But, crucially, in our analysis we include a dummy for customs union on top of tariffs, thus to capture non-tariff impacts of the CU. We find significant positive impact of the non-tariff impact of the CU on trade. Thus, the overall effect of the customs union is composed of the tariff protectionism and decreased non-tariff trade costs. As the elimination

of internal customs controls happened in two stages (first, Russia-Belarus border then Russia-Kazakhstan border), we can distinguish its effect from the overall customs union impact thus assessing the importance of border barriers.

The paper is organised in a following manner. It continues by providing a summary of key facts about the customs union members' tariff and trade information. The following section presents the data. Next, the tariff determinants and protected sectors are analysed. Then we analyse the trade pattern changes and discuss. Finally, a conclusion is followed.

2. Literature Review

Theory: PTAs, in particular FTAs but also CUs have been studied comprehensively in the regionalism literature (e.g. Freund and Ornelas (2010) provide a survey). The general theme of this literature is that a Customs Union allows member countries to internalise cross–border externalities, e.g. relating to profits arising from trade or terms of trade effects, that are ignored by policy–makers under MFN or FTA tariff setting. As a result, tariffs in a customs union tend to be higher than in a free trade area; and through higher tariffs, imports from the rest of the world are diverted towards the partner country. When decision–makers are biased towards the interests of producers, this effect is particularly strong. Hence, CUs are often seen negatively by multilateralists; however, in related theoretical work (Gnutzmann and Mkrtchyan, 2013), we show that even in the presence of political bias, CUs can be welfare–enhancing for members. In practice, it is important to understand to what extent Customs Unions have tariff effects, and whether they lead to trade diversion empirically.

Empirical Research: There is relatively little empirical research on tariff setting in a customs union. The world's largest customs union, the European Union, was established in 1958 and then referred to as European Economic Community; data availability is thus very limited. According to P Magee and Lee (2001), the initial external tariff was set as a simple average of the previous national tariffs; but little is known about the ex ante structure of national tariffs. The tariff policy in the Mercosur area has been studied more extensively (e.g Olarreaga and Soloaga (1998), Bohara et al. (2004),Roett (1999). But in Mercosur, compliance to to the "common" external tariff is limited, around 30% of tariffs are exempted, as is the extent of internal

liberalisation (Esteradeordal et al., 2001); one may be led to believe that Mercosur is a customs union more in name than in reality. This is often reflected in statistically insignificant and quantitatively small estimates of the effect of customs unions on external tariffs.

Most closely related,Olarreaga et al. (1999) study the Mercosur external tariff. Using a cross section of industries - at both the HS6 and ISIC4 levels - they estimate a Tobit model of the CET. Using the bloc's market share in world imports as a proxy for export elasticity, an approach we also employ, and various proxies for labour and capital lobbying respectively, they seek to disentangle terms of trade and political economy motivations in Mercosur tariff determination. Terms of trade motives account for up to 28% of the variation in tariffs according to their estimates, lending some support to an efficiency rationale for customs unions. However, seeking to explain the determinants of tariffs - particularly at the fine level of disaggregation provided by HS6 - is a daunting task. An advantage of the present study is our ability to use previous years of national tariffs. Since these tariffs were presumably optimally set, they should contain all the relevant information driving *domestic* policy - be it lobbying or efficiency. This lets us focus on the more tractable problem how the formation of a customs union specifically influences tariff policy.

Estevadeordal et al. (2008) conduct empirical study of preferential tariff liberalisation on MFN tariffs for Latin American countries. The authors regress the current MFN tariff on the preferential tariff for the same line in the previous year and on some control variables. Their main finding is that the tariff complementarity of preferential tariff liberalisation is empirically supported but not when the preferential tariff is granted in a customs union where no such effect rises. This kind of analysis, unfortunately, is not possible to do for the customs union of Russia, Belarus and Kazakhstan as prior to the customs union the countries where in an FTA, hence, virtually, no extra tariff preference was given since the creation of the CU.

Tarr (2012) argues that previous attempts for deep regional integration projects of Russia were failing as they involved transfers from potential members to Russia, and in this respect the current customs union aims to reduce internal trade costs in which case other members will also benefit. The author also suggests that Russia's WTO accession will be a step in the direction of reducing non-tariff barriers to trade.

Krotov (2011) presents a detailed discussion of the customs union's administration system, customs legislation and clearance. He finds that the cus-

toms union is functional and, although the rules are yet to be fully formed, the necessary institutions and legislation for customs union's work are at place.

Dragneva and Wolczuk (2012) discuss the impact of the customs union on the EU's relationship with eastern neighbours, in particular, Ukraine. The paper also mentions that EU has become associated with modernization and rules-based governance, promoting Russia to adopt similar approach for its regional policy, specifically, by highlighting the economic gains and rules-based functioning of the customs union for potential members.

Shepotylo (2011) calculates the tariff changes for Kazakhstan and finds that the increase in import tariffs was from 6.7 % to 11.% for simple mean tariff, and from 5.3% to 9.5% for trade-weighted tariffs. Carneiro (2013) is a good survey of the perspectives on ECU.

Trade effects of PTAs have been extensively studied, particularly for the case of NAFTA (Trefler, 2001; Clausing, 2001). Of particular interest is the work of Romalis (2007), who identifies trade effects of NAFTA using differences in differences vis–a–vis Europe as an identification strategy. In his estimation, NAFTA had a substantial effect on trade volumes, particularly in protected sectors, but only moderate price and welfare effects.

3. The Customs Union at a Glance

Membership: Since the formation of the Eurasian Customs Union in 2010, the members have been Russia, Belarus and Kazakhstan. With an annual GDP exceeding $2trn. in PPP terms, Russia accounts for 86% of the block's GDP and 84% of its population. Kazakhstan accounts for 8% of GDP and 10% of population, while the Belarussian economy and population both amount to approximately 5% of the total.

Volume of Internal Trade: In the years prior to formation of the Customs Union, internal trade between the three countries amounted to $44bn., about 16% of total imports by the three countries. The bilateral flows are highly uneven: in 2009, Russian exports to Belarus and Kazakhstan respectively accounted for 46% and 24% respectively of the total. Belarussian exports to Russia made up another 18%, and Kazakh exports to the same destination 10%. Belarussian-Kazakh trade, at just over 1% of the total, was almost insignificant.

By 2011 some changes are apparent. Internal trade grew by 75% – reflecting the low 2009 level due to the crisis – to $62bn, slightly faster than

overall trade grew: thus, the intra-CU trade share rose to 17%. Exports from Belarus and Kazakhstan to the Russian market more than doubled, making these bilateral trade flows the fastest growing. The growth rate of Kazakh-Belarussian trade is comparable.

Goods Traded Internally: The importance of energy exploitation in the region is reflected in its trade patterns. Petroleum and natural gas alone accounted for $11bn, or a third of internal trade, in 2009, largely driven by Russian transit exports to Belarus.

By 2011 trade in these two key resources had further grown - to $15.5bn - but, due to the overall increase in internal trade, their share had diminished to a quarter. Other sectors with large absolute increases were vehicles, iron, machinery and other equipment as well as dairy products. Some of this growth was due to new product lines being internally traded, which in the two customs union years rose approximately 10% to 4473.

Internal Tariffs: Even before the formation of the Eurasian Customs Union, internal tariffs between the members were largely eliminated. Our data set records just 8 lines where Russia imposed tariffs on its partners - involving sugar, alcohol and tobacco - in the immediate pre-CU years. For Kazakhstan, there are 36 positive lines covering similar products and additionally some rice varieties. Our data set has no record of positive internal tariffs imposed by Belarus. From 2010 onwards, internal tariffs had been fully eliminated.

Most-Favoured Nation Tariffs: Even prior to the Customs Union, Russia and Belarus had similar tariff regimes - with average rates around 12%. By 2009, close to 80% of MFN tariff lines by the two countries already agreed. In contrast, Kazakhstan pursued a relatively liberal policy, imposing on average just a 6.5% tariff in 2009 (reflecting a period of liberalisation after 2007 that is apparent in the sample).

Common External Tariff: In 2010, the overwhelming majority of MFN tariffs - 4360 lines or 86% - were harmonised into the Common External Tariff, with many exceptions found in textiles. The CET mean a large tariff increase for Kazakhstan - to 10.29%, or nearly a 60% increase. But Russian tariffs fell to 10.7%, nearly a 20% cut, and Belarussian tariffs by 10%. Figure 1 provides more detailed data on the evolution of MFN tariffs in the ECU region.

Other Regional Trade Agreements: Existing bilateral free trade agreements between CIS countries are in place, notably with Ukraine.

The members of the ECU rank near the bottom of World Bank's *Trading*

Across Borders index, hinting at large trade costs on top of formal tariffs. The removal of the last internal customs posts – effective from July 2011 – may thus bring gains, creating the potential for integrated supply chains in the ECU area – and going beyond what could be achieved multilaterally. Foreign exporters may also benefit from reduced trade costs, somewhat offsetting adverse tariff effects: since rules of origin (Krueger, 1997) are no longer in effect, they can import to the ECU market through either of its members. In time, this may lead to competitive pressure on the member countries to improve the efficiency of their borders.

Russia's WTO accession negotiation is an important background part of the customs union's creation. The accession has been negotiated for many years, and the slow pace of the process could have contributed to Russia's interest in the regional integration. One has to also note the immediate impact of the Customs Union on the speeding up of Kazakhstan's accession to the WTO.

4. Data

The key data collection effort has focused on trade and tariff data.

4.1. Trade Flows

Regarding trade volumes, our study requires bilateral trade flow data disaggregated at the goods level. The data disaggregated at HS 6 level for 2007-2012 was obtained from the ITC Trade Map.

The data appears to be inaccurate for the some of the intra-CU bilateral trade flows in the 2010. In particular, the trade seems to be under–reported, and in order to analyse that we turned to other trade data sources - UNCTAD and Tsouz website data. Large differences between reported numbers show that 2010 is indeed problematic. In some cases what is denoted as 2010 trade volume is a half-year result.

4.2. Tariff Data

The tariff data was also obtained from the ITC as it provides high–quality tariff data at various classification levels. We were able to obtain applied tariffs at HS 6 level for Russia and Kazakhstan for 2007-2012 and for Belarus for 2009-2012.

4.3. Other Data

We also collected data on GDP and population from IMF World Economic Outlook.

5. Common External Tariff Determination

The members of the customs union prior to its creation had 40% of the tariff lines (HS 6 lines) harmonised, and in November 2009 they agreed on the Common External Tariff (CET). The CET was harmonising around 86% of the tariff lines. Below we present the theoretical models of how such common tariff rises in the customs union and the actual CET determination in the customs union of Belarus, Russia and Kazakhstan.

Our tariff data spans years from 2007 to 2012 and allows to determine the trends in MFN tariffs of the customs union member countries before and after the creation of the ECU. Figure 1 summarises the tariff averages of the members and the number of product lines where no tariff was levied in each year. The tariff means are calculated as simple averages of the tariff lines of the HS6 disaggregation level.

Figure 1 shows that Russia and Belarus had similar tariff averages prior to the ECU while Kazakhstan had noticeably lower tariff average. The creation of the customs union and tariff harmonisation led to 1,5% and 1,2% decrease in mean MFN tariff for Russia and Belarus, respectively and 3,8% increase in mean MFN tariff for Kazakhstan. The MFN tariff is applied among important trade partners, in particular, to the EU and US.

Year	N of rows	N of rows with zero tariff			Mean MFN tariff		
		Russia	Belarus	Kazakhstan	Russia	Belarus	Kazakhstan
2007	5052	369	-	914	12.12	-	8.26
2008	5052	420	-	1154	12.12	-	6.59
2009	5052	445	373	1164	12.18	11.81	6.49
2010	5052	554	554	712	10.67	10.60	10.30
2011	5015	547	547	655	11.07	10.99	10.82
2012	5205	550	550	641	10.94	10.87	10.74

Figure 1: Trends in MFN Tariffs

The differences in the trade policy of Russia and Belarus on one side and Kazakhstan on the other side prior to the creation of the customs union is seen also through the number of tariff lines where no tariff is levied. In

Kazakhstan 1164 product lines were subject to free trade prior to the ECU, almost three times more than in the partner countries, and we can also see that Kazakhstan got a transition period to reduce that number over the course of several years.

All three members of the ECU applied various tariff regimes besides the MFN regime. Moreover, some of the most important trade partners were benefiting from the special tariff regimes. In particular, China had access to the General System of Preferences (GSP). The GSP does not apply to all the tariff lines and, wherever if applies, it typically offers 25% discount of the MFN tariff. Interesting observation here is that Russia and Belarus were including significantly more lines in the GSP than Kazakhstan prior to the ECU. That difference is somewhat compensating the MFN tariff differences before 2010 for the developing countries. In particular, if we look at Russia, the average tariff paid by the countries in the GSP in 2009 (that is, where the preference margin was positive) was 10,89% while the corresponding MFN tariff mean for these products was 14.26%.

Figure 2 summarises the mean GSP tariffs for all ECU members and the number of tariff lines where the positive tariff preference over the MFN was offered.

Year	N of pref. rows			Mean GSP tariff		
	Russia	Belarus	Kazakhstan	Russia	Belarus	Kazakhstan
2009	917	926	675	11.525198	11.214687	6.272090
2010	899			10.051821	9.986362	9.671833
2011	896			10.381456	10.300897	10.118843
2012	1037			10.229011	10.160058	10.015255

Figure 2: Trends in GSP Tariffs

The tariff profiles of the three countries include both ad valorem and specific tariffs. The Figure 3 below summarizes the tariff averages in every subgroup and shows a significant difference between the ad valorem and specific tariffs:

5.1. Theoretical Background of Empirical Strategy

There is a large theoretical research interest in the tariff setting in the preferential trade agreements (PTAs). In particular, many effects point to

Variable	Mean All	Mean Ad-Valorem	Mean Specific
2009			
ru_mfn	12.18	8.78	29.19
by_mfn	11.81	9.06	25.52
kz_mfn	6.49	4.95	14.22
2010			
ru_mfn	10.67	8.11	23.46
by_mfn	10.60	8.11	23.03
kz_mfn	10.30	7.70	23.29
Obs	5052	842	4210

Figure 3: Trends in MFN Tariffs

larger external tariff under CU than FTA (see Freund and Ornelas (2010) for a review).

In our theoretical work (Gnutzmann and Mkrtchyan, 2013) we advance the mutual protectionism hypothesis to explain the formation of customs unions. The paper develops a model of trade under imperfect competition. It shows that under symmetry the customs union is the most politically viable, or payoff-dominant compared to MFN and FTA, trade regime but also provides highest social welfare due to gains from cooperation as long as the trade with non-members remains positive. The model suggests that over time we are going to see more deep regional trade agreements like customs unions or other agreements involving high level of cooperation. The model makes several predictions that will be addressed below. First, the model suggests that the level of political influence of the sector will transfer into the protection through tariff. Thus, it will also translate into larger force during common tariff bargaining. Thus, the most protected sectors will be mutually protected by the partners. Next, customs unions are found to be harmful for the non-members within such theoretical framework due to endogenous tariff rises due to mutually protectionist alleviated internal trade costs for the non-members that could potentially compensate the negative tariff impact.

The standard oligopoly model that is often employed in studies of regional agreements. Two countries, X and Y, will be the potential trade agreement partners while rest of the world is denoted as Z. Each country produces two homogeneous goods under constant returns to scale and with marginal

cost normalised to zero. The first good, A, is traded in perfectly competitive markets, and each country has an arbitrary number of firms producing this good. The second good, B, is sold in imperfectly competitive markets (firms compete a-la Cournot). The model can be trivially extended to have l goods,that are produced in imperfect competition. National markets are segmented: a firm in country i sets the output to sell to country j, q_{ij}, separately from the output it sells in country k, q_{ik}. In general, each country has $n_i \geq 0$ firms producing good B. The representative consumer's utility is linear in the competitive good A, and quadratic in good B. Countries may have different number of consumers. Each country i may impose a tariff on country j's products, denoted by t_{ij}. Tariffs are set endogenously to maximise the objective function of the government. The market structure and tariffs imposed are visualised from the perspective of country X in Figure 4.

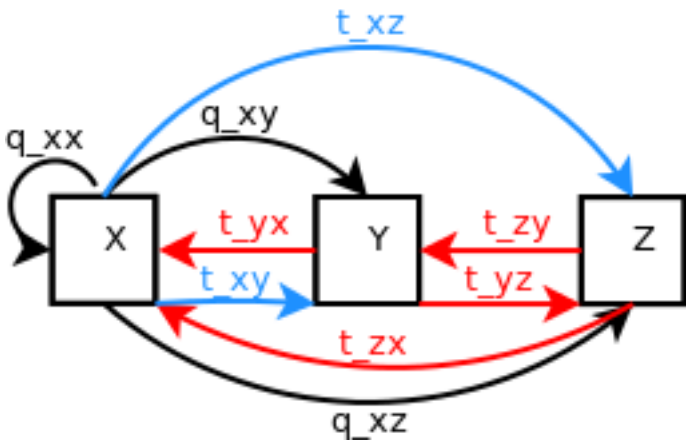

Figure 4: Market Structure and Tariffs

Governments. In each country, government policies regarding trade are chosen to maximise a weighed sum of consumer and producer surplus - CS_i and PS_i, respectively, and its objective is denoted as G_i. In particular, due to lobbying or other contributions, the government may be subject to a political bias, $\alpha \geq 0$, which overweights producer interests in its objective: $G_i = CS_i + (1 + \alpha)PS_i$. There are three possible trade regimes: Most Favoured Nation setting where no trade agreement is in place, and each country is bound to set a non-discriminatory tariff; a Free Trade Area setting where the members of the FTA trade freely between themselves and

set independently their external tariff on the rest of the world; a Customs Union, or a cooperative setting, where the members trade freely between each other and have to set a common tariff on the rest of the world.
The model is being solved backwards by first finding the market outcomes given the tariff and trade regime and then determining the optimal tariffs. The model with oligopolistic competition assumes specific tariffs and determines the optimal specific tariff for each regime. We will below present the optimal specific tariffs as present in the literature and then calculate their ad valorem equivalent (AVE) tariffs as the data provides AVE tariffs. The model is widely used in literature analysing the regional trade agreements (Freund and Ornelas (2010))

Tariff Setting. In MFN the countries set up the trade policy non-cooperatively with the only restriction to apply non-discriminatory tariffs. If the two countries make a FTA, then they are constrained to have zero tariffs for internal trade. In FTA the members set tariffs applied to the rest of the world non-cooperatively, like in MFN.
Finally, if the two countries form a CU, they not only have to keep the internal zero tariffs but also set cooperatively the common external tariff. One way the two countries might set the cooperative tariff is through maximising the total welfare (social welfare plus the bias component) as it is typically done in the literature.
As the model assumes specific tariffs and in data we find Ad Valorem equivalents of all tariffs, we have to transform the formulas of the specific tariffs into its ad valorem equivalent (AVE) tariff to project the predictions of the model on the data. The AVE tariff is the share of the price that is taxed: $\tau = \frac{t}{p}$ where p is the price of the good found through the market equilibrium. First, in case of full symmetry, in particular, $n_i = n_j$ and the government bias $\alpha_i = \alpha_j$, then the optimal AVE tariff for each trade regime is:

$$\begin{aligned} \tau^{MFN} &= \frac{2n+1+2\alpha n}{2(n+1)} \\ \tau^{FTA} &= \frac{2n+1+2\alpha n}{2(2n+1)} \\ \tau^{CU} &= \frac{4n+1+4\alpha n}{2(2n+1)} \end{aligned} \tag{1}$$

Note that the demand parameter Γ does not appear in the AVE tariffs.

In the customs union the tariff is determined by maximising the joint objectives of the governments of two countries. Note that $\tau^{FTA} < \tau^{MFN} < \tau^{CU}$ although it has been shown that when the specific tariffs are considered, $\tau^{FTA} < \tau^{CU} < \tau^{MFN}$. The AVE tariffs are easier to interpret - simply being the share of the price that is being taxed, they allow to determine trivially the prohibitive tariff - it is the level of α such that $\tau = 1$. Importantly for the empirical analysis, notice that the customs union tariff can be presented as a linear function of either MFN or FTA tariffs of the two members with equal weights:

$$\begin{aligned} \tau^{CU} &= (\tau_i^{MFN} + \tau_j^{MFN})\frac{(n+1)}{(2n+1)} - \frac{1}{2(2n+1)} \\ \tau^{CU} &= \tau_i^{FTA} + \tau_j^{FTA} - \frac{1}{2(2n+1)} \end{aligned} \tag{2}$$

That is rather intuitive as the countries are symmetric so let us look at the case where the countries have asymmetric number of firms, government bias and number of consumers. In particular, country i has K times more consumers than country j Then the respective tariffs become:

$$\begin{aligned} \tau^{MFN} &= \frac{2n_i + 1 + 2\alpha_i n_i}{2(n_i+1)} \\ \tau^{FTA} &= \frac{2n_i + 1 + 2\alpha_i n_i}{2(n_i+n_j+1)} \\ \tau^{CU} &= \frac{K(4n_i + 4\alpha_i n_i + 1) + 4n_j + 4\alpha_j n_j + 1}{2(K+1)(n_i+n_j+1)} \end{aligned} \tag{3}$$

The number of consumers, whenever a representative consumer exists, does not affect the non-cooperatively set tariff. However it is not the case for a cooperatively set tariff. Indeed, if the number of consumers is normalised to 1 or is equal in each country then the maximisation objective in the customs union is simply the sum of each consumer's problem corrected for governments' biases. If instead country i has K times more consumers than its partner j then the sum of governments' welfare in the customs union is $KG_i + G_j$.

Similar to the above cases, the CU tariff can be presented as a linear function

of the individual MFN and FTA tariffs:

$$\begin{aligned}\tau^{CU} &= \tau_i^{MFN}\frac{K(n_i+1)}{(K+1)(n_i+n_j+1)} + \tau_j^{MFN}\frac{(n_j+1)}{(K+1)(n_i+n_j+1))} + \frac{1+(1+\alpha)(n_i+n_j)}{2(n_i+n_j+1)} \\ \tau^{CU} &= \tau_i^{FTA}\frac{K}{K+1} + \tau_j^{FTA}\frac{1}{K+1} + \frac{1+(1+\alpha)(n_i+n_j)}{2(n_i+n_j+1)} \end{aligned} \quad (4)$$

The difference in size impacts the weights of the individual tariffs in the customs union tariff: country i's weight is proportional to $K/(K+1)$ while country j's weight is lower and proportional to $1/(K+1)$.
In the remaining part we are conducting regression analysis based on several estimating strategies in order to explain the determination of the customs union tariff that later we will put together with the model's predictions.

5.2. Analysis of common external tariff

The formation of the Eurasian Customs Union provides an ideal case to study how national tariffs are translated into a common tariffs when a Customs Union is formed.
The theoretical model above predicts that the customs union tariff is larger than the average of FTA or MFN tariffs (in AVE). Moreover, it makes a prediction that the weights of the of the individual tariffs in the common external tariff are proportional to population share (both for FTA and MFN) and to market share of domestic firms (MFN). Finally, the model predicts that the weights should sum up to 1.
As a starting point of empirical analysis of the common external tariff, we look at the harmonised tariffs in 2010 as a linear function of national tariffs prior in 2009, prior to customs union:

$$t_{ECU2010i} = \alpha + \beta_1 t_{RU2009i} + \beta_2 t_{BY2009i} + \beta_3 t_{KZ2009i} + e_i \quad (5)$$

The results are presented in column (1) in Figure 5. This simple regression provides R-squared of 93% explaining almost all tariff variation. This exploratory regression is not estimating the equation predicted by the model as it ignores the sectoral differences but we still can compare its results with the model's predictions. The sum of the coefficients sums up to 0.9, slightly below 1; Russian tariffs enter with the coefficient 0.6 which corresponds to 70% of sum of the coefficients, a very large number but well below its 84% population share. Both Belarus and Kazakhstan thus have higher share, particularly the latter with 21%. Kazakhstan's tariff policy significantly different

than the policy of the other two members and the average tariff was much lower. As a result, Kazakhstan would have to make most of the adjustments related to increasing the tariffs which hints to why its share in common tariff is higher than predicted by its population share (and by GDP share).
The next specification, presented in the Figure 5 in column (2), considers the sub–sample of product lines for which the tariffs were not harmonised in 2009. As more than 40% of all tariffs were equal already in 2009, this specification excludes the lines that were equal as we are interested to assess the weights of individual country tariffs in determining the tariffs that actually had to be harmonised:

$$t_{ECU2010i} = \alpha + \beta_1 t_{RU2009NHi} + \beta_2 t_{BY2009NHi} + \beta_3 t_{KZ2009NHi} + e_i \quad (6)$$

As expected, the results are broadly similar to the first specification.
The last specification is aiming to capture the spillovers of protectionism from national level to partners in the CU. The tariffs in 2010 are regressed on national tariffs, like in the first specification, and on a variable "max". The latter variable equals to the highest tariff in 2009 among the three members for each product line. We expect the coefficient of that variable to be insignificant if the common tariff is driven by national tariffs, whether it is only Russian tariff that matters or all tariffs. However if the product lines that are protected in some countries more than others exhibit mutual protectionism effect - that is, spillover to partners, then they will have stronger impact in harmonised tariff than the average sector:

$$t_{ECU2010i} = \alpha + \beta_1 t_{RU2009i} + \beta_2 t_{BY2009i} + \beta_3 t_{KZ2009i} + \beta_4 t_{max2009} + e_i \quad (7)$$

The column (3) in Figure 5 summarises the estimation results; the coefficient on the "max" variable is positive, large in magnitude and positive suggesting that a sector particularly protected in any country will be protected by all members in the customs union. The highest tariff charged by any member country enters with an additional effect: a 1% increase in the maximum tariff raises the common tariff by 0.21% on top of national tariff coefficient. Interestingly, the inclusion of the "max" tariff almost nullifies the coefficient for Belarus.

Variable	**(1)**	**(2)**	**(3)**
	(Std. Err.)	(Std. Err.)	(Std. Err.)
Intercept	0.945**	1.455**	0.923**
	(0.059)	(0.109)	(0.059)
L.ru_mfn	0.603**	0.604**	0.501**
	(0.013)	(0.016)	(0.016)
L.by_mfn	0.109**	0.086**	0.022
	(0.013)	(0.017)	(0.015)
L.kz_mfn	0.189**	0.202**	0.163**
	(0.008)	(0.011)	(0.008)
L.tmax			0.194**
			(0.018)
N	4458	2511	4458
R^2	0.93	0.925	0.932
F	19822.35	10323.74	15282.09
	(3,4454)	(3,2507)	(4,4453)

Standard errors in parentheses

** indicates significance at $p < 0.01$

Figure 5: Exploratory Regressions

All three members of the customs union applied different types of tariffs prior to the CU and kept applying them in the CU. Those tariffs include ad valorem tariffs (per cent of the price of the imported good), specific (payment per volume or weight) and mixed tariffs. In the Figure 6 below we use the same specifications as above but divided into two subgroups of ad valorem and specific tariffs. The member countries use apply their tariff policy in more detailed tariff lines classification (NTLC) than in HS6 classification that we have. Thus in one line of HS6 classification there could potentially several national tariff line codes with different tariff types. That is why we can have only approximate division into ad valorem and specific subgroups.

The Figure 6 reveals that there are significant differences between the two subgroups. The lines that apply the ad valorem tariffs seem to fit very well

Variable	**AV**	**Spec**	**AVMax**	**SpecMax**
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Intercept	0.073	2.729**	0.086	1.733**
	(0.061)	(0.416)	(0.430)	(0.044)
L.ru_mfn	0.812**	0.550**	0.810**	0.357**
	(0.021)	(0.033)		
L.by_mfn	0.001	0.099**	0.112**	-0.014
	(0.020)	(0.034)	(0.037)	
L.kz_mfn	0.175**	0.237**	0.186**	0.188**
	(0.009)	(0.024)	(0.061)	(0.024)
L.tmax			-0.116**	0.325**
			(0.032)	(0.052)
N	4017	441	4017	441
R^2	0.869	0.944	0.869	0.949

Standard errors in parentheses

** indicates significance at $p < 0.01$

Figure 6: Exploratory Regressions (Max)

the model predictions (albeit without controlling for sectoral effects): the coefficients sum up to 0.99 and the share of Russian tariffs is about 82%. The coefficient of tariff of Belarus is again very close to zero, while the coefficient for tariffs of Kazakhstan is again higher than predicted by the model. This pattern of very low coefficient for Belarus could be caused simply because the tariffs of Russia and Belarus were already very highly harmonised prior to the formation of the CU.
The case of the specific tariffs appears very different and is much more similar to the results obtained for the whole sample in terms of the shares of individual coefficients.

5.2.1. Sectoral Effects

We now augment the model with dummies for individual sectors. The sectors correspond to the 2-digit HS classification, of total 97 sectors. The specification below controlling for sectoral effects estimates the equation (4) of the theoretical model for countries that we in FTA prior to the CU by regressing the customs union tariff on the individual tariffs in 2009 and allowing for sectoral fixed effects:

$$t_{ECU2010i} = \alpha_j + \beta_1 t_{RU2009i} + \beta_2 t_{BY2009i} + \beta_3 t_{KZ2009i} + e_i \tag{8}$$

It is useful then to compare the results of this particular specification with the predictions of the model. Below is the benchmark that we the model is compared to.
Benchmark Case: Using data on population from the IMF's *World Economic Outlook*, the model would predict the CET formation function to give a weight ratio of 84/10/5 to the Russian, Kazakhstan and Belarus 2009 tariffs, respectively. Similar picture would rise if we look at GDP shares: 86/8/6. Figure 7 summarizes the results for the whole sample, for the subgroups and with the dummy for the maximum tariffs as it was defined earlier.

Closer look at the sectors with largest spillovers of protection from one member to partners reveals the following observations. Sector 4(Dairy products, eggs and etc) was one of the most protected sectors in Kazakhstan with tariff 25,78%, significantly higher than in Russia and Belarus, and the adopted average tariffs in 2010 in that sector are between 23-24% for these countries. Instead, Russia was very successful in pushing up tariff for sector 02(Meat and edible meat offal). The meats sector was well-protected in all members prior to the CU, but way below Russia's 45% average tariff, however in 2010, all three countries adopted mean tariff rates 46% for

Variable	**Total** (Std. Err.)	**AV** (Std. Err.)	**Spec** (Std. Err.)	**TotalMax** (Std. Err.)
L.ru_mfn	0.600	0.860	0.542	0.538
	(0.011)	(0.018)	(0.024)	(0.014)
L.by_mfn	0.162	-0.009	0.148	0.099
	(0.012)	(0.018)	(0.026)	(0.014)
L.kz_mfn	0.092	0.151	0.183	0.077
	(0.009)	(0.013)	(0.025)	(0.009)
L.tmax				0.128
				(0.017)
N	4458	4017	441	4458
R^2	0.953	0.913	0.98	0.953
F	898.459	439.637	323.376	901.173
	(98,4359)	(94,3922)	(58,382)	(99,4358)

Standard errors in parentheses

** indicates significance at $p < 0.01$

Figure 7: Exploratory Regressions

meat. Other sectors where Russia and Belarus had very high tariffs in 2009 while Kazakhstan - moderate ones but then the protection was spilled over to Kazakhstan are: 44(Wood and etc), 48 (Paper and etc), 71(Pearls, precious stones, metals, coins, etc), 88(Aircrafts and etc). We also note that there are many more sectors with mutual protectionism effect than sectors that saw liberalisation over the weighed average during CET determination. The most prominent liberalised sector is 22 (Beverages, spirits and vinegar), which had lines at HS 6 of more than 300% tariff. We believe that the extremely high tariffs for these few lines explain the outlier behaviour of that sector.

5.3. Results for tariff determination

All the specifications are very simple and yet explain around 93-94% of variation in common external tariff. All estimations highlight the large role of Russian tariffs in 2009 in determining the common external tariff. However compared to the theoretical prediction where tariffs are driven by population (or GDP) share, the Russian weight is considerably lower (70% vs 87%) and especially Kazakh influence is stronger (20% vs 8%). Thus the theoretical model that is used for structural support of the estimation strategy has a lot of embodied structure but still captures important patterns of common tariff determination in a customs union.

The customs union brought on average only a very modest increase of the tariffs above the weighted average but on sectoral level there is evidence of mutual protectionism.

We also found that there are large differences in the determination of common external tariffs among the two subgroups of ad valorem and specific tariffs. The former are on average much lower for all the three countries and for these lines Russia had a very strong, decisive, impact on common tariff. The latter tariffs are on average several times larger than ad valorem tariffs. In these lines Kazakhstan had on average much lower tariffs than Russia and Belarus prior to the CU, but also for these lines we found the strongest impact of Kazakh tariffs and, weaker than for ad valorem tariffs, impact of Russian tariff policy. The lower than predicted share of the coefficient of the Russian tariffs in the sum of all coefficients can be seen as evidence that Russia entered into compromises on the external tariff. This appears as a natural conclusion given that Kazakhstan in any case experienced large adjustments and increase in tariffs and in order to make the customs union participation incentive compatible for Kazakhstan, certain room for negotiation above the weight based on population size was available. Belarussian tariffs had the

lowest impact on the determination of the CET, and that can be also potentially explained through transfers. Indeed, Belarus is located between the EU countries and Russia and thus a large part of the imports from the EU enter through Belarus. In the customs union the external borders of Russia were moved to Belarus and thus it got access to various administrative payments made when goods enter the CU territory. This could give light to why Belarus seems to have been the least active in tariff determination.

6. Trade Effects

Having analysed the changes in tariff policy, our interest naturally turns to its effects on trade patterns. To this end, we are able to draw on a rich panel data set constructed as follows:

Data Set: Data for this section were obtained from the *International Trade Center* (ITC) and have a panel structure. For each cross–section, the data set contains the trade flows from the main trading partners – China, Ukraine, the European Union and United States – to the ECU member countries, Russia, Belarus and Kazakhstan, as well as internal trade flows. The trade flows are disaggregated at the HS–6 level, and were constructed from the *exports* series, as these data seemed to be more reliable than the import series; an exception to this is trade from Russia to Belarus – the Russian statistics only reported aggregates for most of the sampling period. Thus the entire series has been replaced with Belarussian import data. Furthermore, the data set has been combined with tariff data from the ITC's *MacMap* database. For each good, country pair and year, we have matched the tariff that is actually applied – taking into account regional agreements and the Generalised System of Preferences. Since Belarussian tariff data were available only from 2009 onwards, we have used tariffs from this year in place of 2008 tariffs. Furthermore, to avoid erratic effects arising from small tariff lines, we have included only bilateral trade flows with a volume of at least $100k USD.

6.1. Model Specification

The goal of the present section is to decompose the changes in trade patterns that occurred under ECU into those that can be attributed to tariff changes and those due to non–tariff factors. In terms of notation, let i denote the industry, j the destination country, k the source country and t the year. Our dependent variable is x_{ijkt}, the log of bilateral flows in a given tariff line

and year. This depends on the tariff charged directly, t_{ijkt}, with coefficient θ, which is expected to be negative. Furthermore, the bilateral trade flow may depend on the MFN tariff, denoted $t_{ij<MFN>t}$, with coefficient δ. The latter coefficient is expected to be positive: when the MFN tariff rises, flows that enjoy preferences are expected to increase, other things being equal, due to trade diversion. Moreover, we add a dummy variable cu_{ijt} which equals one if a country pair is linked through common membership of ECU, and zero otherwise. One–year lagged trade flows are added to control for dynamics.

This specification clearly leaves a lot of unobserved heterogeneity. Thanks to the richness of the dataset, we can use rich fixed effects to control for unobserved heterogeneity. A year dummy variable α_t captures common economic shocks to the ECU member countries; the country–pair fixed effects β_{jk}. Finally γ_{ijk} covers the specific factors in the trade of a particular product and country pair.

Combining these variables yields our model:

$$x_{ijkt} = \alpha_t + \beta_{jk} + \gamma_{ijk} + \theta t_{ijkt} + \sigma t_{ij<MFN>t} + \delta x_{ijk(t-1)} + \phi cu_{ijt} + \epsilon_{ijkt} \quad (9)$$

Moreover, we are aware of a measurement issue in trade flow data for the ECU in 2010. There appears to be under-reporting of trade flows in the second half of the year; our data, retrieved through the ITC, agree with the figures published by the Commission of the Customs Union on the official web site; however, official figures only cover the first half of 2010, before the ECU was in operation. Moreover, from descriptive analysis, a steep fall in the trade share of internal trade from 15% to 10% is apparent in the data, which is suggestive of mis–measurement. Since we cannot correct for this issue, we add an interaction term for customs union in 2010. Thus, our estimates of the CU effect are effectively based on the 2011 data wave.

Estimation: The model is to be estimated using a random effects panel model. In particular, the idiosyncratic effects γ_{ijk} are assumed to be a random variable thereby increasing efficiency of the estimates; the remaining fixed effects are included as dummies.

Possible Bias: There are substantial concerns about endogeneity of the right–hand side variables in this equation, as indeed our theoretical work argues that not only tariffs but also the formation of CU should be considered the outcome government maximising behaviour. Thus direct estimation of this equation is unlikely to deliver consistent estimates of the causal effects (average treatment effects) of either independent variable. In particular, standard theory considerations imply that tariffs should be set highly where

elasticities are low; since elasticities are not observed, OLS estimates will be downwards biased. Moreover, A CU should be formed when the expected gains are high, implying that the estimate of ϕ should be biased upwards due to selection compared to exogenous assignment of a CU.

The goals of our estimation are different, however. We are interested in exploring the channels through which the Eurasian Customs Union in particular influenced trade. Thus, simple random effects estimates are sufficient for the task at hand.

6.2. Results

Estimation results are reported in figure 8. The high estimate for the effect of Customs Union, implying the formation of CU increased internal trade flows by on average 27% due to non-tariff improvements, attracts immediate attention. As expected, the direct tariff has a negative effect, although this effect is very small; the MFN tariff in general tends raise bilateral trade, albeit again slightly. Thus, countries subject to the MFN tariff on net face slightly reduced imports when the tariff increased; those subject to preferences face small increases. Although the coefficients are precisely estimated, the magnitudes are tiny. This suggests that tariff increases were targeted towards sectors with relatively inelastic demand. The interaction between CU and 2010 is very strongly negative; we attribute this effect to the under–reporting affecting said year, which we discussed above. Furthermore, the highly negative estimate on the 2009 dummy reflects the economic crisis affecting the ECU members in that period. The Customs Unions appears to have had little non-tariff effects on outsiders so far. The coefficient for the 2011 dummy indicates almost no change over 2008, the base year, or indeed 2010, after controlling for tariff effects.

6.3. Extended Model Specifications

The regression analysis attempts to decompose the trade changes into tariff and non-tariff factors. We are working with a large panel data that has three dimensions (product, source country and year) if we fix the destination country and four dimensions if we consider the complete panel - previous three and the destination dimension. We use a fixed effects panel estimation method for the following regression model for the large panel - destination countries are . The trade value (log) x_{ijkt} - is the dependant variable where i is the product code, j - destination country, k - source country, t - year. The explanatory variables are the tariff paid by the exporting (source) country t_{ijkt}, $t_{ij<MFN>t}$ - MFN tariff applied by the destination country, lagged logarithm of trade value $\delta x_{ijk(t-1)}$, total exports of the source country E_{ikt}, total imports of the destination country M_{ijt} and three dummy variables cu_cu_{kt}, cu_fta_{kt}, cu_ext_{kt} that are equal to one when the year is 2010 or 2011 (the CU is in force) and the source is a customs union partner (Russia, Belarus, Kazakhstan), an FTA partner (Ukraine) or is not a partner of an RTA respectively. We control for the time trend and for the data issues of trade between the CU countries in 2010. The totals of import and export are supposed to control the macro shocks that hit the source and destination countries that would affect their trade relations with other countries e.g. the crisis in the EU countries. The dummies are supposed to catch the non-tariff impact of the CU on the imports of the customs union countries and accommodate for the possibility that the change in non-tariff barriers impacts differently depending on which trade regime the trading countries are in.

$$\begin{aligned} x_{ijkt} &= \alpha t + \theta t_{ijkt} + \sigma t_{ij<MFN>t} + \delta x_{ijk(t-1)} + \beta E_{ikt} + \mu M_{ijt} + \\ &+ \phi_1 cu\_cu_{kt} + \phi_2 cu\_fta_{kt} + \phi_3 cu\_ext_{kt} + \gamma t_{2010cu\_cu} + \epsilon_{ijkt} \end{aligned} \quad (10)$$

The estimation model above was pooling the three customs union destinations in one panel while the modified model below fixes the destination as Belarus, then Kazakhstan and then Russia.

$$\begin{aligned} x_{ikt} &= \alpha t + \theta t_{ikt} + \sigma t_{i<MFN>t} + \delta x_{ik(t-1)} + \beta E_{ikt} + \mu M_{it} + \\ &+ \phi_1 cu\_cu_{kt} + \phi_2 cu\_fta_{kt} + \phi_3 cu\_ext_{kt} + \gamma t_{2010cu\_cu} + \epsilon_{ikt} \end{aligned} \quad (11)$$

6.4. Results

The total import and export levels have predicted positive sign and large coefficients. The time trend is very small but negative. We see that in the

Coefficient	Estimate	Std. Error	t-value	Pr(> |t|)
(Intercept)	0.934	0.032	29.250	¡ 2.2e-16***
factor(year)2009	-0.512	0.008	-63.842	¡ 2.2e-16***
factor(year)2010	0.058	0.009	6.611	3.838e-11***
factor(year)2011	0.030	0.009	3.451	0.00055 ***
factor(pair)CN-BY	0.038	0.040	0.953	0.3407666
factor(pair)CN-KZ	0.139	0.031	9.000	¡ 2.2e-16 ***
factor(pair)EU-BY	0.094	0.032	2.965	0.0030239 **
factor(pair)EU-KZ	0.058	0.031	1.852	0.0640959 .
factor(pair)EU-RU	0.280	0.031	9.070	¡ 2.2e-16 ***
factor(pair)KZ-BY	-0.326	0.090	-3.622	0.0002923 ***
factor(pair)KZ-RU	0.099	0.039	2.524	0.0116122 *
factor(pair)RU-BY	-0.055	0.031	-1.804	0.0711740 .
factor(pair)RU-KZ	0.059	0.031	1.920	0.0548736 .
factor(pair)UA-BY	-0.053	0.034	-1.546	0.1221981
factor(pair)UA-KZ	0.020	0.035	3.721	0.0001988 ***
factor(pair)US-BY	-0.012	0.063	-0.191	0.8488518
factor(pair)US-KZ	0.057	0.039	1.453	0.1461658
y2010_cu	-0.443	0.02	-26.421	¡ 2.2e-16 ***
cu	0.273	0.015	18.210	¡ 2.2e-16 ***
tariff_ave	-0.004	0.001	-8.698	¡ 2.2e-16 ***
tariff_mfn	0.002	0.000	5.774	7.77e-09 ***
l.log_trade_val	0.877	0.002	498.514	¡ 2.2e-16 ***
R-Squared	0.78161			
Adj. R-Squared	0.78135			

Figure 8: Panel Estimation Results

pooled panel the coefficients of paid tariff and the applied MFN tariff are practically zero as we combined countries that are in an FTA and a CU with the importing countries. That could arise if imports were inelastic to the tariff variations, as well as if tariffs do have a negative impact on imports but they are applied strategically to the products with particular import growth. Importantly, the there is a positive significant and large impact on the imports to the customs union countries that is different from tariffs and total trade trends in the years 2010 and 2011 for all types of the trade partners, but particularly strong for the customs union partners. This effects are attributed to the non-tariff trade cost changes. The results for individual estimations are presented in the Appendix.

6.5. Estimation with Border Removals Impact

The models before were controlling for the existence of the CU, however once we think of non-tariff costs that changes with the creation of the CU, the first candidate is the removal of the borders among members. As the time-line of the CU indicates, the borders were removed in two stages: first, in 2010 between Russia and Belarus and only in 2011 between Russia and Kazakhstan. Thus we next want to capture specifically that effect by introducing a variable that denotes whether the borders between the destination country and its CU partners are removed or not. That dummy is one for Russia and Belarus both in 2010 and 2011 and for Kazakhstan only in 2011. Finally, the estimating model is very similar to the previous - we now estimate the impact of border removals for the CU partners, FTA partner and no-RTA trade partners by interacting the border removal dummy with the source countries for each regime

$$\begin{aligned} .x_{ijkt} &= \alpha t + \theta t_{ijkt} + \sigma t_{ij<MFN>t} + \delta x_{ijk(t-1)} + \beta E_{ikt} + \mu M_{ijt} + \\ &+ \phi_1 border\_cu_{jkt} + \phi_2 border\_fta_{jkt} + \phi_3 border\_ext_{jkt} + \gamma t_{2010cu\_cu} + \epsilon_{ijkt} \end{aligned} \tag{12}$$

6.6. Results

The main notable difference when we specifically control for the border removals from the specification where we were controlling for the customs union existence is that the border removal helped even more the customs union partners while for the FTA partner and the rest of the trade partners (China, EU, US) the effect is still positive and large but smaller in the first specification. That is rather intuitive as the CU partners enjoy the unique environment of trading across borders without customs checks.

Variable	**Coefficient** (Std. Err.)
CU_external	0.087**
	(0.022)
CU_cupartner	0.446**
	(0.025)
CU_ftapartner	0.261**
	(0.024)
Tariff	-0.013**
	(0.001)
Source Total Exp	0.175**
	(0.002)
Destination Total Imp	0.174**
	(0.003)
year2009	-0.329**
	(0.012)
year	-0.112**
	(0.006)
L.trade_val	0.595**
	(0.002)
year2010cupartner	-0.055**
	(0.019)
Intercept	224.779**
	(12.806)
N	104094
Log-likelihood	.
$\chi^2_{(10)}$	159951.426

Figure 9: All countries

Variable	Coefficient	(Std. Err.)
bord_cupartner	0.420	(0.012)
bord_ftapartner	0.136	(0.015)
bord_external	0.122	(0.009)
tariff_ave2	-0.001	(0.001)
src_total_exp2	0.503	(0.006)
dst_total_imp2	0.381	(0.005)
year	-0.060	(0.004)
L.trade_val2	0.016	(0.004)
tariff_mfn2	0.003	(0.001)
year2010cupartner	-0.267	(0.009)
Intercept	118.856	(7.437)
N	74615	
R^2	0.287	
$F_{(23991,50623)}$	2038.519	

Figure 10: Border effects

7. Discussion

The customs union, although only few years in place, already attracted the attention of researchers. In this section we summarise the findings of these works and discuss where our contribution lies within the literature.

Coronel et al. (2010) [1] briefly review the Kazakh experience of the customs union in the context of an IMF country report. They note as direct impacts the increased tariff revenue that will accrue to the Kazakh government and argue that some trade diversion may arise towards other CU member from other FSU countries, but do not believe that Chinese imports will be strongly affected. Instead, they believe effects of CU on the neighbouring Central Asian countries to be more significant. The authors note that implementation of the customs union was still not fully operational in practice, specifically, relating to mutual recognition of documents. Related, Dragneva and Kort (2012) concludes that the legal basis of CU implementation is relatively weak

[1] The table of tariff rates on p. 17 seems to be incorrect due to missing specific rates in TRAINS

at the present stage.

Bank (2012) constructs a computable general equilibrium model of the Kazakh economy to estimate the welfare effects from customs union. There is relatively little in the review of trade flows post–CU, instead the focus is on simulation. The authors estimate that currently Kazakhstan is losing 0.2% of GDP due to dead–weight losses associated with the higher external tariff; they then proceed to estimate "optimistic" and "pessimistic" scenarios for the future development of the customs union and conclude the effects could be either mildly negative or mildly positive, but even in the latter case gains are estimated to be small compared to WTO accession.

Isakova and Plekhanov (2012) investigate the impact of the customs union on the structure of imports in Kazakhstan. They note that Kazakh–Russian trade fell before the customs union became effective, creating the possible problem that increases in bilateral trade could be due to a natural recovery – which would have happened even in the absence of a CU being formed – rather than causal. Using ITC Trade Map time series data from 2006–2010 disaggregated at the 10–digit level and statutory tariffs the authors then estimate a panel of the form

$$\Delta IM_{j,t} = \alpha \Delta d_{j,t} + \beta IM_{j,t-1} + \lambda Z_{j,t} + \epsilon_{j,t} \tag{13}$$

with IM being the (log) import flows, d the change in the tariff, and Z a vector of controls, which include lagged import changes (to account for possible natural recovery effects). Their parameter of interest is α - captures change in trade due to change in tariffs, and the model is separately estimated by trading partner. In addition, there are fixed effects at the product group (i.e. 2 digit) level. Estimated for the customs union partners, their model yields a positive and significant estimate of α. A 1% increase in tariffs would promote intra–CU by 0.8%. For other trading partners – they consider China, European Union, CIS and Rest of the World, the estimate is of α is negative, but small and not significant at the 5% level. They conclude that the customs union had a small impact on trade promotion and some evidence of trade diversion.

Using similar strategy, Isakova et al. (2013) extends the previous work to include Russia and Belarus. The study explains the change in the trade between 2009 and 2010 through tariff changes. They find some trade creation for Russia with the rest of the world due to tariff falls in that country. The find positive impact of tariff increases on imports from Russia. The authors

note that the magnitude is however small and they anticipate that the larger benefits could come from reduced internal trade costs.

8. Conclusion

One of the most immediately noticed impacts of the customs union of Russia, Belarus and Kazakhstan was the rise of the import tariffs in Kazakhstan. Furthermore, suggestions were made that the common external tariff (CET) was dictated by Russia. We discuss in this work that as a larger market, Russia could be theoretically expected to have a large influence in the common tariff, even in the absence of any "power abuse". However we find that Russia had much lower impact in tariff determination than GDP-weighed bargaining would suggest. Depending on specification, Russian role varies roughly between 53-64%, even if we only look at the tariffs that were not harmonised prior to the customs union. As the 40% percent of tariff lines were identical for all three members prior to the customs union, counting the share of the lines of the CET that were equal to the Russian ones in 2009 overestimates Russia's influence. Having said that, we find that Russia and Belarus both had more highly protected sectors than Kazakhstan. In the CET for most of these highly protected sectors we observe mutual protectionism - the sectors that were not protected before in partner markets, become protected.

In our panel analysis of the bilateral trade flows (imports for each pair) we find a strong positive impact of the customs union on import both for members and non-members. This effect that we attribute to the reduced trade costs from non-tariff barriers within the customs union is of much higher magnitude than the negative impact of tariffs for the non-members suggesting that the overall impact of the customs union is positive for non-members, thus rejecting trade diversion. Here it is important to note that from anecdotal evidence, people in Kazakhstan experienced increase in prices of products from China. This increase could be due to tariff changes but also could be because of the tighter customs controls between Kazakhstan and Kyrgyzstan, as there was a wide-spread smuggling of cheap Chinese products from Kyrgyzstan to Kazakhstan. Thus, even in case of no trade diversion from non-members, one should not ignore the negative impact of price increases in Kazakhstan when assessing the overall impact.

Our tariff data includes years 2011 and 2012 and shows continuing harmonisation between members and the fall of CET. And although Russia joining the WTO only towards the end of 2012, the decrease in the CET could either be explained by further moderation of Russian and Belarussian tariffs with Kazakhstan's 2009 tariffs or requirements imposed by WTO accession protocol. Determining which of the two caused mild decreases of the

CET in 2011 and 2012, though an interesting challenge, is left out of scope of this project.

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9. Appendix

9.1. Timeline of CU Implementation

Key Events in the formation of RBKCU were[2]

- In 2009 heads of states of Russia, Belarus and Kazakhstan have signed and ratified international agreements that formed the basis of Customs Union.
- In November of the same 2009 the decision to create a common customs space with common external tariff on the territory of the three countries from January, 1st 2010 was taken.
- January, 1st 2010, the common external tariff became effective.
- From July 2010 the Customs Code of the Customs Union became effective.
- From July, 1st 2011 the customs control was removed from between the CU countries. The control was moved to the external borders of the CU.
- In October 2011 it was announced that Kyrgyzstan would join the Customs Union
- In the same month the Commission of the CU has brought to accordance the norms of the Customs Union to the norms of the WTO. Moreover, in case of accession to the WTO, the norms of that organisation would have priority over the norms of the Customs Union.

9.2. Estimation Results for Trade Effects for Individual Destination Countries

[2]Based on `http://www.rfca.gov.kz/7377`, `http://www.tsouz.ru` (Official website of the Customs Union), "Nezavisimaya Gazeta", 12.10.2011

Variable	Coefficient (Std. Err.)
cu external	-0.141** (0.050)
cu cupartner	0.314** (0.048)
cu ftapartner	-0.096* (0.048)
Tariff	-0.032** (0.002)
src total exp	0.065** (0.004)
dst total imp	0.264** (0.006)
year2009	-0.426** (0.024)
year	-0.101** (0.014)
L.trade_val	0.608** (0.004)
year2010cupartner	0.011 (0.030)
Intercept	203.145** (27.983)
N	26522
Log-likelihood	.
$\chi^2_{(10)}$	44268.454

Figure 11: Belarus

Variable	Coefficient (Std. Err.)
cu_external	-0.144** (0.044)
cu_cupartner	-0.010 (0.053)
cu_ftapartner	0.014 (0.048)
Tariff	-0.003* (0.001)
src total exp2	0.159** (0.004)
dst total imp2	0.170** (0.005)
year2009	-0.239** (0.023)
year	-0.034** (0.012)
L.trade_val	0.594** (0.004)
year2010cupartner	0.089† (0.054)
Intercept	68.636** (25.007)
N	30345
Log-likelihood	.
$\chi^2_{(10)}$	44637.849

Figure 12: Kazakhstan

Variable	**Coefficient** (Std. Err.)
cu_external	-0.027
	(0.030)
cu_cupartner	0.698**
	(0.036)
cu_ftapartner	0.409**
	(0.033)
tariff	-0.020**
	(0.001)
Src total exp	0.320**
	(0.003)
dst total imp	0.130**
	(0.004)
year2009	-0.390**
	(0.018)
year	-0.081**
	(0.009)
L.trade_val	0.502**
	(0.004)
year2010cupartner	-0.323**
	(0.029)
Intercept	161.237**
	(17.453)
N	47227
Log-likelihood	.
$\chi^2_{(10)}$	75235.376

Figure 13: Russia