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**Trade impact of non-tariff trade costs. An
Assessment of the Customs Union of Russia,
Belarus and Kazakhstan**

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Trade impact of non-tariff trade costs.
An Assessment of the Customs Union of Russia, Belarus and
Kazakhstan

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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 impact of the common external tariff and changes in non-tariff trade barriers on bilateral trade patterns. Tariff increases have expected negative impact on the trade flows. The Customs Union abolished the customs controls between the members in two stages. This allows to estimate the effect of border elimination which is particularly strong for intra-CU trade. As tariff changes faced by non-members are already accounted for, this growth can be attributed to reduced trade costs, that is, not driven by trade diversion due to tariff changes. The paper explores the unexpected and sudden creation of the CU and specificities in the timing of removing the internal customs controls. This allows to estimate the border effects directly instead of being inferred from the difference between intra-country and inter-country trade as it is typically done in the literature.

Keywords: customs union, non-tariff trade costs, border effects, Russia, Belarus, Kazakhstan

JEL Classifications: F14, F15, F55

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Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 5 |
| 2 | Literature Review | 8 |
| 3 | The Customs Union at a Glance | 11 |
| 4 | Data | 14 |
| 4.1 | Trade Flows | 14 |
| 4.2 | Tariff Data | 15 |
| 4.3 | Other Data | 15 |
| 5 | Trends in CET and Trade | 16 |
| 5.1 | Trends in CET | 16 |
| 5.2 | Trends in Trade Flows | 19 |
| 6 | Trade Effects | 21 |
| 6.1 | Model Specification | 21 |
| 6.2 | Results | 23 |
| 6.3 | Estimation with Border Removals Impact | 27 |
| 6.4 | Results | 28 |
| 7 | Conclusion | 32 |
| 8 | Appendix | 36 |

8.1 Timeline of CU Implementation 36

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 tariff was implemented in January 2010. The unexpected announcement and rapid implementation suggest the customs union appeared as an exogenous shock. None of the CU members was a WTO member by the time the customs union was created.

The common external tariff 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 between the three members were fully abolished by July 2011. 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 variation in the profiles that came with the establishment of the common external tariff allows to estimate the impact of the tariffs on trade flows. The estimation is done using a rich panel dataset encompassing main trade partners of the customs union members and internal trade for several years. As expected, there is a negative impact of tariffs on trade. But, crucially, the creation of the customs union involves non-tariff changes that might impact the trade flows. A customs union dummy is thus introduced 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.

Furthermore, an important non-tariff change that came with the customs union is the elimination of the internal customs controls between the members. The elimination of internal customs controls happened in two stages: in July 2010 (between Russia and Belarus) and July 2011 (between Russia and Kazakhstan). This allows to distinguish the overall effect of the customs union from the impact of the border elimination and thus assess the importance of border barriers.

The research of UNECE (2012), UNECE (2013) and Vinokurov (2013) found very large man-made costs at the border crossings of the CU countries. Among those are complex customs procedures at border crossing points that increase waiting times for vehicles and rolling stock. The CU creates an opportunity to reduce these costs,

for example, the goods that belong to the "Single List of Products Imported to the CU, subject to a mandatory conformity assessment in the CU framework with issuance of the uniform documents" need to be certified only once when they enter the CU. This innovation brought by the CU should lower the trade costs of exporting to the CU countries. We find a positive and strong impact of the removal of borders on trade flows across several specifications. The effect is estimated to be the strongest for the intra-CU trade. That is rather intuitive as the CU partners enjoy the unique environment of trading across borders without customs checks.

At the same time the overall positive non-tariff impact of the CU on non-CU exports can be explained through two channels. First, trivially the removal of customs controls offers equal gains from access to a larger market to everyone. However as the barriers for entering the CU remain in place, we see smaller impact on the non-members. Second channel for the positive impact of the non-tariff changes on the trade with non-members could be that the increase in the intra-CU trade leads also requires increased use of intermediate inputs from external partners that are world export leaders. This is intuitive as, for example, cars produced in Russian factories of foreign multinationals use intermediate inputs (such as engines) imported from Germany and other countries.

The paper is organised in a following manner. The next section introduces a brief review of the relevant literature. 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 estimation strategy is presented. 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.

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-à-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.

Analysis of the CU of Russia, Belarus and Kazakhstan: 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

$$\Delta IM_{j,t} = \alpha \Delta d_{j,t} + \beta IM_{j,t-1} + \lambda Z_{j,t} + \epsilon_{j,t} \quad (1)$$

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 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. They 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. 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 customs 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.

Carneiro (2013) is a good survey of the perspectives on ECU.

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

Data were obtained from the *International Trade Center* (ITC) and have a panel structure. Regarding trade volumes, our study requires bilateral trade flow data disaggregated at the goods level. 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 for 2007-2012.

The data is 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 official customs union Tsouz website data. 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. 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.

4.3. Other Data

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

5. Trends in CET and Trade

5.1. Trends in CET

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 it 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%.

The tariff profiles of the three countries include both ad valorem and specific tariffs. The Figure 2 below summarizes the tariff averages in every subgroup and shows a significant difference between the ad valorem and specific tariffs:

| 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 2: Trends in MFN Tariffs

5.2. Trends in Trade Flows

The figure below presents the trends in total imports of the Customs Union members from the CU partners and other main trading partners and share of exports to the CU countries to the total exports of the same set of countries.

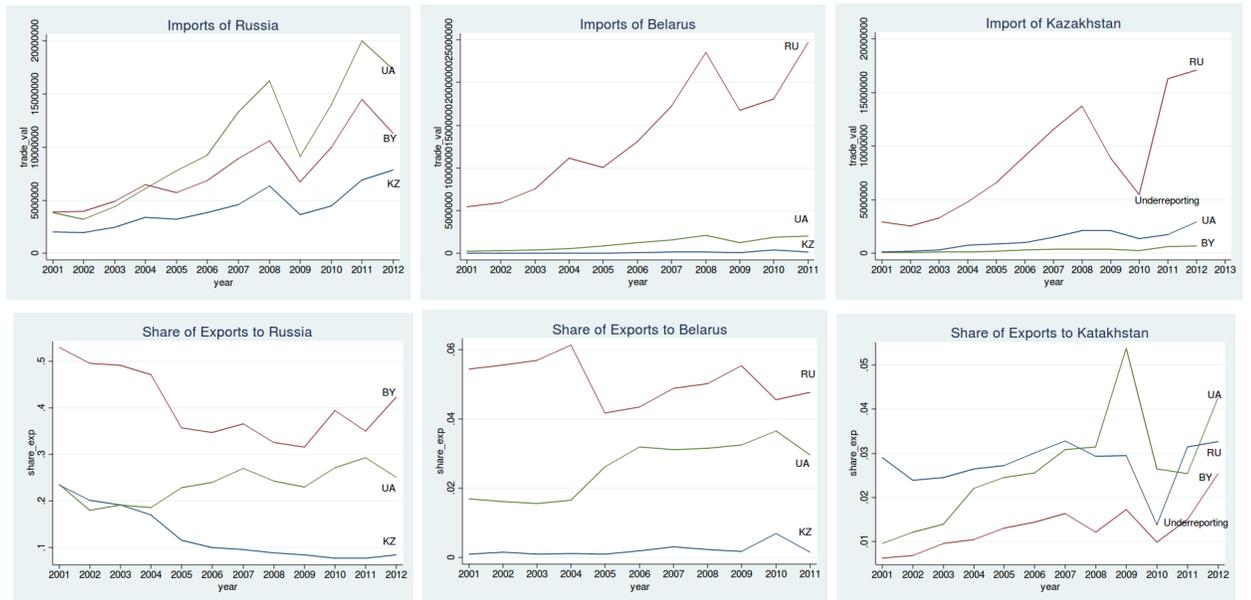


Figure 3: Trends in Intra-CU Trade

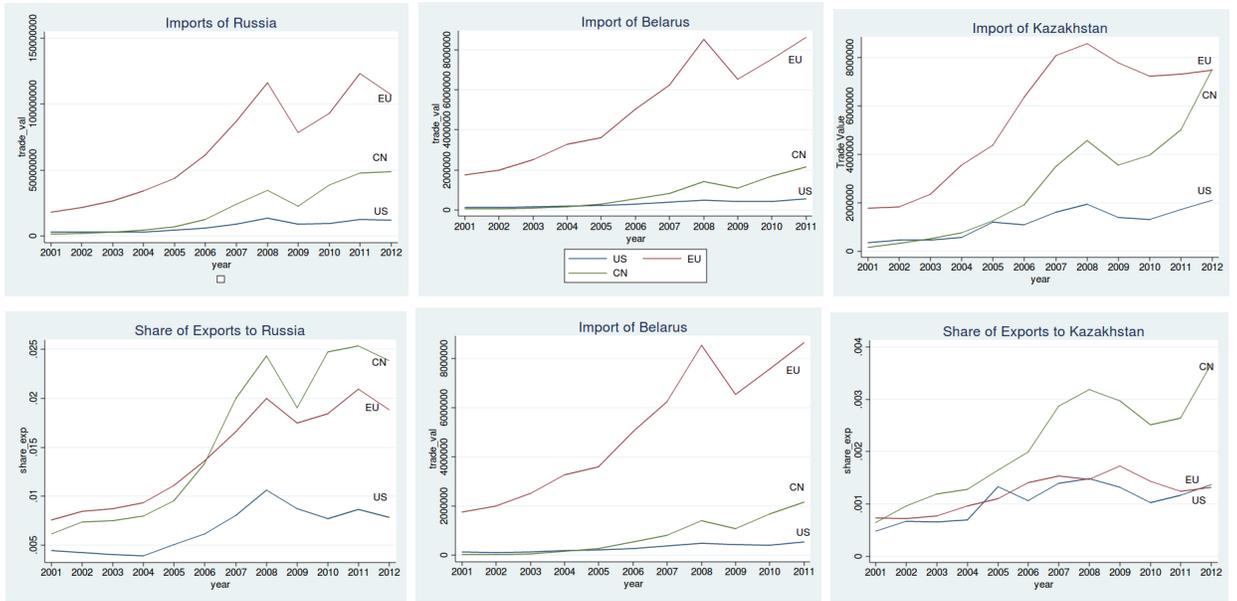


Figure 4: Trends in Trade with Non-CU Partners

6. Trade Effects

6.1. Model Specification

(Clausing, 2001) assesses the impact of Canada-US FTA tariff changes on disaggregated bilateral trade flows in a panel setting. The paper provides trade theory motivation for the estimation strategy employed which is very similar to our basic approach. The goal of the present section is to decompose the changes in trade patterns that occurred under CU into those that can be attributed to tariff changes and those due to non-tariff factors. 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 random effects panel estimation method for the following regression model for the destinations Russia, Belarus and Kazakhstan.

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 $\Delta \ln x_{ijkt}$, the change log of bilateral flows in a given tariff line between given and previous year (for small changes it is approximately the percentage of trade value growth). The trade is expected to depend negatively on the tariff t_{ijkt} applied to the imports to be captured by the coefficient θt_{ijkt} . The bilateral imports also depend on the tariffs paid by the other countries so we control for changes in the MFN tariff, denoted $t_{ij < MFN > t}$, with coefficient σ . 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, three dummy variables cu_cu_{kt} , cu_fta_{kt} , cu_ext_{kt} that are equal to one when the year is 2010,2011 or 2012 (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. In some specifications we will use also changes in total exports of the source country $E_{ik(t-1)}$ and total imports of the destination country $M_{ij(t-1)}$ to control for macroeconomic changes.

Combining these variables yields our full model:

$$\begin{aligned} \Delta x_{ijkt} = & \alpha + \theta \Delta(1 + t_{ijkt}) + \sigma \Delta(1 + t_{ij < MFN > t}) + \phi_1 cu_cu_{kt} + \phi_2 cu_fta_{kt} + \phi_3 cu_ext_{kt} + \\ & + \beta \Delta E_{ik(t-1)} + \mu \Delta M_{ij(t-1)} + \gamma_{2010} ur_{ijt} + \mu share_{ijt} + \epsilon_{ijkt} \end{aligned} \quad (2)$$

Moreover, we are aware of a measurement issue in trade flow data for the ECU in 2010 as can be seen in Figure 3. There appears to be under-reporting of some of the 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 control for the problematic flows in 2010 which is captured by γ_{ijk} . The model is to be

estimated using a random effects panel model.

There are 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 Customs Union of Russia, Belarus and Kazakhstan 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 5.

The column (Intra-CU) we look at the changes in the intra-CU trade flows. That is, we consider bilateral trade between Russia, Belarus and Kazakhstan. It includes the lines for which the trade value was above zero at least in one of the years. That is done to avoid bias of underestimating the tariff impact by including lines where import would be zero independent of explanatory variables (e.g. for fruits that do

not grow in the exporting country). The high estimate for the effect of Customs Union attracts immediate attention. As expected, the increase in the applied tariff (for the few lines that had a duty within the FTA prior to the CU) leads to lower growth in trade value. Similarly, increases in MFN tariff in general tend raise bilateral trade as the FTA or CU partners benefit when others pay high MFN tariffs. However the tariff impacts are not very large: doubling the tariff rate from t to $2t$ would lead to a $\frac{t/100}{1+t/100}100\% = \frac{t}{1+t/100}\%$ increase in $(1 + t_{ijt})$ which would then lead to $-3.16\frac{t}{1+t/100}\%$ (for applied tariff) and $4.29\frac{t}{1+t/100}\%$ (for MFN) change in trade growth. Thus, countries subject to the MFN are precisely estimated, the magnitudes are tiny. This suggests that tariff increases were targeted towards sectors with relatively inelastic demand for intra-CU imports.

The column (Non-CU) is similar to the previous estimation except it looks at imports from non-CU partners only. We see again that there is a positive significant and large impact on the imports to the customs union countries that is different from impact of tariff changes. Other explanatory variables enter as expected. Changes in MFN tariff are expected to have a positive impact on imports from an FTA partner Ukraine and negative impact on the rest of non-CU countries that pay MFN or GSP tariffs.

Next, the column (All) pools all the source countries in the sample but still estimates separately the non-tariff impact of the CU on the trade value changes. Overall the results are very similar to those in the previous two estimations.

The estimates of the CU impact on trade in all previous specifications could be biased upwards if they capture the positive yearly macroeconomic changes. The

last specification in this subsection is supposed to capture that. The column (All+) is equivalent to the previous estimation except it includes the change in total exports of the source country $E_{ik(t-1)}$ and in total imports of the destination country $M_{ij(t-1)}$. The source countries we consider are major import sources and hence the movement in total imports of the destination country can be very close to the changes in bilateral imports. Thus the effect of the CU that leads to the increase in the bilateral flows can be wrongly attributed to the changes in total imports. Thus the last specification can be seen as biasing downwards the CU non-tariff impact. The total import and export changes have predicted positive sign and large coefficients. 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 for CU partners, and positive but significantly smaller impact for other partners. Thus we would expect the true non-tariff effect of the CU to be between the third and last estimates.

6.3. 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. Moreover this difference allows to control for all the year fixed effects and identify the impact of the border removals that is not explained by year changes. Thus we next want to capture specifically

| Variable | Intra-CU (Std. Err.) | Non-CU (Std. Err.) | All (Std. Err.) | All+ (Std. Err.) |
|-------------------|-------------------------|-----------------------|----------------------|----------------------|
| D.lntariff_ave | -3.163 (2.349) | -0.367 (1.160) | -3.949** (0.811) | -3.299** (0.757) |
| D.lntariff_mfn | 4.291** (0.633) | -0.971 (0.953) | 2.717** (0.516) | 2.826** (0.492) |
| cu_cupartner | 2.195** (0.048) | | 2.138** (0.039) | 1.559** (0.039) |
| cu_ftapartner | | 0.397** (0.049) | 0.436** (0.046) | 0.004 (0.043) |
| cu_external | | 0.504** (0.039) | 0.543** (0.035) | 0.231** (0.033) |
| D.lndst_total_imp | | | | 0.705** (0.017) |
| D.lnsrc_total_exp | | | | 0.934** (0.015) |
| year2010_underrep | -13.649** (0.103) | | -13.595** (0.101) | -12.906** (0.097) |
| Intercept | -0.072* (0.035) | 0.025 (0.028) | -0.015 (0.022) | 0.019 (0.021) |
| N | 57513 | 95127 | 152640 | 140476 |

Figure 5: Impact of the CU on Bilateral Trade

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. We will also estimate the effects for each destination separately.

The estimation method is equivalent to the previous specifications. The first estimation is:

$$\begin{aligned} \Delta x_{ijkt} = & \alpha + \theta\Delta(1 + t_{ijkt}) + \sigma\Delta(1 + t_{ij<MFN>t}) + \phi_1 no_border_cu_{jkt} + \\ & + \phi_2 no_border_fta_{jkt} + \phi_3 no_border_ext_{jkt} + \gamma 2010ur_{ijt} + \epsilon_{ijkt} \end{aligned} \quad (3)$$

The second estimation will control for macroeconomic changes:

$$\begin{aligned} \Delta x_{ijkt} = & \alpha + \theta\Delta(1 + t_{ijkt}) + \sigma\Delta(1 + t_{ij<MFN>t}) + \phi_1 no_border_cu_{jkt} + \phi_2 no_border_fta_{jkt} + \\ & + \phi_3 no_border_ext_{jkt} + \beta\Delta E_{ik(t-1)} + \mu\Delta M_{ij(t-1)} + \gamma 2010ur_{ijt} + \epsilon_{ijkt} \end{aligned} \quad (4)$$

Robustness check In order to check whether the results hold in wider set of specifications we will also estimate a specification where instead of changes in the trade we estimate trade levels. 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 $E_{ik(t-1)}$.

$$\begin{aligned}
 x_{ijkt} = & \alpha + \beta_{jk} + \theta t_{ijkt} + \delta x_{ijk(t-1)} + \phi_1 no_border_cu_{jkt} + \phi_2 no_border_fta_{jkt} + \\
 & + \phi_3 no_border_ext_{jkt} + \beta E_{ik(t-1)} + \mu M_{ij(t-1)} + \gamma 2010ur_{ijt} + \epsilon_{ijkt} \quad (5)
 \end{aligned}$$

6.4. Results

Figure presents results for the approach based on estimating the changes. 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. Interestingly, as in the case of overall CU impact the effect of the border removals on the FTA partner is the smallest. Possible explanation could be that the increase in the intra-CU trade leads also requires increased use of intermediate inputs from external partners that are world export leaders. This is intuitive as, for example, cars produced in Russian factories of foreign multinationals use intermediate inputs (such as engines) imported from Germany and other countries. Figure summarizes the results of the estimations based on trade flow levels. The estimates overall confirm all the previous results regarding the signs and relationships. The main change is that the effect of border removals on intra-CU trade, although still strongest, is only slightly larger than impact on trade with other partners. Another

| Variable | (1) | (2) |
|-------------------|----------------------|----------------------|
| | (Std. Err.) | (Std. Err.) |
| D.lntariff_ave | -3.776** (0.811) | -3.432** (0.757) |
| D.lntariff_mfn | 3.722** (0.515) | 3.440** (0.491) |
| noborder_cu | 2.374** (0.039) | 1.766** (0.040) |
| noborder_fta | 0.438** (0.046) | -0.008 (0.044) |
| noborder_ext | 0.506** (0.035) | 0.204** (0.034) |
| D.lndst_total_imp | | 0.696** (0.017) |
| D.lnsrc_total_exp | | 0.927** (0.015) |
| year2010_underrep | -11.509** (0.098) | -11.377** (0.093) |
| Intercept | 0.003 (0.021) | 0.024 (0.020) |
| N | 152640 | 140476 |

Figure 6: Border Effects

difference is that the impact on Ukraine is much stronger and close to that of the impact on externals. Again, this result can also be rationalised as border removal treats all parties in the same way. Importantly, the result of strong impact of border removal on trade flows is robust across various approaches and estimations.

| Variable | All | Russia | Belarus | Kazakhstan |
|-------------------|---------------------|--------------------|---------------------|---------------------|
| | (Std. Err.) | (Std. Err.) | (Std. Err.) | (Std. Err.) |
| lntariff_ave | -0.172** (0.044) | -0.029 (0.056) | -0.696** (0.103) | -0.045 (0.098) |
| L.lntrade_val | 0.701** (0.003) | 0.710** (0.004) | 0.687** (0.006) | 0.667** (0.006) |
| L.lnsrc_total_exp | 0.127** (0.002) | 0.158** (0.004) | 0.087** (0.004) | 0.130** (0.005) |
| L.lndst_total_imp | 0.079** (0.002) | 0.077** (0.003) | 0.101** (0.005) | 0.069** (0.005) |
| noborder_cu | 0.333** (0.017) | 0.765** (0.056) | 0.758** (0.138) | 0.958** (0.057) |
| noborder_fta | 0.162** (0.020) | 0.755** (0.058) | 0.664** (0.140) | 0.327** (0.068) |
| noborder_ext | 0.119** (0.014) | 0.690** (0.056) | 0.648** (0.138) | 0.207** (0.058) |
| year2010_underrep | -0.775** (0.024) | 0.000 (0.000) | 0.000 (0.000) | -0.631** (0.027) |
| Intercept | 0.026 (0.063) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) |
| N | 79241 | 39104 | 19934 | 20203 |

Figure 7: Border effects

7. Conclusion

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.

The effect is estimated to be the strongest for the intra-CU trade. That is rather intuitive as the CU partners enjoy the unique environment of trading across borders without customs checks.

At the same time the overall positive non-tariff impact of the CU on non-CU exports can be explained through two channels. First, trivially the removal of customs controls offers equal gains from access to a larger market to everyone. However as the barriers for entering the CU remain in place, we see smaller impact on the non-members. Second channel for the positive impact of the non-tariff changes on the trade with non-members could be that the increase in the intra-CU trade leads also requires increased use of intermediate inputs from external partners that are world export leaders. This is intuitive as, for example, cars produced in Russian factories of foreign multinationals use intermediate inputs (such as engines) imported from Germany and other countries.

As expected, the effect of border removals is similar to that of the overall customs union impact as this was the main non-tariff change in the customs union. How-

ever 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.

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8. Appendix

8.1. *Timeline of CU Implementation*

Key Events in the formation of RBKCU were¹

- 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.

¹Based on <http://www.rfca.gov.kz/7377>, <http://www.tsouz.ru> (Official website of the Customs Union), “Nezavisimaya Gazeta”, 12.10.2011