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Is It Really Different? Patterns of Regionalisation in the Post-Soviet Central Asia

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Abstract

While the regional economic integration encompassing the former Soviet Union (FSU) transpires to be inefficient, there appears to be a stronger interest in regionalism in smaller groups of more homogenous and geographically connected countries of the region, specifically, Central Asia. Using a new dataset, we find that although the economic links between the Central Asian countries are more pronounced than between that of the CIS in several key areas, this advantage has been disappearing fast over the last decade. In addition, the trend of economic integration of Central Asia strongly correlates to that of the CIS in general. Currently Central Asia should be treated as a sub-region of the post-Soviet world rather than a definite integration region.On the other hand, however, we find that Kazakhstan emerges as a new centre for regional integration, which can bear some potential for regionalism in Central Asia, and that there is an increasing trend towards greater economic interconnections with China in Central Asia.

Key words: regionalisation, economic integration, post-Soviet space, Central Asia

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Content

1 Introduction

The last two decades of independence of the former Soviet Union (FSU) republics clearly demonstrated what was probably hidden beyond the centralised Soviet hierarchy – an extremely high heterogeneity of the new independent states: both in terms of political and economic formal and informal institutions and also results of economic reforms and economic performance. It certainly contributed to the emergence of sub-regionalism as a new regional integration approach, focusing particularly on the interaction of subgroups of (supposedly) more homogenous FSU states (see DWAN and PAVLIUK, 2000, for an encompassing survey of this process). The concept of "sub-regionalism" has been suggested by BREMMER and BAILES (1998: 132) to describe "formally constituted intergovernmental groupings which cover a geographically coherent area smaller than any of Europe's 'region-wide' organisations". In the context of this study "Europe" in this definition should be replaced by "the FSU". Hence, instead of the encompassing solution for all or potentially all (or almost all, with the exception of Baltic states) FSU countries "sub-regionalism" suggests concentrating the cooperation effort in smaller geographical areas.

Obvious examples of this potential sub-regional cooperation are the triad of Eastern European countries — Russia, Belarus and Ukraine, and the five Central Asian states. And, whereas the need for greater cooperation and integration of Eastern European states is being seriously questioned, e.g. in the light of the alternative EU path to integration, many researchers from the post-Soviet countries and the West alike believe that further economic cooperation of Central Asian states is at least generally speaking warranted (see e.g. GREEN, 2001; BARTLETT, 2001; GLEASON, 2001; GEYKDAGI, 2005). SPECHLER (2000) refers to the absence of regional cooperation in Central Asia as to a "pathology". It is interesting though that the assessment of the economic cooperation of the whole set of the FSU states (e.g. within the CIS) is in many cases more skeptical. MICHAILOPULOS and TARR (1997) provide a systematic overview of potential economic costs of the regional cooperation within the CIS, and BABETSKII et al. (2003) relate the persistence of economic ties between the CIS countries to the weakness of their institutions. These discrepancies in the literature refer mostly to the *normative* analysis of the welfare effects of Central Asian regionalism; on the *positive* side the success of the formal cooperation initiatives in Central Asia has been so far negligible, in spite of a proliferation of regional bilateral and multilateral agreements (AKINER 2007, POMFRET, 2002; 2009). The literature points out multiple possible reasons for the non-cooperation result: the non-democratic nature of political regimes in the region's countries, numerous territorial disputes, and economic protectionism implemented by some of the countries (SPECHLER 2002).

An interesting perspective on the Central Asian regionalism could be derived from looking at the "natural" area for regional cooperation. KRUGMAN (1991) in his analysis of the free trade areas distinguishes between "natural" and "unnatural" trade blocs: while the former are composed of geographically proximate countries, which already exhibit significant trade links (and can contribute to these countries' welfare), "unnatural" blocs include remote countries with absent trade links (and produce no benefits in terms of welfare of the member countries).

In some sense, "natural" blocs build upon the already existing economic linkages between countries, which emerged without the direct intervention of the governments through spontaneous interaction of economic agents: cross-border investments, trade and migration. This process is often referred to in the literature as "regionalisation", as opposed to more formal "regionalism" (LORENZ 1992).

One can point out yet another advantage of the "natural" trade blocs: their political feasibility. First, if one looks at the regional integration as a public good, it makes sense to produce it at the level of governance at which it can be "internalised" completely, which is probably determined by the extent of regionalisation in a particular geographical space. Second, regionalisation supports social ties, and hence leads to greater homogeneity of preferences. In addition, it can simply be indicative of greater homogeneity, suggesting that the transaction costs of trade in this area are smaller. Third, it can also generate stronger demand for economic cooperation from the private sector (MATTLI, 1999; HERRMANN-PILLATH, 2006). Although there is no guarantee of positive effects, regionalisation does at least increase the chances of regionalism.[1]

While in some cases it is easy to distinguish the "natural" and the "unnatural" integration areas, in other parts of the world, where the natural borders between regions are less pronounced, it is a non-trivial task. This seems to be true for Central Asia without clear "natural" borders separating it from, for example, China and Russia. Therefore a reasonable approach to "chart" the "natural" regions for economic cooperation in Eurasia is to look at the development of regionalisation. This exercise is also interesting from yet another perspective: regionalisation may matter for other concepts of "region-ness", which are discussed in social sciences and have been applied to the Central Asian case, and itself depends on these various processes. Therefore providing empirical evidence for the scope of regionalisation could be relevant for a more elaborate understanding of other aspects of region-building in Central Asia and the FSU.[2]

[1] There have been several cases when regionalisation has been outperforming the formal intergovernmental cooperation in economic area. For example, in Southeast Asia the interdependence between economies has been driven by the activities of Chinese business networks and Japanese multinationals (PENG 2000). An even more relevant case is that of Africa, where very weak intergovernmental cooperation co-exists with extremely developed informal trade ties (LITTLE 2005). While in some cases regionalisation has been supported by hierarchical power relations between countries (the case of US multinationals in Mexico, see CASANOVA 2004), in other regions it moved forward under the general conditions of hostility (South Asia, see TANEJA 2005) or even ignored the intergovernmental relations (once again, Africa).

[2] A caveat applies here: the exact definition of what constitutes a "natural" trading block and how it should be measured has been subject to intensive debate (see KREININ and PLUMMER 1994). It is especially the case because regionalisation is in some sense endogenous to regionalism (e.g. can be caused by the past or present political ties) – in our context, of the Soviet past. Our focus is rather to *compare* the FSU and the Central Asia to each other (from both static and dynamic perspective) than to an external benchmark.

The analysis of this paper expands the literature by applying a new dataset of the System of Indicators of Eurasian Integration (SIEI) from the Eurasian Development Bank (EDB) in 2009 (see VINOKUROV, 2010), which provides time series of indicators measuring various aspects of economic interdependence in Central Asia for the period of 1999-2008. We will use these data (in their original form, as well as adjusted, e.g. to control for informal trade) to compare the development of regional economic ties between Central Asian countries and in the FSU region in general. Our main question is whether regionalisation in Central Asia has been more successful than in the rest of the FSU, and therefore whether there are any reasons to treat Central Asia as a region closer to a "natural" integration area than the CIS in general. In addition, we intend to look at two more specific options, which could make regionalism in Central Asia more feasible than in the FSU in general. First, Central Asia is "different" in terms of the influence of an extra-regional actor, potentially able to have an impact on regional cooperation: so, we examine the role of economic connections outside the post-Soviet space – for example, China – and their ability to re-shape the economic development in the region. Second, Central Asia exhibits a different power structure than the FSU in general, which could be more beneficial for the regional cooperation. A probable candidate is Kazakhstan, which we will discuss in greater detail.

The paper is organised as follows: the next section provides a theoretical framework for our analysis, placing this paper in the existing academic context of research on regionalism in post-Soviet affairs. The third section presents the dataset. The fourth section briefly summarises the main findings with respect to three empirical questions of this paper: the existence of close economic ties in Central Asia, the role of China and the rise of Kazakhstan. The fifth section amends the analysis by taking informal trade in Central Asia into account. The final section concludes.

2 "Region-ness" of Central Asia in the studies of the post-Soviet affairs

The theoretical literature on regionalism offers multiple frameworks as to how a region can be identified (HURRELL 1995; HETTNE and SOEDERBAUM 2000), and these different perspectives have been used to determine the extent of "region-ness" in Central Asia and the FSU. Generally speaking, Central Asia is still perceived as an "emerging region" (KAZANTSEV, 2008) with multiple competing concepts of its institutionalisation and structure. Even more, as QORABOYEV (2010) argues, the concept of Central Asia is, in a sense, "invented" by the actors and the observers. If one attempts to evaluate the potential of Central Asia's states to develop a coherent regional cooperation model, one would be interested in clearly defined criteria of the "distinctiveness" of the region (for instance, from the FSU), which would vary depending upon the theoretical perspective of the observers.

For the purpose of this paper, two lines of research seem to be of significant importance, since the concepts of regions applied by these studies are both highly relevant for the scope of regionalisation and may be influenced by the regionalisation itself: the "regional security complex" approach and the "homogeneity of politics, economies and cultures" approach.

The **regional security complex** (RSC) theory defines a region as a "set of units whose major processes of securitisation, de-securitisation, or both are so interlinked that their security problems cannot reasonably be analysed or resolved apart from one another" (BUZAN and WAEVER 2003: 44). RSC may be influenced and "penetrated" by external powers, whose presence is an important element of the regional security dynamics, but which, nevertheless, are not considered to be part of the RSC. HETTNE and SOEDERBAUM (2000) show that a similar "regional complex" perspective can be extended to the political economy of development. BUZAN and WAEVER (2003) interpret the post-Soviet space as a Russian-centred RSC. Central Asia is described as a potential RSC if the countries of the region become a sufficiently threat to each other or when the extent of their cooperation becomes of sufficient scale. Although Russia during the 1990s did subsequently lose its role as the unique "security manager" in Central Asia (see JONSON 2001; ALLISON 2004) and in the FSU in general (TRENIN 2002; NIKITIN 2007), the interdependence of the post-Soviet states with Russia is so high that their security issues cannot be reasonably treated as separate problems. MILLER (2006) points out the impact of this interdependence on the choices of Central Asian countries in the area of cooperation.

Another feature of the internal transformation of this RSC is particularly important for this paper: as NYGREN (2008) demonstrates, during the last decade Russia's attention to the FSU increased significantly, which was consistent with the geo-political objective set for the country by the post-Yeltsin leadership. He also points out that Russia's influence in the FSU is combining the "traditional" political and security tools with the new economic tools of "soft power" (see also TSYGANKOV 2006 and KANET 2008), specifically in the energy area (NYGREN 2008a). This approach can be used to provide two insights to the debate on the "natural" regions for economic cooperation. First, since security dynamics influences the patterns of the economic linkages between countries, one could expect the maintained role of Russia and its ambitions to strengthen the economic ties within the FSU and keep Central Asia part of this larger complex. An even more important point is, second, the reliance on the soft power tools, which inherently consider the structure of economic linkages as one of the key power resources the dominant power in the region would aspire to use. Hence, regionalisation at the FSU level is likely to support the persistence of an RSC by strengthening the security interdependence of the FSU countries (originating from their intense economic ties), but also can be influenced by the dynamics of the RSC, if economic tools are used in the power contest.

It raises a very interesting question about the relation between the power dynamics in the RSC and the economic links. On the one hand, COLLINS (2009) reports that in Central Asia security cooperation between states has been (somewhat) more successful than economic cooperation (in this case one compares the "poor" and the "very poor" outcomes, to be precise), explaining it by the demand of non-democratic regimes for mutual support, protection and legitimisation, and willingness to take control over the domestic economy. Similar issues are likely to affect relations with Russia, which also often serve to protect the local autocracies (TOLSTRUP 2009). A recent case of the Russian multinational UC RUSAL in Tajikistan, one of the supposedly closest allies of Russia in the FSU, illustrates the problem at hand: after receiving substantial support from Russia in strengthening its regime, the Tajik leadership did not hesitate to take an attractive contract away from RUSAL in spite of Russia's protests.

On the other hand, while in many cases Russian investments and trade seem to follow the political dominance logic (see NYGREN 2008: 238-245), it is questionable whether political motivation has determined the *majority* of the economic links across the FSU states that have been established in the 2000s by private enterprises: VAHTRA (2007), for example, concludes that Russian multinationals often use the "standard" economic rational when allocating their investments. From this point of view an increase in regionalisation does not necessarily follow from the Russian government's effort to secure its dominant position in the FSU (although this does not exclude the ability of political leadership to exploit it). And, while the intentions of the Russian policy in Central Asia are clear, the literature raises serious doubts whether Russia indeed managed to implement its goals in the region (SPECHLER and SPECHLER 2010).

In addition, as mentioned, external powers (specifically, China) are likely to have a serious impact on Central Asia as part of the Russian-centred RSC. KAVALSKI (2010) in this context refers even to the "hegemonial fragmentation" of Central Asia, which indicates the multiplicity of external powers engaging in the contest for the region. Whether the metaphor of the "New Great Game" is indeed applicable for Central Asia, is questionable (BUZAN and WAEVER 2003), but for us it is important to note that "economic" tools of soft power constitute an important part of the strategies of other external parties in the region. Here two question emerges, which have not been answered in the literature. First, there is a purely empirical debate. The literature exploring the economic cooperation between China and the Central Asian states has been significant (WU, CHEN, 2004; PEYROUSE, 2007; LEVINSSON, SVANBERG, 2000; SWANSTROEM 2003), and mostly points out the rise of economic linkages. However, the results are not entirely conclusive: some authors (LI, WANG, 1999) call for a more cautious interpretation of the extent of economic interdependence. Second, however, economic tools used by different external powers may be different – for example, for China informal trade networks can play an important role (RABALLAND and ANDRESY, 2007), and therefore their impact on the degree of regionalisation is not clear *ex ante*.

The second perspective on region-building in the FSU looks at the extent of **economic, political and cultural similarity** of the countries. This is, once again, an issue closely related to regionalisation. On the one hand, trade and investment between homogenous countries (from the point of view of their culture and institutions) are likely to be associated with lower transaction costs, which therefore make the intensification of economic ties more likely. It also applies to the cross-country cooperation in economic area, as FENG and GENNA (2003) show. On the other hand, common cultural and institutional features can be "transmitted" along the lines of trade and migration – for example, due to the promotion of common language and common business practices. However, unlike the RSC analysis, where the overall conclusion seems to stress the persistence of the Russia-centered regional complex, particularly in the 2000s, the analyses of the homogeneity are much more skeptical with respect to the "region-ness" of the FSU. GLEASON (2010) claims that the very notion of the post-Soviet space is obsolete: different countries have rapidly returned to their cultural and political roots. From this perspective, however, the likelihood of region-building in Central Asia seems to be more promising, given the long-term historical interdependence of these countries (GLEASON 1997). The findings are not entirely conclusive: the key question turns out to be the relative importance of the legacies of the Soviet/Russian rule and the pre-Russian period, and the former should not be under-estimated (JONES LUONG 2002), thus once again proving the need for further research.

Finally, the links between Central Asian states and Russia could remain more intensive than between the states of Central Asia as remnants of the Soviet economic organisation. However, on the other hand, disorganisation literature (BLANCHARD and KREMER 1997) would predict that the relatively more advanced production chains (linking Central Asia with Russia) should have ceased to exist at an early stage of the collapse of the USSR. Hence, deindustrialisation and emergence of the Central Asian new entrepreneurial class (OZCAN 2010) could have supported stronger links between geographically close states of Central Asia, leading to the regionalisation in this area.

Somewhat simplified, the predictions regarding the extent of regionalisation in Central are not entirely clear: while the RSC perspective would probably point out the economic ties with Russia, the cultural, political and economic homogeneity rather suggests that economic linkages ought to develop within Central Asia and separate it from culturally distinct Russia. Both approaches contain caveats, which make the predictions for the regionalisation less unambiguous. On the other hand, these patterns of the regionalisation may very well influence both the security dynamics and the institutional convergence. They also imply different conclusions for the design of regional cooperation between states: BOONSTRA and EMERSON (2010) talk about "introverted" (i.e. including just the Central Asian nations) and "extraverted" (i.e. including a larger array of states in Eurasia) regionalism. The difference between these two formats is not whether they emerge through the initiative of the states of the region or are "bestowed" upon them by external forces, but rather who participates in the regional cooperation. However, if the regionalisation is going on within the FSU and not the Central Asian region, the "introverted" solution will be not viable if chosen by the states themselves and unable to promote economic growth if enforced by external agents.

From this point of view, this paper intends to contribute by providing a systematic empirical and quantitative evidence regarding the *relative* extent of regionalisation in the FSU and in the Central Asia (as well as on the linkages between Central Asia and other parts of the world). While several other papers have looked at the dynamics of trade in Central Asia (see e.g. POMFRET 2005; LUECKE and ROTHERT 2006; MYANT and DRAHOKOUPIL 2008), our contribution is to explicitly compare regionalisation in Central Asia and the CIS. We do it by using a much more detailed and recent dataset, which covers a significant variety of additional aspects of regionalisation, which will be described in what follows.

3 Dataset

While the "ideal" approach to estimating the degree of regionalisation and integration of markets would imply the comparison of the price dynamics from the perspective of the Law of One Price assumption (O'ROURKE and WILLIAMSON 2002), this is not feasible for Central Asia and the FSU. Although some papers report information on the cross-border price differentials (GRAFE et al., 2007; KAMINSKI and MITRA 2010), coverage is rarely systematic. The situation is not unique for the FSU, and therefore we concentrate on the "second best" approach, which is to measure the *relative size of the trade and factor flows* within the region. This is also the approach used by the SIEI.

The SIEI summarises the information for ten years (1999-2008) and therefore excludes the first decade of disintegration in the FSU region following the collapse of the Soviet Union. Once again, we are looking at the "best possible" scenario, disregarding the unavoidable initial "disintegration push" after the dissolution of the common state and the deep economic crisis of the 1990s, which also almost certainly resulted in a contraction of international economic ties. The System includes five main indicators describing economic linkages between countries. Two of them refer to the "aggregate" linkages in trade in goods and services and in labour migration. The remaining three indicators look at the integration in three specific "functional" areas: agriculture (grain trade), education and energy (power utilities). The separate discussion of these areas allows us not to underestimate the interdependence in the key areas shaping the economic development of the countries even if the "overall" integration is low.

The choice of these three areas, apart from the availability of trustworthy data,[3] is motivated by the following concerns. The trade in electric power derives its significance from the common Soviet past, as the post-Soviet states inherited the most integrated power sector in the

[3] Electricity and grain trade are also outside the realm of the trade in "bazaar goods", which is the key element of the informal trade linkages in Central Asia and therefore hard to assess quantitatively. Unlike the labor migration, the statistical records on migration of students are of very high quality, since they are based on information provided by the universities heavily regulated in all Central Asian countries.

world – technologically, socially, and in terms of hard infrastructure. In addition to this, the current functioning of the power sector is governed by relatively strong international institutions (compared to other sectors) built on close social and educational commonalities (LIBMAN and VINOKUROV 2010). While electric power is perhaps the most prominent 'integration' sector deriving its prominence from the past, agriculture (and specifically grain production) is a key area which might shape future economic development, particularly in Russia and Kazakhstan. The Soviet Union, and later the post-Soviet republics, were the world largest grain importers until as late as the 1990s. Due to a true agricultural 'revolution', driven purely by market forces and comparative advantages, by the end of the 2000s Russia, Kazakhstan, and Ukraine had become among the world's largest grain exporters with a global market share by exports of up to 25%.[4] Finally, education is an important "non-economic" area of cooperation in Central Asia and the CIS, since, first, academic mobility generates a number of far-reaching consequences, ranging from economic ties between enterprises to close social and familial ties to the adoption of common technological standards, and, second, educational exchanges in the post-Soviet area benefit significantly from sharing the Russian language as the primary means of intercultural and international communication.

These five indicators are calculated on three levels: ties between country pairs; the level of integration of the region in general; and the integration of individual countries into the region's economic exchange structure (asymmetric integration). The summary of the calculation approach for the indicators is provided in *Appendix C.* A special advantage of the SIEI data, which makes it particularly suitable for this study, is that the indicators are calculated for three regions. One of them (defined as CIS-12) includes all FSU countries with the exception of Baltic states, which are now members of the EU (and, to be more precise, also includes Georgia and Turkmenistan, which are actually not members of the CIS). Hence, it reflects the overall integration patterns in the post-Soviet area. The second region (EurAsEC-5) refers to the group of countries, which are currently members of the Eurasian Economic Community (Russia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan), a Russian-led group which attempts to go beyond the objective achievable in the CIS framework. The main focus of this paper is to look at the third region, Central Asia (denoted as CA-4), which includes Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan.

Hence, one can see that of the five post-Soviet Central Asian countries CA-4 covers four, i.e. it excludes Turkmenistan. Given Turkmenistan's closed economic system with strong governmental control and severe restrictions on external economic activity, as well as its extreme scepticism towards any form of multilateral or bilateral cooperation on the governmental level, the exclusion of this country, once again, provides the "best possible" picture of the Central Asian region, excluding the "most problematic" country (which would probably cause poorer characteristics of the regionalisation process in Central Asia to be inferred).

[4] Any future efforts to increase export seem to face the need to jointly address bottlenecks in agricultural, railway, and port infrastructure. These problems require concerted regulatory and investments efforts by Ukraine, Russia and Kazakhstan aimed at developing infrastructure for the export of grain to the target markets. The argumentation along these lines led these three countries to start high-level discussions on the creation of the Grain Pool.

The composition of the index is also partly due to data availability, since there is very little coherent statistical information on Turkmenistan at present. In what follows we will use the terms CA-4 and Central Asia as synonyms, referring to the group of four (relatively) more open countries.

It is worth noticing that the SIEI is incomplete at least from two points of view. First, it does not include any information on the cross-border investment flows: in fact, measuring cross-border investments in Central Asia remains a particularly difficult task given the very poor quality of statistical data. Second, SIEI concentrates on interpreting official statistics, which may have been manipulated for political reasons and, what is more important, disregards informal economic ties. We will discuss this problem, which will become important at least for one of the three main research questions of this paper, in what follows. However, in spite of its limitations, SIEI as a source of consistent and systematic information on cross-border linkages in the FSU region still provides a good set of proxies for measuring the regionalisation patterns in Central Asia.

4 Findings

Table 1 summarises the main results of the empirical evidence obtained from the SIEI, reporting the time series of the major indicators relevant for our analysis.[5]

[5] *Appendix B* contains the matrix of the dyadic integration indicators for the year 2008 (the last year of the sample).

Table 1: Regional integration in the FSU, SIEI data

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Correlation CIS-12-CA-4	Correlation EurAsEC-5-CA-4
Trade												
Kyrgyzstan - CA-4 (asymmetric)	0.102	0.083	0.110	0.126	0.159	0.171	0.166	0.157	0.153	0.115	0.360	
Kyrgyzstan - CIS-12 (asymmetric)	0.387	0.424	0.365	0.382	0.395	0.452	0.477	0.514	0.574	0.551		
Tajikistan - CA-4 (asymmetric)	0.064	0.073	0.072	0.055	0.073	0.082	0.089	0.079	0.094	0.066	-0.386	
Tajikistan - CIS-12 (asymmetric)	0.689	0.822	0.627	0.555	0.457	0.446	0.458	0.435	0.460	0.422		
Kazakhstan - CA-4 (asymmetric)	0.014	0.010	0.011	0.011	0.012	0.012	0.010	0.008	0.009	0.007	0.349	
Kazakhstan - CIS-12 (asymmetric)	0.256	0.321	0.332	0.267	0.274	0.274	0.242	0.237	0.248	0.239		
CA-4 (region-level)	0.059	0.045	0.042	0.038	0.037	0.037	0.031	0.028	0.035	0.030	0.794***	
EurAsEC-5 (region-level)	0.126	0.135	0.127	0.116	0.119	0.124	0.096	0.095	0.098	0.094		0.759**
CIS-12 (region-level)	0.214	0.224	0.214	0.195	0.201	0.202	0.174	0.169	0.172	0.164		
Labor migration												
Kyrgyzstan - CA-4 (asymmetric)		0.005	0.007	0.004	0.006	0.421	0.389	0.774	0.420	0.355	0.379	
Kyrgyzstan - CIS-12 (asymmetric)		0.190	0.362	1.305	0.974	2.002	3.562	7.170	21.446	35.564		
Tajikistan - CA-4 (asymmetric)		0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.023	0.030	0.978***	
Tajikistan - CIS-12 (asymmetric)		1.017	1.606	2.641	2.095	3.508	7.761	14.271	35.452	54.995		
Kazakhstan - CA-4 (asymmetric)												
Kazakhstan - CIS-12 (asymmetric)		0.258	0.314	0.631	0.368	0.905	0.553	0.754	0.857	1.087		
Uzbekistan - CA-4		0.003	0.002	0.004	0.005	0.004	0.022	0.022	0.033	0.029	0.778**	
Uzbekistan - CIS-12		0.284	0.432	0.634	0.589	0.948	1.899	3.979	12.829	23.703		
CA-4 (region-level)		0.002	0.002	0.002	0.003	0.043	0.048	0.085	0.059	0.052	0.560	
EurAsEC-5 (region-level)		0.058	0.089	0.265	0.129	0.214	0.424	0.792	2.069	3.291		0.535
CIS-12 (region-level)		0.397	0.549	0.754	0.667	0.822	1.267	1.977	4.189	6.452		
Energy												
Kyrgyzstan - CA-4 (asymmetric)				875.010	979.533	1189.939	1114.603	900.512	656.285	142.305	0.924***	
Kyrgyzstan - CIS-12 (asymmetric)				875.010	1351.113	2003.604	1495.053	900.512	656.285	142.305		
Tajikistan - CA-4 (asymmetric)				6593.803	5900.362	4448.460	3778.093	3209.306	2282.524	1600.365	0.997***	
Tajikistan - CIS-12 (asymmetric)				7070.246	6022.589	4448.460	3778.093	3209.306	2321.261	1836.186		
Kazakhstan - CA-4 (asymmetric)				22.282	51.717	52.135	45.095	26.258	12.283	4.545	0.678*	
Kazakhstan - CIS-12 (asymmetric)				262.231	248.129	228.275	131.539	96.132	66.548	39.281		
Uzbekistan - CA-4				1004.117	877.406	725.490	593.958	505.165	411.501	300.842	1.000***	
Uzbekistan - CIS-12				1004.117	877.406	725.490	593.958	505.165	411.501	300.842		
CA-4 (region-level)				256.884	241.218	192.541	147.679	107.548	78.924	51.655	0.9996***	
EurAsEC-5 (region-level)				26.873	25.806	20.448	15.620	9.537	6.864	4.018		0.998***
CIS-12 (region-level)				50.599	46.680	36.715	28.965	20.797	15.025	10.149		
Ceareals												
Kyrgyzstan - CA-4 (asymmetric)				103.444	50.012	40.683	65.855	80.094	97.452	58.298	0.999***	
Kyrgyzstan - CIS-12 (asymmetric)				103.756	50.377	41.135	65.855	80.143	98.536	61.045		
Tajikistan - CA-4 (asymmetric)				235.757	91.220	60.702	121.218	98.890	76.938	49.999	0.9998***	
Tajikistan - CIS-12 (asymmetric)				242.411	93.150	60.846	123.425	101.778	77.751	53.727		
Kazakhstan - CA-4 (asymmetric)				23.707	8.047	4.472	7.195	7.259	7.511	5.763	0.183	
Kazakhstan - CIS-12 (asymmetric)				57.881	104.728	63.865	21.195	33.521	28.022	16.994		
Uzbekistan - CA-4				16.036	1.194	7.787	11.773	11.105	8.147	7.941	0.367	
Uzbekistan - CIS-12				16.310	1.285	31.625	12.401	11.464	8.483	9.718		

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Correlation CIS-12-CA-4	Correlation EurAsEC-5-CA-4
CA-4 (region-level)				16.335	5.632	4.225	6.704	6.183	6.019	4.513	0.195	
EurAsEC-5 (region-level)				3.279	2.770	2.956	1.256	1.959	1.078	0.577		0.494
CIS-12 (region-level)				6.433	9.592	6.748	3.467	3.892	2.866	2.030		
Education												
Kyrgyzstan - CA-4 (asymmetric)		60.876	2208.129	2308.311	2936.494	4244.817	4937.213	4894.704	4080.307	2969.916	0.996***	
Kyrgyzstan - CIS-12 (asymmetric)		313.572	2543.056	2603.032	3217.015	4540.178	5252.612	5296.725	4653.761	3638.614		
Tajikistan - CA-4 (asymmetric)		330.357	432.640	344.444	346.884	223.494	172.114	471.511	490.246	572.512	0.943***	
Tajikistan - CIS-12 (asymmetric)		418.496	760.640	519.646	511.642	436.596	387.735	761.239	836.094	958.866		
Kazakhstan - CA-4 (asymmetric)		111.263	423.999	339.235	413.471	429.531	461.898	563.561	565.180	497.756	0.973***	
Kazakhstan - CIS-12 (asymmetric)		1363.071	1776.315	1610.121	1847.333	1917.371	1852.566	2024.142	2037.426	1966.346		
Uzbekistan - CA-4		128.306	378.127	371.260	506.926	689.846	843.901	888.015	771.407	577.463	0.978***	
Uzbekistan - CIS-12		259.718	473.187	427.126	597.354	805.923	1000.328	1110.524	981.889	853.824		
CA-4 (region-level)		70.598	287.345	272.729	347.026	449.539	521.759	563.252	496.377	391.010	0.835***	
EurAsEC-5 (region-level)		137.558	186.512	160.398	186.439	200.465	200.071	229.734	263.436	272.011		0.714**
CIS-12 (region-level)		160.322	224.561	201.645	233.101	282.045	306.964	354.640	364.780	380.923		

Source: SIEI. * significant at 10% level, ** 5% level, *** 1% level

Central Asia as a sub-region of the post-Soviet world: As a starting point we will analyse Central Asia's "distinctiveness" from the FSU. By doing that, we will look at two types of indicators. First, we will compare the size and the direction of change of the indicators of the "overall" integration within the CA-4 and the CIS-12 (also analysing the underlying dyadic integration indicators). Second, we will look at the asymmetric integration of each of the CA-4 countries with CA-4 and CIS-12. Now, the indicators of asymmetric integration are constructed in a way that the values for CA-4 are smaller than for CIS-12[6] Hence, to get reasonable statements, one has to subtract from the CIS-12 the CA-4 indicator (i.e. level of asymmetric integration with "the rest" of the FSU) and compare it with the CA-4 indicator.

The quantitative findings for the overall level of integration within a region are unambiguous. On the one hand, in all the three areas of functional integration (energy, agriculture and education), integration levels are higher in Central Asia than in the post-Soviet space in general. Similar findings can be established on the dyadic integration level. The absolute leader in the electricity market integration is Uzbekistan-Tajikistan. Tajikistan-Turkmenistan and Tajikistan-Kyrgyzstan rank second and third, respectively. For cereals the dominant player in the CIS is Kazakhstan: this country is present in all three leading country pairs: Kazakhstan-Azerbaijan, Kazakhstan-Turkmenistan and Kazakhstan-Kyrgyzstan. Trade in cereals between other CIS countries is insignificant in relation to their economy size. The highest levels of education integration at the country pair level were demonstrated by Kyrgyzstan-Uzbekistan and Kazakhstan-Kyrgyzstan. Large countries like Russia or Ukraine are traditionally very attractive for students from all over the CIS, but their number remains insignificant in relation to these countries' population. However, the dynamics of sub-regional integration in agriculture and education was negative throughout the 2000s, and the disintegration was faster than in CIS-12; in particular, a decline in the education integration index effectively nullified the advantages CA-4 had had over CIS-12 (starting from 2005, probably indicating the impact of the "Tulp" revolution).

For both "general" areas (total trade and labour migration) the disadvantage of Central Asia is obvious. In migration integration, CA-4 demonstrated a much slower increase in the index than CIS-12 or even EurAsEC-5 (in absolute figures), and the intra-regional migration is significantly lower than that directed towards Russia. As for total trade, the level of intra-regional trade integration in CA-4 is much lower than in CIS-12 and both values are declining. It should be stressed that we are referring to intraregional trade lagging behind economic growth and the development of intraregional links, not the shrinkage of absolute trade figures. But CA-4 demonstrates a slower pace of increase and lower absolute figures of intraregional trade as well: in 1999-2008 this trade grew in CIS-12 by 5.8 times, whilst CA-4 increased by 4.0 times. The pace of increase was slower in CA-4 than in CIS-12 in all years except 2004 and 2007. The results are, nevertheless, striking, because, if one considers the dyads of the FSU states, higher trade integration indices have been almost always reported for the neighbouring countries. Central Asia seems to be an exception to this rule.

[6] Since the denominator is the same, and the numerator of the indicator of CIS-12 contains that of the value for CA-4

From the point of view of the indicators of asymmetric integration, one can observe that in the areas of total trade an migration the level of integration of each of the CA-4 countries with CA-4 is much smaller than with the CIS-12 (most notably, Russia). This is also true for labour migration. For the three functional areas we still find that Uzbekistan, Kyrgyzstan and Tajikistan maintain links with the CA-4 countries rather than with the rest of CIS-12. This is, however, not the case for Kazakhstan, which is much more oriented towards the rest of the CIS. One should notice that this orientation does not include just Russia – several other post-Soviet states also play a significant role. For the trade in cereals and electricity the indicators for the integration with CA-4 have been declining for all countries. The story is somewhat more complicated for the educational integration: for Kazakhstan, Uzbekistan and Kyrgyzstan we find that the increase of the asymmetric integration indicator has actually been *larger* for CA-4 than for CIS-12 (something similar was observed on the dyadic integration level: the highest increase is reported for the Uzbekistan-Kazakhstan country pair, followed by Kyrgyzstan-Kazakhstan). However, this advantage has been almost lost in 2008, when the decline of asymmetric integration with CA-4 has been higher than with the rest of the FSU.

We can conclude that, even if we can describe Central Asia's potential for sub-regional integration (which generally exceeds that of the CIS), this potential tended to decline during the past decade. The only sector, where this trend is not entirely obvious, is educational exchange. For trade and migration Central Asian countries are linked with Russia rather than with each other. However, the negative trend is true of Central Asia as a whole only, and not for individual subgroups of countries, as will be discussed. It would appear that the disintegration can be explained by friction between Central Asian states over distribution of resources, differences in their political courses, and strict protectionist policies in foreign trade. On the other hand, it could be related to three other factors: (1) the strength of Russia's position in the region at a political level (NIKLASSON 2008), which has been enforced by the rivalry of main Central Asian states (BOHR 2004) and supports the preservation of the economic ties, but also, what is, in our opinion, more important, (2) to the successful advancement of Russian business, especially in the last years and (3) the attraction of the Russian labour market with a significant inflow of Central Asian workers (which emerged as a spontaneous process without direct involvement of the Russian government). *Appendix D* provides more detailed discussion of the "Central Asia water and energy nexus" and the role of Russia for the Central Asian regionalism. However, both internal and external factors have just prevented the *relatively stronger* regionalisation in Central Asia as opposed to the FSU (probably due to the mode by which Russian companies enter Central Asian markets, discussed further later in this paper), but did not reverse the overall disintegration trend for the trade relations.

Disintegration may well have shaped the dynamics of formal regional cooperation projects in Central Asia during the last fifteen years. Between 1993 and 2002 the Central Asian states experimented with three subsequent regional integration agreements (Central Asian Union, Central Asian Economic Community and Central Asian Co-operation Organization CACO), which, however, did not result in any sensible de-facto cooperation. In 2004 Russia joined CACO, and in 2006 the organisation was merged with a larger association of EurAsEC. In other words, the most successful attempt at economic unification of Central Asian countries to date has been a project with Russia's participation: the CACO could not compete with an integration project with a wider post-Soviet format.

Central Asia as a sub-region of Eurasia: The SIEI data only partially confirm that the economic linkages between the Central Asian states are more intensive then on the level of the FSU. However, one can also consider the same problem from a different perspective: it is possible that the basis for comparison selected is not perfect. For instance, the question is about the relative importance of the economic links with countries outside the FSU – specifically China.[7] We use two approaches to perform our analysis.

First, if, say, China (or any other neighbouring country) is really exerting a decisive influence on co-operation in the region, it would be logical to expect significant deviation of Central Asia's integration trends from the post-Soviet mainstream. In that case, any differences between the development trends of Central Asia and the rest of the post-Soviet world may be interpreted as signs of the strengthening of the role of extra-regional actors. But our data suggest that integration in Central Asia almost fully follows the trends observed in the CIS. This is true of all integration and macroeconomic indices without exception; any possible deviations relate to dynamics, not the development trends. For trade, education and energy integration the indicators are also significantly and positively correlated. Therefore, based on these indirect indices we can assume that the role of China and other "non-FSU" neighbours falls short of that of a dominant player in the region – at least for now. Central Asia remains part of the post-Soviet space, also (as shown in the previous sub-section) in rapidly following the overall trend of the disintegration in the FSU.

Of course, the key assumption on which our analysis is based can be criticised. It is possible that, say, China's influence on Central Asian countries produces the same effects as Russia's and post-Soviet space influence – therefore, we should not expect any deviations in the development trajectory of Central Asia. There are two perspectives of this problem. First is the *strategic* interests of China and Russia in Central Asia and their impact on the *economic* relations. TANG (2000) reports that although one could expect a significant level of cooperation between Russia and China with respect to Central Asia, it has remained relatively low. During the 2000s the cooperation level did increase (through the unfolding of the Shanghai Cooperation Organisation), but, on the other hand, there are also more areas of potential or actual competition (e.g. pipeline routs). What is important for our analysis is not just the presence or absence of the competition, but rather the tools used by both sides in pursuing their strategic interests and their impact on regionalisation in Central Asia. It seems to be reasonable and consistent with the literature to claim that both China and Russia prefer expanding the economic relations with Central Asia as a tool of "soft power", but the specific implications for both countries are different. Second, one has to take the interests of private businesses into account, which, given different competitive advantages, may pursue different modes of market entry because of purely economic reasons.

In the area of energy relations China and Russia are likely to have similar goals, which make the competition between these two countries possible (both poles desire to secure control over

[7] It is certainly possible to mention other potential partners like Iran and Turkey, which also seem to have a keen interest in the region and may have influenced its economic development – although China seems currently the most interesting country to explore. Some additional information is reported in Appendix D.

Central Asian oil and gas reserves, see BLANK 1995). These goals could be achieved with similar tools. However, for the period covered by the SIEI the scope of energy trade between CA-4 and China was still relatively small, so it could not have driven our results. In other areas of trade and migration Russia and China are strikingly different: while China has a prosperous and highly efficient sector of the consumer goods industry and an abundance of labour resources, Russian manufacturing is mostly uncompetitive and the labour markets experience a strong deficit on the supply side. Therefore, both business logic and the search for the optimal economic instruments of power politics should dictate different behaviour (even if the *objective* to expand the economic relations is the same for Russia and China, the *tools* will be different and result in different outcomes for regionalisation *in Central Asia itself*).

In the non-energy trade Russian economic influence is often derived from maintaining Soviet linkages, which, given the centralised structure of the Soviet economy, did not require significant cooperation between states of Central Asia themselves (MEL'NIKOV 2001). In the same way, labour flows to Russia are in fact restricting the regionalisation of labour markets in CA-4. However, Russian business activity in Central Asia is also very successful in several "new" economic sectors (e.g. mobile services, where three largest Russian companies MTS, VympelKom and Megafon are among the key players in all countries of Central Asia). China also has to establish its economic links with Central Asia anew. Here yet another difference between Russia and China should be taken into account.

For the Chinese businesses without traditional linkages in the region it is attractive to use certain Central Asian countries (Kyrgyzstan and, to a lesser extent, Kazakhstan) as a springboard to the region's economy as a whole. For example, Chinese consumer goods are directed through the bazaars of Kyrgyzstan, and then re-exported to the rest of Central Asia (see KAMINSKI and RABALLAND 2009 for the empirical evidence). The choice of the springboard can be influenced by multiple factors: ease of market access (e.g. bazaar-imports friendly regulation in Kyrgyzstan) or political development (e.g. in Kazakhstan the expansion of Chinese business coincided with the wave of conflicts between the government of the country and foreign investors in the mid-2000s[8]). In that case, the activity of these businesses would have translated into an increase in intraregional trade (and we will show that this type of effect is present if the informal trade is taken into account). Russia, at the same time, is less interested in such springboards, as Russia traditionally has strong positions in all these countries, and is less active in consumer markets (where this springboard strategy makes sense), and, as KUZ'MIN (2007) shows, directly accesses all markets of CA-4 at the same time.

Furthermore, our analysis did not differentiate between the *external* influence by post-Soviet countries on Central Asia and the *internal factors*, which might be similar in CIS-12 and CA-4 and, therefore, lead to similar development trends. While there is no way to *directly* infer the answer to this question from the SIEI dataset, the anecdotal evidence discussed in *Appendix D* and the theoretical discussion above allows us to make several conjectures. The most probable scenario seems to be the simultaneous presence of both factors. While the "water

[8] Chinese companies actively used the conflicts to acquire assets. A good example is the case of PetroKazakhstan, originally owned by a Canadian company, but later purchased by the Chinese (who were ready to re-sell part of the share to the government of Kazakhstan) and Russians.

and energy" nexus in Central Asia described in the previous section certainly reduces the level of regionalisation among CA-4 countries, a similarly powerful force is the strong economic and political position of Russia – specifically, of the Russian business, more than of the Russian government (once again: powerful enough to keep the relative level of the linkages between CA-4 states and Russia as opposed to those between the CA-4 states high, but not to prevent the overall decline of intra-regional trade in CIS-12). However, one should also mention the third factor: the economic expansion of Kazakhstan, which, as we will show, is not limited to the CA-4 region and actually binds Kazakhstan closer to the FSU.

It is possible that the impact of the extra-regional agents resulted not in a *change of path* of the integration or disintegration, but rather in a *change of speed*. Specifically, one could expect faster disintegration of the Central Asian region than of the rest of the FSU, if the influence of extra-regional players (China or Turkey) were increasing. However, in this case, first, one would not observe the correlation between FSU and Central Asia in the areas where regional integration showed a positive trend (like labour migration) – but there seems to be a strong correlation in our data (the correlation indicators exceed 0.5, although they are insignificant). And second, the speed of "internal" disintegration within Central Asia would be more slowly than that between Central Asian countries and Russia – but the SIEI data demonstrate that the latter in fact declined more slowly than the former. So, even if the extra-regional agents indeed caused "fast track" disintegration in Central Asia, it has been "just" enough to dissipate the specific sub-regional integration advantages, but "not enough" to reduce its links to the FSU significantly.

We also use a direct approach to compare the scope of the regionalisation. For this purpose we use the Chinese trade statistics data (it is advantageous since it resolves the problem of the unreported "mirror imports" in the statistics of Central Asia – which will be discussed in the next section) to calculate the indicator of asymmetric integration of three Central Asian states with China (we ignore Uzbekistan, since there is no data for its trade with CIS-12, and thus the comparison was flawed). Since in many cases imported Chinese goods are re-exported to other Central Asian states, country-wise asymmetric integration indicators may be misleading, and so we also calculate the overall asymmetric integration indicator of CA-4 with China (looking at dyadic integration is not so interesting, as the variable is likely to be very small because of enormous foreign trade of the Chinese economy). This variable is compared with the asymmetric integration of CA-4 with the CIS-12 (see *Table 2)*.

Our key findings still support the main claim of this paper: even in 2008 the asymmetric integration with the CIS-12 was higher than with China. If one calculates the asymmetric integration index with the "rest of CIS-12" (i.e. excluding CA-4 itself), it is still larger than with China, although the difference is rather small (0.227). However, in the dynamic perspective situation looks differently: the CIS-12 indicator is (very slowly) decreasing, and the China indicator is rapidly increasing, especially during 2007-2008. So, although *at the moment* CA-4 is part of the CIS rather than an "extension" of a new China- centred region, the results can change in the future. The correlation of the asymmetric integration indicators with CIS-12 and China is negative, but not significant (what is not surprising given the very short time series). The growth is probably mostly driven by the import of the bazaar goods from China to Central Asia, which we will discuss in the next section.

Table 2: Trade integration of CA-4 with CIS-12 and China

Indicator	2002	2003	2004	2005	2006	2007	2008
Kyrgyzstan-China (asymmetric)	0.157	0.203	0.318	0.472	0.836	1.037	1.733
Tajikistan-China (asymmetric)	0.009	0.024	0.033	0.069	0.109	0.138	0.307
Kazakhstan-China (asymmetric)	0.100	0.131	0.121	0.135	0.119	0.152	0.147
CA-4-China (asymmetric)	0.097	0.128	0.125	0.145	0.144	0.184	0.218
CA -4-CIS-12 (asymmetric)	0.290	0.290	0.290	0.259	0.254	0.268	0.259

Source: own calculations based on SIEI and NBS China

Kazakhstan: the second integration core in the post-Soviet space: It is generally agreed that regionalisation in the CIS, if present, is based on asymmetric economic links with Russia being a dominant player (which is inevitable, bearing in mind in the size of the Russian economy) and very weak interconnection between other countries (see e.g. FREINKMAN et al. 2004; KOROBKOV, 2007).

In the meantime, our data indicates that a new centre of regionalisation is emerging in the post-Soviet space: Kazakhstan. In particular, we can point to two directions of Kazakhstan's development as an independent integration core whose activities are not influenced by Russia. The first direction is labour migration. Kazakhstan attracts workforce from the rest of the post-Soviet space for many reasons: its rapid economic growth in the 2000s, the problems encountered by labour migrants in Russian society, etc. Kazakhstan is especially attractive for migrants from its closest neighbours, the Central Asian states. This is particularly true for the Kyrgyzstan: the enormous growth of migration to Kazakhstan made this country pair the leader of the dyadic integration in 2008 in the CIS (it is also driven by smaller population of the target country Kazakhstan: while, for example, for Tajikistan (and Kyrgyzstan as well) Russia remains an important destination, the share of migrants from these countries in Russian population is negligible). From 2002, Azerbaijan also demonstrated sustained growth of labour migration to Kazakhstan (this country pair ranked second).

The second direction is trade integration. The only country pair which has no common border but is leading in terms of total trade indices is Kazakhstan-Ukraine (see *Appendix B*); notably, this pair also demonstrated the biggest increase in trade integration in the post-Soviet space in 1999-2008. In other words, unlike the situation in migration integration, Kazakhstan shows signs of activity outside Central Asia. In particular, as mentioned, all leading country pairs trading in cereals include Kazakhstan; this trade covers Central Asia (even including Turkmenistan) and the Caucasus. Kazakhstan's integration with Caucasus involves, on the one hand, grain transit through Azerbaijan and subsequently Iran and Georgia to foreign markets

in North Africa and Middle East, and second, grain exports through Baku to three states of Southern Caucasus themselves, with the first factor being far more important.[9]

It should be noted that as in the Russian case the position of Kazakhstan in the regional integration is asymmetric. While for Kyrgyzstan (and to a much lesser extent for Tajikistan) Kazakhstan is an important trade and labour migration partner, for Kazakhstan itself these "smaller states" are of lesser importance, with economic linkages being directed towards Russia and CIS-12. Therefore it is not surprising that the asymmetric integration indicators report very low integration of Kazakhstan in CA-4. In other words, the potential integration core is attractive for other states of Central Asia and Caucasus, but itself has only limited economic concerns in the region.

The economic expansion of Kazakhstan in Central Asia and, what is even more important, beyond, in other parts of the CIS, challenges some of the predictions of the literature, which so far has interpreted the CIS as a "Russian-centred" complex with the potential "challengers" in the states of GUAM (BUZAN and WAEVER 2003). Although *political* relations between Russia and Kazakhstan are almost flawless, in the *economic* area competition is present (for example, the contest between Astana and Chelyabinsk for the transit terminal of Lufthansa Cargo in 2008, which was heavily influenced by the Russian government). Therefore studying regionalisation can result in a re-assessment of the regional dynamics which other approaches outlined above are interested in.

5 The role of informal trade

Since the SIEI data explicitly concentrate on taking just the official statistics into account, the analysis so far ignored a serious problem, which may result in significant under-estimation of the regional connections in Central Asia – that of the informal trade. The ability (and partly the willingness) of Central Asian nations to monitor their borders is incomplete, and as a result official customs statistics only partly reflect the actual trade flows. While there is no perfect solution to the problem of informal trade, we will attempt to use several measures to at least obtain the rough measure of the impact of informal linkages on regionalisation.

The basic approach we use is based on mirror statistics and is described in *Appendix A*. Specifically, there are two variations of the analysis. The first simply employs the standard mirror import concept with several variations accounting for different data sources. Using these data, we have re-calculated all trade indicators from the SIEI database including mirror import gap. The estimates are reported in *Table 3*. Basically, the results do not seem to change: one finds an even somewhat faster "dissipation" of regionalisation in both the CIS and the CA-4 regions. The time series obtained by adjusting for informal trade exhibit an almost perfect correlation with the original time series (in most cases well above 0.99, and always significantly

[9] Although it is not reported in this paper, given the nature of the SIEI data, Kazakhstan also increased its investment activity in Russia, CA-4 and Caucasian states, specifically in the banking and agricultural sectors.

correlated at 1% level). Central Asia still disintegrates along with the CIS and exhibits a lower integration level than the CIS in general.

Table 3: Impact of informal trade on the trade integration in CA-4 and CIS-12

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Correlation with data without informal trade
Approach 1											
Kyrgyzstan - CA-4 (asymmetric)	0.108	0.085	0.115	0.125	0.148	0.156	0.145	0.135	0.122	0.089	0.9036
Kyrgyzstan - CIS-12 (asymmetric)	0.386	0.425	0.369	0.369	0.365	0.406	0.409	0.418	0.439	0.408	0.8130
Tajikistan - CA-4 (asymmetric)	0.064	0.073	0.073	0.057	0.073	0.083	0.090	0.080	0.094	0.066	0.9977
Tajikistan - CIS-12 (asymmetric)	0.705	0.831	0.628	0.558	0.457	0.448	0.460	0.435	0.461	0.416	0.9996
Kazakhstan - CA-4 (asymmetric)	0.014	0.010	0.011	0.011	0.012	0.012	0.010	0.009	0.010	0.008	0.9945
Kazakhstan - CIS-12 (asymmetric)	0.257	0.322	0.332	0.268	0.271	0.270	0.239	0.236	0.250	0.239	0.9983
CA-4 (region-level)	0.060	0.045	0.043	0.038	0.036	0.037	0.031	0.028	0.034	0.029	0.9990
EurAsEC-5 (region-level)	0.124	0.131	0.123	0.112	0.113	0.117	0.092	0.092	0.096	0.093	0.9962
CIS-12 (region-level)	0.212	0.219	0.208	0.190	0.194	0.195	0.169	0.166	0.169	0.165	0.9944
Over-valuation of intra-regional trade without informal trade											
CA-4 (region-level)	-1%	-1%	-1%	-1%	1%	1%	-1%	-2%	1%	2%	
EurAsEC-5 (region-level)	2%	3%	4%	4%	5%	5%	5%	3%	2%	2%	
CIS-12 (region-level)	1%	2%	3%	3%	3%	4%	3%	2%	2%	-1%	
Approach 2											
Kyrgyzstan - CA-4 (asymmetric)	0.109	0.080	0.108	0.117	0.142	0.151	0.141	0.132	0.120	0.087	0.9191
Kyrgyzstan - CIS-12 (asymmetric)	0.387	0.399	0.346	0.344	0.350	0.393	0.397	0.408	0.431	0.401	0.8500
Tajikistan - CA-4 (asymmetric)	0.065	0.073	0.073	0.058	0.077	0.083	0.090	0.080	0.094	0.067	0.9954
Tajikistan - CIS-12 (asymmetric)	0.712	0.826	0.628	0.558	0.480	0.448	0.460	0.435	0.461	0.422	0.9979
Kazakhstan - CA-4 (asymmetric)	0.014	0.010	0.011	0.011	0.012	0.012	0.010	0.009	0.009	0.007	0.9958
Kazakhstan - CIS-12 (asymmetric)	0.244	0.311	0.328	0.261	0.263	0.263	0.232	0.229	0.243	0.232	0.9968
CA-4 (region-level)	0.058	0.043	0.042	0.037	0.035	0.036	0.030	0.027	0.033	0.029	0.9984
EurAsEC-5 (region-level)	0.122	0.129	0.121	0.111	0.112	0.116	0.090	0.091	0.094	0.091	0.9974
CIS-12 (region-level)	0.207	0.216	0.204	0.187	0.191	0.191	0.165	0.163	0.165	0.161	0.9954
Over-valuation of intra-regional trade without informal trade											
CA-4 (region-level)	3%	3%	0%	2%	4%	4%	2%	1%	4%	5%	
EurAsEC-5 (region-level)	4%	4%	5%	5%	6%	7%	6%	5%	4%	4%	
CIS-12 (region-level)	3%	4%	5%	5%	5%	6%	5%	4%	4%	2%	
Taking bazaar trade into account, Approach 1											
CA-4 (region-level)	0.066	0.051	0.048	0.044	0.043	0.047	0.042	0.049	0.062	0.086	0.0944
Under-valuation of the intra-regional trade without bazaar trade	10%	12%	11%	17%	17%	27%	34%	71%	80%	191%	
Taking bazaar trade into account, Approach 2											
CA-4 (region-level)	0.063	0.049	0.047	0.043	0.041	0.045	0.041	0.047	0.060	0.084	0.0739
Under-valuation of the intra-regional trade without bazaar trade	10%	12%	11%	17%	17%	26%	36%	71%	80%	191%	

Source: own calculation based on SIEI, COMTRADE and CISSTAT

Note: all correlation coefficients with exception to those with bazaar trade are significant at 1% level

Nevertheless, the analysis still requires an additional serious correction, since it ignores yet another specific feature of Central Asian regionalisation: the use of the Kyrgyzstan as the "entrepot" for Chinese consumer goods, which has been described in detail by KAMINSKI and RABALLAND (2009) and KAMINSKI and MITRA (2010). As we have already shown above, the trade relations of Kyrgyzstan with China are enormous and growing. From this point of view it is reasonable to doubt the ability of the relatively small Kyrgyz economy to consume the voluminous imports from China domestically. Rather it has been claimed that imports from China are re-exported to other countries of Central Asia. KAMINSKI and MITRA (2010) point out that the simple analysis of mirror import data does not capture the whole extent of this intra-regional trade. Hence, we have to make a correction for the "Chinese re-exports" in the internal trade of Central Asia.

The results are striking (see *Table 3*). On the one hand, we find that under consideration of the re-exported goods the level of trade integration in CA-4 is much higher than in the reference case: the increase of the index in the last years is almost threefold. The huge difference is mostly associated with the period of 2006-2008. On the other hand, until 2007, the regional trade integration even under consideration of re-exports was declining, although somewhat more slowly. The situation did change in 2007, when the trade integration in CA-4 started growing. This is likely to have been caused by the huge expansion of the Chinese exports to Kyrgyzstan, which we have discussed above. It is interesting to notice that the indicators including bazaar goods trade are even uncorrelated with the "original" SIEI indicators.

Nevertheless, even during this period the CA-4 trade integration has been significantly lower than that in the CIS-12. Thus, our key conclusion still remains the same; however, our assessment of the potential dynamics should be adjusted. If the trade flows from China continue growing and will be localised in Central Asia, one can expect that at some point regionalisation in CA-4 will exceed that in CIS-12. Whether it will be the case, depends upon the variety of reasons, especially the ability of other Central Asian countries to absorb Chinese exports, which is in turn determined by their economic dynamics. Yet another factor of significant importance is the re-exports of Chinese goods to Russia – if they increase, the same re-exports from China will actually intensify the interconnections within CIS-12 and "keep Central Asia" closer to Russia.

6 Conclusion

This paper attempted to look at the process of regional integration in Central Asia using a new comprehensive dataset of the SIEI. Our goal was, specifically, to understand, whether Central Asia is in any respect "different" from the rest of the former Soviet Union: first, whether the degree of regional integration between the countries of Central Asia is higher, than between, say Russia and Central Asian states, and second, whether the trends of economic integration in Central Asia are different from the rest of the FSU (suggesting, for instance, an influence of an external party like China). So far we are cautiously able to answer no to both of the questions. While Central Asia has exhibited higher level of integration in some functional

areas in the later 1990s, in the 2000s the decline of this integration was more pronounced than in the rest of the FSU and currently the advantage seems partly to have been lost. Moreover, the difference between Central Asian countries and the rest of the FSU has been rather the speed of (dis)integration than the direction of changes.

It should also be noted that regionalisation in Central Asia is much higher if one takes informal trade into account. Even under these conditions it is lower than in the CIS-12 region, but the disintegration trend is by far less pronounced. This informal integration is strongly linked to the re-exports of Chinese bazaar goods through the Kyrgyz Republic. (Thus, it can be prone to further disintegration as a result of strengthening the execution within the Russia-Kazakhstan-Belarus Customs Union.) The level of economic integration of CA-4 with China is also still smaller than with the rest of CIS-12, however, it is steadily increasing, particularly during 2007-2008. It could suggest that the *static* results reported so far may change in the foreseeable future, with China emerging as the main economic partner for CA-4. The impact of informal trade on the demand for formal regionalism and intergovernmental cooperation is, however, ambiguous and depends on the functioning of the trade networks and their ability to overcome existing barriers.

Another trend we were able to find is the evolution of Kazakhstan into the second integration core in the CIS. Kazakhstan is the leader in labour migration and student exchange. This was made possible by its high GDP level, unmatched by any other Central Asian country, which makes Kazakhstan very attractive to its neighbours in terms of trade and migration and increases its importance as a source of investment. The emergence of Kazakhstan as an integration core could have particular importance for Kyrgyzstan, which even now has very strong economic and political ties to its northern neighbour. However, even here we believe that caution is necessary because of the natural resource-driven nature of Kazakhstani strong economic growth in the 2000s, which may be unsustainable in the future.

Our results seem to be consistent with the findings of the RSC approach; however, in our opinion it would be too simplistic to reduce the stability of the economic ties between Russia and the Central Asian countries to just the use of "soft power" instruments by the Russian politics. In many cases the most successful results have been achieved by private business without any political motivation, or even in the areas where Russia is rather restrictive (e.g. migration). It is also the case that one should *not* interpret the economic interdependence as an indicator of the Russian "power" and "influence" in the region – the logic of private Russian companies does not automatically map the objectives of the Russian leadership, and the economic linkages do not necessarily effectively constraint the regional autocrats. On the other hand, the existence of the economic ties will certainly keep the security problems of the FSU countries sufficiently interdependent to keep the RSC in existence. But, what is more interesting and to our knowledge not documented in the literature before, this complex – at least in the economic area – is likely to become less Russia-centred because of the increasing importance of Kazakhstan. Our results may also indicate that the cultural, political and institutional heterogeneity of the FSU should not be overestimated, and the impact of Soviet legacies – underestimated. Nevertheless, our results suggest that in this area strong changes could be expected even in the near future, if the trend towards increasing economic ties with China persists.

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APPENDICES

Appendix A: Informal trade in the CIS – Estimation approach

A1. Mirror imports

Since exports are reported at fob prices, and imports at cif prices (i.e. include the costs of freight), the trade flow from one country to another should be smaller in the customs statistics of the exporter than of the importer. If the import of country A from country B reported by A is smaller than export from B to A reported by B, it may serve as an indication of the informal trade, and the difference between export and import flows reported is referred to as import gap. In the first stage of our analysis we have calculated the trade gap for the trade between all CIS countries in the period of 1999-2008, using the data reported by the CIS Interstate Statistical Committee (CISSTAT). The results are reported in *Table A1*. As one can see, the unreported import is at least in some cases indeed large: specifically, for Southern Caucasus countries and in the early 2000s for Moldova (where the driving force may be the existence of non-recognised states like Transniestria).

In the same way, we evaluate the import gap of each CIS country vis-a-vis the rest of the world (ROW), including non-CIS trade partners. In this case we apply two different methods. The first subtracts the value of imports of a CIS country from the ROW reported by CISSTAT from the export of the ROW to this CIS country reported by COMTRADE (using "World (Aggregate)" entry of this dataset). Applying two different sources of data for the comparative analysis of trade flows can be problematic, yet in most cases COMTRADE entries and CISSTAT accounts are very similar (this is not the case for all CIS countries: Georgia, e.g., is a notable exception). The advantage of CISSTAT is that it provides systematic data for a somewhat larger set of countries, specifically (which is very important for our purpose) including Tajikistan. The results are reported in *Table A2*. Azerbaijan and Moldova continue reporting significant import gap. However, unlike the CISSTAT data for the intra-FSU trade, one also finds an enormous trade gap for the Kyrgyz Republic, which dramatically increased towards the end of the 2000s.

However, simply taking the *aggregate* imports and exports can be problematic, because the mirror import gap with some partners can be "offset" by high freight costs for other partners. It is as a matter of fact that the case for some countries *Table A2* reports no import gap, while *Table A1* (referring to a subset of the trade flows) does show that the trade gap exist. Thus, we have also used another, more detailed approach: we calculated the import gap for *each exporter* to *each CIS country* for *each year*, this time using only the COMTRADE data. Specifically, we considered the countries for which both the entry for the export flow reported by the exporter and import flow reported by the importer are available.[10] The problem with the second approach is that it is likely to be overly sensitive to the fluctuations in reporting of particular countries, which may be not reliable even in the case of the exporters (at least in some cases import gaps of significant size have been observed for countries remote from the CIS and unlikely to have developed informal trade networks in the region, like Latin America). We were also forced to drop Tajikistan, as there are no data of this in COMTRADE for most years. The results are reported in *Table A3* and exceed significantly the outcomes of the first approach for all countries: however, the qualitative conclusions seem to be almost the same.

Now, the adjustments of all trade indicators proceed as follows. We add the size of the mirror import gap for particular country pair (or region) to the numerator (the mirror import gap is either zero if exports are smaller than imports or exports minus imports otherwise). In the denominator we either add the total mirror import gap with ROW from Approach 1, and in this case we also increase it, if necessary, to be at least equal to the size of the mirror import gap with CIS-12 (because of the problems mentioned above), or the mirror import gap with ROW from Approach 2. Thus, we obtain two different sets of indicators, which are, however, highly correlated.

[10] In some cases the presence of just the export flow entry reported by the exporter may indicate a trade gap as well, if the goods and services sold from a country A to country B "completely disappeared" and have not been even included in country B's statistics; however, we ignore these entries, and their impact is usually minuscule.

Table A1: Share of mirror import gap from CIS-12 in total imports from CIS-12

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Armenia	5.59%	2.45%	0.83%	0.47%	8.99%	16.90%	15.42%	13.19%	21.27%	6.23%
Azerbaijan	5.13%	4.35%	4.11%	8.99%	9.04%	16.14%	26.05%	24.74%	40.21%	51.44%
Belarus	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%	0.14%	0.00%
Georgia	24.23%	11.42%	14.27%	3.71%	13.52%	8.76%	5.45%	na	2.12%	6.30%
Kazakhstan	0.91%	0.17%	0.21%	0.19%	0.07%	0.01%	0.07%	0.60%	2.77%	0.37%
Kyrgyz Rep.	3.97%	0.88%	3.81%	0.12%	0.19%	4.03%	8.90%	8.44%	3.22%	3.12%
Moldova	63.11%	65.29%	65.70%	53.01%	51.59%	51.51%	44.02%	44.18%	53.63%	61.22%
Russia	0.12%	0.21%	0.11%	0.45%	0.56%	0.44%	0.54%	0.48%	0.97%	0.52%
Tajikistan	11.99%	3.86%	0.34%	1.39%	0.00%	0.79%	0.55%	0.00%	0.47%	0.00%
Ukraine	0.32%	0.03%	0.24%	0.36%	0.18%	0.08%	0.27%	7.40%	0.20%	16.40%

Source: own calculation, based on the data of CISSTAT

Table A2: Share of mirror import gap from the ROW in total imports from the ROW, approach 1

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Armenia	22.75%	29.51%	3.56%	29.30%	29.54%	58.36%	37.97%	80.37%	50.57%	67.10%
Azerbaijan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Belarus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Georgia	31.31%	20.87%	21.85%	16.98%	31.32%	15.23%	1.99%	0.00%	0.00%	8.11%
Kazakhstan	0.00%	0.00%	0.00%	0.00%	5.20%	6.15%	5.09%	3.66%	2.75%	2.01%
Kyrgyz Rep.	0.00%	0.00%	0.00%	11.19%	26.35%	49.22%	76.53%	112.73%	139.73%	194.78%
Moldova	54.90%	35.63%	39.06%	26.74%	26.60%	32.30%	22.26%	20.13%	9.86%	19.01%
Russia	13.02%	25.35%	24.21%	23.66%	30.28%	33.87%	28.60%	17.57%	13.18%	6.80%
Tajikistan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.88%
Ukraine	0.00%	0.00%	0.00%	0.00%	0.00%	2.60%	3.16%	11.43%	6.88%	1.83%

Source: own calculation, based on the data of CISSTAT and COMTRADE

Table A3: Share of mirror import gap from the ROW in total imports from the ROW, approach 2

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Armenia	62.33%	60.19%	57.96%	61.64%	70.80%	86.77%	88.07%	112.12%	73.23%	86.07%
Azerbaijan	3.73%	2.35%	2.52%	4.60%	5.18%	6.14%	6.53%	6.60%	4.93%	2.91%
Belarus	1.81%	1.07%	3.01%	2.34%	2.41%	2.59%	4.32%	4.33%	3.60%	4.47%
Georgia	46.63%	37.03%	36.64%	29.12%	44.43%	31.54%	17.99%	16.05%	12.81%	22.14%
Kazakhstan	21.76%	16.40%	5.29%	10.83%	19.05%	19.90%	21.61%	19.05%	17.21%	16.41%
Kyrgyz Rep.	na	23.80%	24.52%	37.04%	42.47%	64.41%	92.16%	129.73%	154.77%	217.54%
Moldova	60.17%	42.23%	44.28%	35.58%	35.78%	38.62%	29.99%	29.87%	22.14%	33.41%
Russia	22.07%	32.75%	31.07%	29.81%	36.47%	39.69%	35.01%	25.42%	20.94%	15.13%
Tajikistan	na	5.47%	na	na	na	na	na	na	na	na
Ukraine	10.72%	11.02%	15.92%	16.20%	14.96%	18.81%	16.14%	24.12%	21.49%	19.11%

Source: own calculation, based on the data of CISSTAT and COMTRADE

A.2. Bazaar goods trade

Our approach is derived from KAMINSKI (2008), who identified the set of five commodities,[11] which are likely to be those re-exported from Kyrgyzstan. We first use the COMTRADE data to find out the overall export of theses commodities (using trade statistics of the exporters and thus covering also the import gap of the Kyrgyz Republic, which is mostly due to the trade with China). We also calculate this import flow for other Central Asian countries (actually, given the data in COMTRADE, only for Kazakhstan). The share of Kyrgyzstan in these overall imports of bazaar goods is assumed to be proportional to the republic's share in the GDP of Central Asia. The remaining part of the trade flow to Kyrgyzstan is assumed to be re-exported. Then we adjust the trade integration index for CA-4, adding the size of these re-exports to the intra-regional trade to the total intra-regional trade (the denominator does not change, since it already contains the mirror import gap). Since we do not know exactly which Central Asian countries receive the re-exports from the Kyrgyz Republic, the asymmetric integration indicators cannot be adjusted. Of course, it works only under specific assumptions: that no re-exports are registered by the Central Asian customs once re-sold from the Kyrgyz Republic (which may well be likely) and that there are no re-exports to other countries (especially Russia – which, as KAMINSKI and RABALLAND (2009) show, also receives goods from Kyrgyz bazaars). So, we rather over-estimate the extent of regional integration in CA-4.

[11] SITC 65, 83, 84, 85, 89

Appendix B: Matrix of dyadic integration indicators, example

Table B1: Trade integration, dyadic indicators, 2008

		1	2	3	4	5	6	7	8	9	10	11	12
Azerbaijan	1	0.000	0.000	0.002	0.022	0.006	0.000	0.000	0.004	0.002	na	na	0.008
Armenia	2	0.000	0.000	0.001	0.019	0.000	0.000	0.000	0.002	0.000	na	na	0.004
Belarus	3	0.002	0.001	0.000	0.001	0.006	0.001	0.009	0.062	0.002	na	na	0.042
Georgia	4	0.022	0.019	0.001	0.000	0.001	0.000	0.001	0.001	0.000	na	na	0.009
Kazakhstan	5	0.006	0.000	0.006	0.001	0.000	0.009	0.003	0.035	0.005	na	na	0.032
Kyrgyz Rep	6	0.000	0.000	0.001	0.000	0.009	0.000	0.001	0.004	0.007	na	na	0.001
Moldova	7	0.000	0.000	0.009	0.001	0.003	0.001	0.000	0.003	0.000	na	na	0.013
Russia	8	0.004	0.002	0.062	0.001	0.035	0.004	0.003	0.000	0.002	na	na	0.062
Tajikistan	9	0.002	0.000	0.002	0.000	0.005	0.007	0.000	0.002	0.000	na	na	0.001
Turkmenistan	10	na	na	na	na	na	na	na	na	na	na	na	na
Uzbekistan	11	na	na	na	na	na	na	na	na	na	na	na	na
Ukraine	12	0.008	0.004	0.042	0.009	0.032	0.001	0.013	0.062	0.001	na	na	0.000

Source: System of Indicators of Eurasian Integration

Appendix C: Main components of the SIEI

The *dyadic* integration indicators relate the *size* of the trade and factor flows between countries to the measure of the *size of their economies.* For example, for grain trade the sum of grain exports and imports connecting two countries is related to the size of their GDP. Thus, the indicator increases if the trade flows between countries grow faster than their economies. For the indicators of labour and educational migration SIEI relates the size of the factor flows not to the GDP, but to the size of the population. It certainly can create an upward bias for the integration indicators, since the population grows much more slowly than the GDP, a smaller growth of trade flows is required to actually generate an increase in the integration index. However, for the purpose of this paper we are interested in the *comparative dynamics* across different countries of regions, rather than in the explicit comparison of different integration sectors.

For total trade integration SIEI uses a somewhat different approach, calculating two indicators of integration and using their average. In both of them the size of trade flows between countries is measured by the sum of trade turnovers (exports and imports) reported by both countries - thus the SIEI attempts to use the complete information available for the purpose of the calculation of its indicators. However, the denominator is in the first case, as in all other goods trade indicators, GDP, and in the second – the sum of the overall trade turnover with the rest of the world of both countries. Thus, the first indicator compares the speed of growth of the intra-dyadic trade with the GDP of the dyads, making it consistent with other SIEI indicators; the second indicator looks at the change of the share of the intra-dyadic trade in the overall foreign trade of the dyad. Taking an average of both indicators is without loss of generality, since they are highly correlated; the separate analysis of each of the indicators yields qualitatively identical results.

The indicators of *asymmetric integration* are an important element for the analysis of post-Soviet integration given the extreme asymmetries in size of the economies, population and trade between countries. For example, the dyadic integration index of, say, Russia and Tajikistan is likely to be very small, even if for Tajikistan Russia is the key partner – simply because for Russia Tajikistan is fairly unimportant and the huge overall GDP (population, trade) of Russia will "dilute" the index. Hence, one would not be able to observe the real dependence of Tajikistan on the economic relations with Russia. Therefore, the SIEI contains the set of indicators, where the factor flows between a country and a region (say, CIS) are related just to the size of the economy (overall trade or population) of *this particular country,* allowing us to measure the unilateral dependence of a country on the economic connections with the region.

The final set of indicators measures the level of integration *within a particular region*. It simply compares the intra-regional trade and factor flows with the size of the economies (population or the overall trade of the region). Thus, three types of indicators provide three points of view on the regionalisation in the FSU: the extent of *mutual interdependence* between individual countries; the extent of *unilateral dependence* of individual countries on particular regions; and the extent of the *concentration of trade and factor flows within regions.*

Table C1. Integration indicators in the EDB's SIEI

Indicator	Country pair	Country-to-region	Region
A. General market integration			
Mutual trade	(Country's share in the total foreign trade turnover of the country pair + country's share in the total GDP of the country pair) *100 / 2	(Country's share in trade with the region in the total foreign trade turnover of the country + country's share in trade with the region in the country's GDP) *100 / 2	(Share of the countries' mutual trade in their total foreign trade turnover + share of the countries' mutual trade in the region's total GDP) *100 / 2
Migration	Share of labour migrants from each country of the pair working in the other country(thousands people) in the total population of the country pair (million people)	Share of labour migrants from the country working in the region (thousands people) in the total population of the country (million people)	Share of labour migrants from all countries of the region working in other the countries of the region (thousands people) in the total population of the region (million people)
B. Functional integration in key markets			
Electric power	Volume of trade in electric power between the countries of the pair (thousands kW/h) / their total GDP (million USD)	Volume of trade in electric power between the country and the region (thousands kW/h) / the country's GDP (million USD)	Volume of trade in electric power between the countries of the region (thousands kW/h) / the region's GDP (million USD)
Agriculture	Volume of trade in cereals between the countries of the pair (tonnes) / their total GDP (million USD)	Volume of trade in cereals between the country and the region (tonnes) / the country's GDP (million USD)	Volume of trade in cereals between the countries of the region (tonnes) / the region's GDP (million USD)
Education	Number of students from each country of the pair studying in the other country (person) / total population of the country pair (million people)	Number of students from the country studying in the region (person) / population of the country (million people)	Number of students from all countries of the region studying in other the countries of the region (person) / total population of the region (million people)

Appendix D: Anecdotal evidence

D.1. Central Asia water and energy nexus

The so-called "Central Asia water and energy nexus" represents the most striking and practically the most important venue for the highly painful international conflicts in the region (see EDB 2008 for details). Seasonal differences in the demand for water and energy have generated conflicting approaches to the utilisation of transboundary river resources. The problem is exacerbated by the infamous crisis of the shrinking Aral Sea, the global consequences of this disaster and by the winter floods caused by excessive reservoir drainage. Among other problems, this results in catastrophic flooding in downstream areas in winter and droughts in summer and acute power shortages in the upstream countries during winter.

Geopolitical changes and the transformation of the regional economy dismantled stable systems of water utilisation and energy exchange in the 1990s. The region's food and energy supplies also came under threat. Downstream countries need water for agriculture, while upstream countries tend to withhold water for electricity production during winter. When several reservoirs are drained simultaneously, it results both in catastrophic flooding and water-logging of the territories located below the Tajik and Kyrgyz hydro power plants and water shortages during the growing season. This last problem is most critical for the Central Asian countries and is a key source of conflict between the upstream countries (Kyrgyzstan and Tajikistan), which exploit the energy potential of the rivers, and the downstream countries (Kazakhstan, Turkmenistan and Uzbekistan), which need water from the rivers for agriculture. Agriculture is the biggest consumer of water, so the water utilisation model in the upstream countries not only affects farmers in the downstream countries, but indeed the whole economy, as the social and economic importance of agriculture in Central Asia is paramount. Agriculture's capacity to sustain Central Asia's population is directly dependent upon the productivity and efficiency of irrigated land, since most people (from 43 per cent in Kazakhstan up to 75 per cent in Tajikistan) live in rural areas.

Kyrgyzstan and Tajikistan have found that their attempts to build the large hydro complexes that change transboundary water flow are perceived by other countries as a threat to their national interests. Meanwhile, large investments in construction of hydropower plants are *only* possible with consent and cooperation with neighbouring countries and external forces, particularly Russia, China, and the international development banks. External players exert significant influence on regional cooperation and conflict. When regional cooperation institutions are weak and domestic funds are not sufficient, the support of the international community becomes vitally important for Central Asian countries.

The interweaving and interdependency of the region's hard infrastructure is well illustrated by the recent conflicts involving the inter-state railways. In spring and summer 2010, Uzbekistan permanently blocked railway deliveries to Tajikistan. As described above, the former country disputes the idea of its smaller neighbour building additional hydro power plants, fearing further disruptions to water supplies. As the principal railway connection to Tajikistan transits Uzbekistan, it provides a handy instrument of pressure. More than 1500 wagon cars have been blocked for months, including those with equipment for Sangtuda hydro power plant-2.

Water supplies can also be used as a means of political and economic pressure. That happened, for instance, in May 2010, when Kazakhstan closed its border to Kyrgyzstan at the time of political upheaval in Bishkek. Kyrgyzstan promptly retaliated by interrupting water supplies for agricultural use to the Zhambul region of its northern neighbour, which is heavily dependent on irrigated agriculture.

Similar problems are observed in the area of cross-border electricity trade. Over recent decades, Russia and Kazakhstan have efficiently managed extensive cross-border flows of electric power based on developed infrastructure and Kazakhstan's comparative advantage as a provider of low-cost electric power produced from Ekibastuz coal. While Ekibastuz power was exported and consumed by neighbouring Russian regions just across the border, western parts of Kazakhstan were supplied with Russian energy. This situation was perceived as a threat by Kazakh authorities. It led to the construction of the 500km-long 500kW "North Kazakhstan – Aktobe region" power line, which cost around USD180 million to build in 2006-2007. Partly as a result of this, Kazakhstan' s electric power imports from Russia fell from 5316 million kW/h in 2004 to 2214 million kW/h in 2008, while its exports to Russia remained virtually unchanged at 2379 million kW/h, despite the vast export potential of Eki-

bastuz coal-fired power plants. This is four times lower than the levels achieved in the 1980s (VINOKUROV 2008).

Uzbekistan represents another striking example of the prevalence of the narrowly defined 'electric power security' over an economically more beneficial regime of trans-boundary electricity flows within existing regional power systems. This country withdrew from the Unified Energy System of Central Asia (UES-CA) on December 1st, 2009. This unilateral act was apparently in the planning for two years, while the Uzbek power system was being interconnected. Because of Uzbekistan's central position, all Central Asian countries have been hit by this decision; Tajikistan, however, may be worst affected. For the last 70 years, Tajikistan has received a substantial proportion of its power supplies from neighbouring Uzbekistan (its energy deficit in the autumn-winter period constitutes around 2bn kW/h; this is covered by 0.6bn kW/h of Uzbek energy and 1.2bn kW/h of Turkmen energy transited through Uzbekistan). Over the same period, Tajikistan has exported comparable amounts of electricity to Southern Uzbekistan in the spring-summer season, in the process of irrigating countries located downstream on major rivers. One of the solutions now being actively considered is to connect Khudzhand (Tajikistan), Datka (Kyrgyzstan) and Almaty (Kazakhstan) with a high-voltage power line, thus effectively bypassing Uzbekistan. This power line would, however, be longer than the existing one and require several years to build. Thus, Uzbekistan's withdrawal from the UES-CA has led to economically suboptimal production and the need for extensive capital investment. Uzbekistan will also be adversely hit by its own decision, as the country's own power consumption peaks will no longer be covered by daily trans-border power flows within the regional unified system. In addition, effective international regulation of water in Central Asia has now become an even more remote prospect.

However, border conflicts are not limited to water and energy. Central Asian states have taken measures to control this informal trade in border regions (e,g,, Uzbekistan's campaign to "strengthen the border" in the Fergana Valley in 2008-2009, which included building a fully functional right-of-way, concrete walls and trenches; or the mine fields placed by Uzbekistan along the borders with Tajikistan – actually, on the Tajik territory). Even the most commonplace events – like a cow crossing the border between Uzbekistan and Tajikistan in February 2010 (NOVYI REGION, 2010) or Uzbekistan and Kyrgyz Republic one month earlier (RIA NOVOSTI, 2010) – can result in serious diplomatic conflicts with strong media influence.

D.2. The role of China

Economic interaction between China and Central Asian states has been growing on almost all levels over the past decades. First, China is one of the key foreign investors in the region, and has increased its activity over the recent decades. It is particularly true for the energy area, where the Chinese government looks at Central Asia as one of the key regions potentially diversifying the supply sources for the country: for instance, in Kazakhstan by 2006 Chinese state-owned corporations (CNPC, SINOPEC and CITIC) already ranked second among the foreign investors in the oil and gas area (their assets include AktobeMunaiGaz; KarazhanbasMunai and PetroKazakhstan). From this point of view China is actively involved in a number of pipeline projects in the region, which at the moment are significantly less developed than those connecting Central Asia and Russia. However, while the Chinese share in oil and gas extraction in Kazakhstan is significant, the pipeline infrastructure is still mostly under construction – although the first pipelines connecting Kazakhstan and China (Atasu – Alashankou) and Turkmenistan and China are already operational.

Second, China permanently builds on its foreign trade with Central Asia (as discussed below). Here, however, the story is somewhat different: while there seems to be conscious effort of the Chinese regional and central authorities to promote this trade, to a great extent the Chinese presence in Central Asia is based on the informal bazaar networks, which do, however, interact with state-owned companies. China primarily exports consumer goods and machines and equipment to Central Asia. RABALLAND and ANDRESY (2007) discuss three sources of trade growth between Central Asia and China: commerce of traders from Zhejiang, petty border trade and the activities of the Xinjiang Production and Construction Corp. a paramilitary para-governmental institution. The literature reports significant efforts by the Chinese government to promote this small-scale trade (SWANSTROEM 2003); so it looks like while on the one hand informal trade between China and Central Asia is growing due to the activity of non-governmental actors, these informal interrelations fit in quite well with the strategy of the Chinese government. One potential area of increasing ties between Central Asia and China is agriculture; in 2010 China was considering investing in soy-beans farming in Kazakhstan.

In the area of migration, unlike the relations to Russia, China does not seem to play any significant role in Central Asia; on the one hand, China does not seem to experience demand for labour (unlike Russia) and supports

the movement of the Han migrants to Xinjiang, and, on the other hand, Central Asian states are highly sensitive to the issue of migration from China and prefer a very cautious attitude.

D.3. The role of Russia

Over the 1990s the economic role of Russia in Central Asia was gradually declining, partly because of the attempts of Central Asian states to protect their domestic markets (which were evident e.g. after the crisis in 1998) and partly because of economic weakness of Russia itself. The situation changed during the 2000s with Russia once again turning into a crucial economic partner for Central Asia. This is related to three main aspects. First, Russia was able to enhance its interrelations with Central Asia in the energy sphere. From 2004, Russian companies (Gazprom, LUKoil, InterraoUES, Rosneft) were able to acquire substantial assets in Kazakhstan and partly Uzbekistan. While in the 1990s Kazakhstan remained particularly open to multinationals from developed countries, thus restricting the "window of opportunities" for the then-weak Russian business, in the 2000s Russian companies became stronger and Kazakhstan turned to a more hostile policy towards Western multinationals. Gazprom was able to sign contracts with almost all Central Asian countries regarding the purchase and the transportation of their oil and gas for amounts large enough to prevent Central Asia from developing alternative routes of transportation (i.e. to China). In this case, the Russian success is not so straightforward: in the late 2000s Russia even had to deal with the consolidated position of Uzbekistan, Turkmenistan and Kazakhstan regarding the price increase for the oil and gas exported from the region. As oil and gas are a key area of political concern for the Russian government, any interaction in this field usually has a very strong element of power politics and does depend upon the strategic considerations of Central Asian states.

Second, Russia has played a significant role in the non-oil and gas area. Mostly it can be associated with three sectors: metals and mining (where Russian investors have purchased significant assets in Kazakhstan and Kyrgyz Republic and attempted to expand to Tajikistan, where, however, the government restricted their access to the most attractive businesses); manufacturing (where Russian business basically uses the old links established by the Soviet production chains – in automotive and heavy machinery (KaMAZ, AvtoVAZ), agricultural machinery (Agromashkholding) and transportation equipment (Transmashkholding)) and "new" industries of food processing and particularly communications and mobile service provision, where new Russian companies (in most cases almost free from any forms of political pressure and control) expand in the countries with similar cultural and institutional environment. KHEYFETS (2009) reports a detailed list of the Russian FDI in Central Asia; in addition, many machine-building companies expand in Central Asia through long-term cooperation contracts with the local businesses. Whether this process is sufficient to compensate the centripetal forces of the Soviet collapse, is questionable – and the SIEI result suggest, it is not (most integration in this area is *not* informal and therefore at least in the area of trade captured by statistics). This area, however, seems to be almost independent from the "direct" political pressures.

Finally, as the SIEI documents, there is a huge surge of migration from Central Asia to Russia, which for some countries (Tajikistan) turned the remittances into one of the main sources of revenue for the national economy. Here the migrants seem to benefit from strong demand of the growing Russian economy for the labour force and from still-existing cultural links (like knowledge of Russian or presence of ethnic networks in Russia itself). The link to the Russian political objectives is much weaker here: in many cases, because of the internal political concerns, which are likely to outweigh the foreign policy considerations (migration is among the main areas of public opinion focus in Russia, as in most emigration countries of the world), Russian government (and, even more important, local and regional authorities, which play an important role in this area) would rather prefer restricting the migration. However, bad quality of bureaucracy (unable to exercise any efficient labour market control) and demand for labour force from Russian businesses seems to keep the migration networks significant – most of them actually survived the crisis of 2008-2009. It is interesting to notice that regionalisation has been really successful in the FSU in the area where the "political motivation" of the Russian government has been the weakest, i.e. migration (compare the SIEI data), while in other areas with potentially stronger political motivation the success is weaker.

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