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Kazakhstan's Revealed Comparative Advantage Vis-À-Vis the EU-27

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ABSTRACT

ECONOMIC TRADE RELATIONS between Kazakhstan and the EU are becoming increasingly important, and much of this economic success is due to its rich energy resources and the government's efforts in restructuring its centrally planned economy towards a more free-market based economy. In spite of these achievements a number of challenges remain to be dealt with, and one of the most important is diversifying the economy. This paper aims to examine Kazakhstan's competitiveness vis-à-vis world exports to the EU-27 and intra-exports between the EU-27 member countries. The empirical analysis is based on Balassa's revealed comparative advantage (RCA) measure. The analysis reveals that although Kazakhstan shows a revealed comparative advantage in a number of sectors, its competitiveness has a falling trend in almost all sectors.



JEL Code: C10; F12; F13; P20

Keywords: Kazakhstan-EU trade relation; Revealed comparative advantage; competitiveness

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1. INTRODUCTION*

ECONOMIC TRADE RELATIONS between Kazakhstan and the EU are becoming increasingly important. Indeed, bilateral trade between the two rose to 19 billion euros (0.7 % of total EU-27 trade) in 2006, compared to 14 billion euros (0.2 % of total EU-27 trade) in 1999. Much of Kazakhstan's economic success is due to its rich energy resources and the government's efforts in restructuring its centrally planned economy towards a more free-market based economy. However, in spite of these achievements a number of challenges remain to be dealt with if Kazakhstan wishes to maintain its present economic growth. Among these challenges one of the most important is diversifying the economy. The Kazakh economy is currently heavily dependent on its energy resources, with its mineral fuels accounting for more than 80 per cent of exports.

THIS PAPER AIMS to examine Kazakhstan's relative competitiveness and compare the structure of specialization in trade vis-à-vis world exports to the EU-27 and exports within the EU-27 member countries. The empirical analysis is based on Balassa's (1965) revealed comparative advantage (RCA) index.

The rest of the paper is structured as follows. To provide background for the analysis, an overview of Kazakhstan's export and import structure is presented briefly in Section 2. In Section 3 indices of revealed comparative advantage are developed to examine Kazakhstan's RCA with respect to world exports into the EU-27 and with the EU-27 member countries. In addition, Section 4 examines Kazakhstan's comparative advantage over time to see if Kazakhstan's competitiveness is increasing or decreasing. Conclusions are included in Section 5.

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2. KAZAKHSTAN'S TRADE STRUCTURE IN GENERAL

TABLE 1: PERCENTAGE SHARE OF KAZAKHSTAN'S COMMODITY TRADE VIS-À-VIS THE EU-27 (IN %)

Year	Food and Live Animals	Beverages and Tobacco	Crude Materials	Minerals and Fuels	Animal and Vegetable Oil	Chemical Products	Basic Manufactures	Machines, Transport Equipment	Miscellaneous Manufactures	Goods not Classified by Kind
EXPORTS										
1999	1.32	0.00	2.62	51.33	-	4.79	25.01	7.53	0.33	5.85
2000	1.04	0.00	3.18	71.83	-	2.86	17.97	1.65	0.06	0.66
2001	0.71	0.03	2.74	70.06	0.00	3.04	20.68	0.90	0.16	0.50
2002	1.03	0.02	1.62	78.75	-	1.55	14.86	0.27	0.16	0.95
2003	0.97	0.01	1.43	80.24	-	2.14	10.55	0.35	0.30	3.06
2004	0.48	0.00	0.83	84.81	0.00	1.63	9.31	0.29	0.16	2.03
2005	0.74	0.02	0.96	87.71	0.00	0.84	8.52	0.26	0.07	0.43
2006	0.53	0.03	1.44	83.49	0.00	1.21	12.47	0.15	0.03	0.29
IMPORTS										
1999	3.72	2.54	0.77	0.76	0.72	8.24	10.36	59.87	11.00	0.81
2000	2.87	1.10	0.60	0.50	0.31	10.58	13.69	57.48	11.05	0.68
2001	2.64	1.12	0.77	0.43	0.23	11.76	17.55	49.46	13.11	1.73
2002	2.32	1.18	0.68	0.43	0.32	13.09	15.20	52.55	11.95	1.11
2003	2.39	0.81	0.91	0.51	0.32	13.97	12.57	55.89	10.97	0.88
2004	1.82	0.57	0.64	0.46	0.31	11.83	14.66	59.66	8.88	0.60
2005	2.28	0.58	0.66	0.57	0.18	13.07	14.30	55.82	10.62	1.24
2006	2.08	0.60	0.55	0.78	0.11	12.22	12.88	57.98	10.12	2.15

Source: Calculation based on EUROSTAT data

TABLE 1 ILLUSTRATES the structure of Kazakhstan's trade by presenting industry's share with respect to total trade. As evident from Table 1, the most noticeable element is the dominance of minerals and fuel in the share of exports. Its share of 51 percent in total in 1999 has been increasing steadily, accounting for 83 per cent in 2006. Indeed, oil has been the driving force of economic development over the past decade in Kazakhstan. Basic manufacturing (mainly metals) is the second most important industry to have contributed in the development of Kazakhstan's export structure. Although still important, the share of basic manufacturing in exports has been declining since 1999. At the aggregate level, Kazakhstan's exports are still heavily dominated by minerals and fuels, while the majority of imports, in particular machinery and transport equipment, generate more than a half of the total imports.

3. KAZAKHSTAN'S REVEALED COMPARATIVE ADVANTAGE

THIS SECTION LOOKS at how Economic trade theory advances two explanations of comparative advantage. The first is the Ricardian theory that attributes comparative advantage to technological differences across nations, and the second, the Heckscher-Ohlin (H-O) theory that states that comparative advantage results from cost differences which are determined by a country's relative factor scarcity. To measure the comparative advantage, Balassa (1965) suggested that comparative advantage could be "revealed" by observed trade patterns that reflect differences in factor endowments across nations.

Balassa constructed an index that measures a country's revealed comparative advantage (RCA). Based on Balassa (1965) and Benedicts & Tambari (2001), two measures of competitive advantage are developed. The first index (RCA^1) aims to measure Kazakhstan's exports advantage with respect to world exports into the EU-27. Formally the index is presented as

$$RCA_i^1 = \frac{X_{kzi}}{X_{kz}} \bigg/ \frac{X_{wi}}{X_w} \quad (1)$$

where, RCA_i^1 denotes revealed comparative advantage index of Kazakhstan's industry i to the EU-27, X_{kzi} is Kazakh exports to the EU-27 in industry i , X_{wi} is world industry i 's exports to the EU-27; X_{kz} indicates total Kazakh exports to the EU-27, and X_w is the world exports to the EU-27. The second index (RCA^2) captures Kazakhstan's comparative advantage with respect to intra-EU trade, i.e. trade between member states. This is expressed as follows:

$$RCA_i^2 = \frac{X_{kzi}}{X_{kz}} \bigg/ \frac{(X_{kzi} + X_{EU-27i})}{(X_{kz} + X_{EU-27})} \quad (2)$$

where, RCA_i^2 denotes a revealed comparative advantage index of Kazakhstan's industry i with respect to EU-27 member countries, X_{EU-27i} is the intra EU export between member state industry i , and X_{EU-27} indicates total intra-EU exports within Europe. The reasoning behind the two measures is simple. The RCA_i^1 index for example, compares the share of Kazakhstan industry's i trade with the share of the same industry in world exports to the EU-27. The index reveals that Kazakhstan has a comparative disadvantage in sector i with respect to world exporters if $0 < RCA_i^1 < 1$, while it has a comparative advantage in sector i if $RCA_i^1 > 1$. In other words, when $RCA_i^1 > 1$, then $(X_{kzi} / X_{kz}) > (X_{wi} / X_w)$; so Kazakhstan's share of industry i is greater than the same sectoral share of world exports.¹

The present analysis is based on the annual time series data on EU-27 exports and imports, compiled by EUROSTAT. The data have been collected at 3-digit Standard International Trade Classification (SITC) over the period 1999 to 2006. Tables 3 and 4 in the appendix present all the computations for indices RCA^1 and RCA^2 respectively at 2-digit SITC level of aggregation.

An overall examination of both indices reveals that Kazakhstan has a comparative advantage in five sectors, namely in food and live animals (1-digit SITC code 0), crude materials (SITC code 2), energy (SITC code 3), chemical products (SITC code 5) and manufactured goods (SITC code 6). Table 2 presents a closer look (at 3-digit level) of the sectors in which Kazakhstan has a revealed comparative advantage. As can be seen, Kazakhstan's comparative advantage is in the energy sector and manufacturing of goods such as inorganic chemicals, iron, steel and non-ferrous metals.

TABLE 2: SECTORS THAT REVEAL COMPARATIVE ADVANTAGE

SITC	SECTORS IN WHICH KAZAKHSTAN HAS A COMPARATIVE ADVANTAGE IN BOTH INDICES RCA ¹ & RCA ²
04	CEREALS AND CEREAL PREPARATIONS
041	WHEAT (INCLUDING SPELT) AND MESLIN, UNMILLED
043	BARLEY, UNMILLED
21	HIDES, SKINS AND FURSKINS, RAW
211	HIDES AND SKINS (EXCEPT FURSKINS), RAW
26	TEXTILE FIBRES AND THEIR WASTES
261	SILK
263	COTTON
28	METALLIFEROUS ORES AND METAL SCRAP
282	FERROUS WASTE AND SCRAP; REMELTING SCRAP INGOTS OF IRON OR STEEL
286	URANIUM OR THORIUM ORES AND CONCENTRATES
32	COAL, COKE AND BRIQUETTES
321	COAL, WHETHER OR NOT PULVERIZED, BUT NOT AGGLOMERATED
33	PETROLEUM, PETROLEUM PRODUCTS
333	PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS, CRUDE
34	GAS, NATURAL AND MANUFACTURED
342	LIQUEFIED PROPANE AND BUTANE
243	NATURAL GAS, WHETHER OR NOT LIQUEFIED
344	PETROLEUM GASES AND OTHER GASEOUS HYDROCARBONS, N.E.S.
52	INORGANIC CHEMICALS
522	INORGANIC CHEMICAL ELEMENTS, OXIDES AND HALOGEN SALTS
524	OTHER INORGANIC CHEMICALS; ORGANIC AND INORGANIC COMPOUNDS OF PRECIOUS METALS
525	RADIOACTIVE AND ASSOCIATED MATERIALS
67	IRON AND STEEL
671	PIG-IRON, SPIEGELEISEN, SPONGE IRON, IRON OR STEEL GRANULES AND POWDERS AND FERRO-ALLOYS
68	NON FERROUS METALS
681	SILVER, PLATINUM AND OTHER METALS OF THE PLATINUM GROUP
682	COPPER
685	LEAD
686	ZINC
689	MISCELLANEOUS NON FERROUS METALS
SITC	SECTORS IN WHICH KAZAKHSTAN PRESENTS A COMPARATIVE ADVANTAGE FOR INDEX RCA²
67	IRON AND STEEL
673	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, NOT CLAD , PLATED OR COATED
674	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, CLAD , PLATED OR COATED

Source: Calculation based on EUROSTAT data.

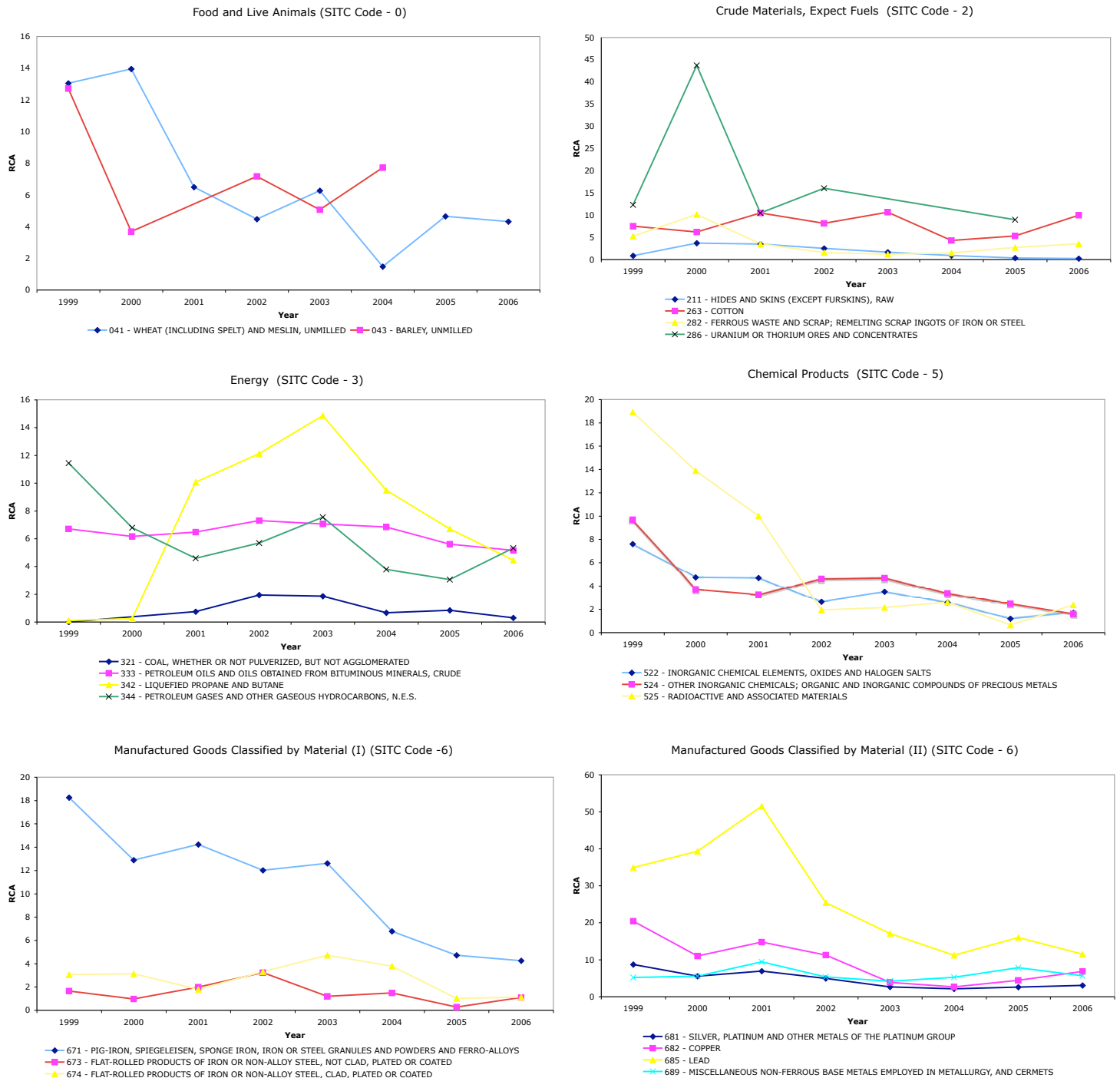
Although a static view of Kazakhstan's comparative advantage seems to be good, a different picture emerges when looking at how the competitiveness has evolved since 1999. The next section aims at showing how the different sectors have evolved over time.

3. CHANGING TREND OF KAZAKHSTAN'S REVEALED COMPARATIVE ADVANTAGE

THIS SECTION TAKES a look at how the sectors for which Kazakhstan has a comparative advantage have evolved since 1999. Figure 1 plots the RCA^1 index over time. A very similar result is obtained by using the RCA^2 index. For the sake of simplicity they are not presented in this paper. A glance at

Figure 1 reveals that Kazakhstan's competitiveness over time has a falling trend for all commodities except cotton (3 digit SITC 263) and for some miscellaneous non-ferrous based metals (code 689) for which the revealed comparative advantage has slightly improved since 1999. As a result Figure 1 hints towards a weak competitiveness of Kazakh exports to the European markets in the future.

FIGURE 1: CHANGING TRENDS OF REVEALED COMPARATIVE ADVANTAGE OVER TIME FOR INDEX RCA¹



4. CONCLUSION

AN ANALYSIS OF the competitiveness of Kazakhstan with respect to world exports into the EU-27 and the member countries have been presented based on the Balassa index of revealed competitive advantage and calculated for the period 1990 to 2006. Both evaluations of the RCA indices revealed the same findings, that Kazakhstan is competitive in several sectors, mainly in energy and manufactured goods. However, a more pessimistic view is revealed when examining Kazakhstan's competitiveness over time. The results suggest that the competitiveness of Kazakhstan has decreased significantly over the past few years.

This being said, Kazakhstan obviously retains a comparative advantage in the energy and mineral sectors, and mineral fuels account for over 80 % of exports, as was seen at the start of the paper. Kazakhstan therefore appears to be trading in the "right" way, so to speak, and exploiting this relative advantage well with regards to the EU, in spite of an overall decline in competitiveness. Oil and minerals have been the driving force of Kazakhstan's economic development over the past decade and a half. However, the dominance of this sector in the economy has been a major cause of concern to the Kazakh government in the past decade, which has cited "over-dependence" and a desire for economic diversification.² As part of their overall economic growth strategy, the government has in recent years been focused on building up its manufacturing sector in particular.

The results of this study suggest that this has not been successful and, in terms of future policy recommendations, the Kazakh government may do well to turn their attention to other areas of the economy, or indeed to put their energy into continuing the process of liberalization to which they have stated a commitment since independence in the 1990s. It may be one of the oldest economic debates, but the extent to which a government can manipulate comparative advantage is the core of the issue here, as Kazakhstan continues its path away from planned economy towards greater integration into global markets. And while this study has been limited to the EU and is obviously not a complete picture of Kazakhstan's total trade with the rest of the world, it should prompt further investigation in order to shed light on just how successful the government's diversification strategy has been to date and where they should go from here.

5. APPENDIX

TABLE 3: REVEALED COMPARATIVE ADVANTAGE OF KAZAKHSTAN USING INDEX RCA¹ (AT 2 DIGIT-SITC LEVEL OF AGGREGATION)

SITC Code		1999	2000	2001	2002	2003	2004	2005	2006
0	FOOD AND LIVE ANIMALS	0.22	0.21	0.13	0.19	0.18	0.09	0.15	0.12
01	MEAT AND MEAT PREPARATIONS	0.00	0.00	-	-	0.00	-	-	-
02	DAIRY PRODUCTS AND BIRDS' EGGS	-	-	0.01	-	-	-	-	-
03	FISH CRUSTACEANS, MOLLUSCS	0.19	0.02	0.00	0.02	0.10	0.20	0.28	0.20
04	CEREALS AND CEREAL PREPARATIONS	3.80	4.31	2.31	2.60	2.46	0.72	1.99	1.51
05	VEGETABLES AND FRUIT	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00
06	SUGARS, MOLASSES AND HONEY	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00
08	FEEDING STUFF FOR ANIMALS	-	0.07	0.14	0.13	0.10	0.04	0.00	0.00
09	MISCELLANEOUS EDIBLE PRODUCTS AND PREPARATIONS	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00
1	BEVERAGES AND TOBACCO	0.00	0.01	0.04	0.03	0.01	0.01	0.04	0.06
11	BEVERAGES	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
12	TOBACCO	0.00	0.00	0.09	0.06	0.03	0.02	0.12	0.17
2	CRUDE MATERIALS, EXCEPT FUELS	0.54	0.68	0.59	0.37	0.34	0.19	0.23	0.34
21	HIDES, SKINS AND FURSKINS, RAW	0.74	3.29	3.09	2.15	1.38	0.72	0.28	0.15
22	OIL SEEDS AND OLEAGINOUS FRUITS	0.01	0.05	0.00	0.00	0.00	0.01	0.03	0.15
23	CRUDE RUBBER	-	-	-	-	-	0.00	-	-
24	CORK AND WOOD	0.00	0.00	0.00	0.00	0.00	-	-	0.00
25	PULP AND WASTE PAPER	-	-	-	-	-	-	-	-
26	TEXTILE FIBRES AND THEIR WASTES	2.81	2.13	3.69	2.65	3.11	1.20	1.17	1.91
27	CRUDE FERTILIZERS	0.07	0.05	0.04	0.02	0.05	0.13	0.10	0.14
28	METALLIFEROUS ORES AND METAL SCRAP	0.81	1.24	0.51	0.24	0.16	0.23	0.37	0.46
29	CRUDE ANIMAL AND VEGETABLE MATERIALS, N.E.S.	0.03	0.01	0.01	0.01	0.01	0.01	0.00	0.00
3	ENERGY	4.54	4.43	4.35	4.95	4.75	4.75	3.80	3.34
32	COAL, COKE AND BRIQUETTES	0.00	-	0.74	1.94	1.86	0.66	0.84	0.30
33	PETROLEUM, PETROLEUM PRODUCTS	5.82	5.46	5.58	6.25	6.04	5.78	4.70	4.35
34	GAS, NATURAL AND MANUFACTURED	0.07	0.07	0.63	0.77	0.89	1.55	1.24	0.45
35	ELECTRIC CURRENT	-	-	-	-	-	-	-	-
39	CONFIDENTIAL TRADE OF GROUP 39 AND/OR ESTIMATIONS	-	-	-	-	-	-	-	-
4	OILS, FATS AND WAXES	-	-	0.00	-	-	0.00	0.00	0.00
41	ANIMAL OILS AND FATS	-	-	-	-	-	-	-	-
42	FIXED VEGETABLE FATS AND OILS, CRUDE	-	-	-	-	-	0.00	0.00	0.00
43	ANIMAL OR VEGETABLE FATS AND OILS, WAXES	-	-	0.00	-	-	-	-	-
49	ADJUSTMENTS	-	-	-	-	-	-	-	-
5	CHEMICALS PRODUCTS	0.61	0.40	0.39	0.18	0.25	0.19	0.10	0.15
51	ORGANIC CHEMICALS	0.00	0.03	0.04	0.01	0.02	0.02	0.02	0.00
52	INORGANIC CHEMICALS	7.60	4.74	4.69	2.66	3.51	2.58	1.20	1.69
53	DYEING, TANNING AND COLOURING MATERIALS	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00
54	MEDICINAL AND PHARMACEUTICAL PRODUCTS	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00
55	ESSENTIAL OILS, PERFUME MATERIALS, COSMETICS	0.07	0.01	0.03	0.00	0.00	0.00	0.00	0.00
56	FERTILIZERS	-	-	0.00	0.07	0.00	0.03	-	0.03

57	PLASTICS IN PRIMARY FORMS	0.01	0.02	-	0.01	0.01	0.00	0.01	0.02
58	PLASTICS IN NON PRIMARY FORMS	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	CHEMICAL MATERIALS AND PRODUCTS, N.E.S.	0.00	0.06	0.02	0.01	0.00	0.01	0.00	0.00
6	MANUFACTURED GOODS CLASSIFIED BY MATERIAL	2.17	1.61	1.83	1.36	0.99	0.83	0.78	1.06
61	LEATHER MANUFACTURES, DRESSED FURSKINS	0.00	0.01	0.22	0.21	0.20	0.13	0.21	0.19
62	RUBBER MANUFACTURES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	CORK AND WOOD MANUFACTURES	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	PAPER, PAPERBOARD AND ARTICLES THEREOF	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
65	TEXTILE YARN, FABRICS, AND RELATED PRODUCTS	0.04	0.01	0.02	0.02	0.03	0.03	0.02	0.06
66	NON METALLIC MINERAL MANUFACTURES	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
67	IRON AND STEEL	5.48	3.77	4.10	3.97	3.81	2.41	1.48	1.29
68	NON FERROUS METALS	8.70	5.55	6.91	4.92	2.64	2.15	2.62	3.07
69	MANUFACTURES OF METALS	0.05	0.03	0.02	0.05	0.02	0.01	0.01	0.01
7	MACHINERY AND TRANSPORT EQUIPMENT	0.19	0.04	0.02	0.01	0.01	0.01	0.01	0.01
71	POWER GENERATING MACHINERY AND EQUIPMENT	0.04	0.00	0.00	0.01	0.01	0.01	0.01	0.00
72	MACHINERY SPECIALIZED FOR PARTICULAR INDUSTRIES	0.14	0.09	0.14	0.04	0.04	0.04	0.04	0.03
73	METALWORKING MACHINERY	0.01	0.03	0.01	0.06	0.00	0.01	0.02	0.02
74	GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT	0.02	0.06	0.03	0.02	0.03	0.01	0.03	0.02
75	OFFICE MACHINES AND COMPUTERS	0.00	0.10	0.04	0.00	0.00	0.00	0.00	0.00
76	TELECOMMUNICATION, SOUND, TV, VIDEO	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00
77	ELECTRICAL MACHINERY	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00
78	ROAD VEHICLES	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	OTHER TRANSPORT EQUIPMENT	1.40	0.01	0.01	0.00	0.02	0.02	0.00	0.01
8	MISCELLANEOUS MANUFACTURED ARTICLES	0.02	0.00	0.01	0.01	0.02	0.01	0.01	0.00
81	PREFABR. BUILDINGS; SANITARY, HEATING, LIGHTING	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
82	FURNITURE, BEDDING, MATTRESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	TRAVEL GOODS, HANDBAGS AND SIMILAR GOODS	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	ARTICLES OF APPAREL AND CLOTHING ACCESSORIES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	FOOTWEAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87	PROFESSIONAL, SCIENTIFIC AND CONTROLLING MATERIAL	0.12	0.01	0.06	0.06	0.05	0.07	0.02	0.01
88	PHOTOGRAPHIC APPARATUS AND OPTICAL GOODS, CLOCKS	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
89	MISCELLANEOUS MANUFACTURED	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00
9	ARTICLES NOT CLASSIFIED ELSEWHERE	1.88	0.19	0.15	0.28	0.91	0.66	0.20	0.14

Source: Calculation based on EUROSTAT data.

Notes: Scores greater than unity ($RCA > 1$) reveal a comparative advantage, while scores less than unity ($0 \leq RCA < 1$) reveal a comparative disadvantage. Sectors that reveal a comparative advantage are written in bold numbers.

TABLE 4: REVEALED COMPARATIVE ADVANTAGE OF KAZAKHSTAN USING INDEX RCA² (AT 2 DIGIT-SITC LEVEL OF AGGREGATION)

SITC Code		1999	2000	2001	2002	2003	2004	2005	2006
0	FOOD AND LIVE ANIMALS	0.18	0.15	0.10	0.14	0.13	0.07	0.10	0.08
01	MEAT AND MEAT PREPARATIONS	0.00	0.00	-	-	0.00	-	-	-
02	DAIRY PRODUCTS AND BIRDS' EGGS	-	-	0.00	-	-	-	-	-
03	FISH CRUSTACEANS, MOLLUSCS	0.43	0.04	0.01	0.04	0.22	0.42	0.56	0.42
04	CEREALS AND CEREAL PREPARATIONS	1.13	1.22	0.76	1.11	0.91	0.26	0.52	0.39
05	VEGETABLES AND FRUIT	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
06	SUGARS, MOLASSES AND HONEY	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00
08	FEEDING STUFF FOR ANIMALS	-	0.12	0.24	0.23	0.17	0.06	0.00	0.00
09	MISCELLANEOUS EDIBLE PRODUCTS AND PREPARATIONS	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00
1	BEVERAGES AND TOBACCO	0.00	0.00	0.02	0.01	0.00	0.00	0.02	0.02
11	BEVERAGES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	TOBACCO	0.00	0.00	0.07	0.04	0.02	0.01	0.06	0.08
2	CRUDE MATERIALS, EXCEPT FUELS	1.00	1.16	1.09	0.64	0.56	0.30	0.36	0.50
21	HIDES, SKINS AND FURSKINS, RAW	0.72	3.54	3.54	2.27	1.38	0.64	0.22	0.11
22	OIL SEEDS AND OLEAGINOUS FRUITS	0.03	0.24	0.00	0.01	0.03	0.06	0.10	0.50
23	CRUDE RUBBER	-	-	-	-	-	0.01	-	-
24	CORK AND WOOD	0.00	0.00	0.00	0.00	0.00	-	-	0.00
25	PULP AND WASTE PAPER	-	-	-	-	-	-	-	-
26	TEXTILE FIBRES AND THEIR WASTES	7.40	5.12	9.13	6.13	6.32	2.50	1.94	3.02
27	CRUDE FERTILIZERS	0.13	0.08	0.07	0.04	0.09	0.20	0.16	0.20
28	METALLIFEROUS ORES AND METAL SCRAP	2.64	3.51	1.54	0.67	0.40	0.51	0.85	0.98
29	CRUDE ANIMAL AND VEGETABLE MATERIALS, N.E.S.	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00
3	ENERGY	17.38	16.67	16.91	19.01	18.47	18.50	14.14	12.55
32	COAL, COKE AND BRIQUETTES	0.00	-	3.68	9.24	9.75	3.14	4.22	1.46
33	PETROLEUM, PETROLEUM PRODUCTS	23.12	20.70	21.90	25.24	25.44	23.75	20.12	17.05
34	GAS, NATURAL AND MANUFACTURED	0.35	0.36	3.11	3.76	4.29	10.43	5.61	2.33
35	ELECTRIC CURRENT	-	-	-	-	-	-	-	-
39	CONFIDENTIAL TRADE OF GROUP 39 AND/OR ESTIMATIONS	-	-	-	-	-	-	-	-
4	OILS, FATS AND WAXES	-	-	0.00	-	-	0.00	0.00	0.00
41	ANIMAL OILS AND FATS	-	-	-	-	-	-	-	-
42	FIXED VEGETABLE FATS AND OILS, CRUDE	-	-	-	-	-	0.00	0.00	0.00
43	ANIMAL OR VEGETABLE FATS AND OILS, WAXES	-	-	0.00	-	-	-	-	-
49	ADJUSTMENTS	-	-	-	-	-	-	-	-
5	CHEMICALS PRODUCTS	0.39	0.23	0.24	0.11	0.15	0.12	0.06	0.08
51	ORGANIC CHEMICALS	0.00	0.02	0.03	0.01	0.02	0.02	0.02	0.00
52	INORGANIC CHEMICALS	8.59	4.69	4.87	2.85	3.99	2.96	1.50	2.21
53	DYEING, TANNING AND COLOURING MATERIALS	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	MEDICINAL AND PHARMACEUTICAL PRODUCTS	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
55	ESSENTIAL OILS, PERFUME MATERIALS, COSMETICS	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00
56	FERTILIZERS	-	-	0.00	0.08	0.00	0.03	-	0.03
57	PLASTICS IN PRIMARY FORMS	0.01	0.01	-	0.00	0.00	0.00	0.00	0.01

58	PLASTICS IN NON PRIMARY FORMS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	CHEMICAL MATERIALS AND PRODUCTS, N.E.S.	0.00	0.03	0.01	0.00	0.00	0.01	0.00	0.00
6	MANUFACTURED GOODS CLASSIFIED BY MATERIAL	1.49	1.08	1.28	0.93	0.67	0.57	0.52	0.74
61	LEATHER MANUFACTURES, DRESSED FURSKINS	0.00	0.01	0.27	0.26	0.25	0.16	0.25	0.27
62	RUBBER MANUFACTURES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	CORK AND WOOD MANUFACTURES	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	PAPER, PAPERBOARD AND ARTICLES THEREOF	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00
65	TEXTILE YARN, FABRICS, AND RELATED PRODUCTS	0.03	0.01	0.01	0.02	0.03	0.02	0.02	0.05
66	NON METALLIC MINERAL MANUFACTURES	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
67	IRON AND STEEL	2.18	1.55	1.75	1.68	1.75	1.25	0.76	0.73
68	NON FERROUS METALS	10.78	6.84	8.42	5.82	3.17	2.63	2.88	3.50
69	MANUFACTURES OF METALS	0.03	0.01	0.01	0.02	0.01	0.00	0.01	0.00
7	MACHINERY AND TRANSPORT EQUIPMENT	0.18	0.04	0.02	0.01	0.01	0.01	0.01	0.00
71	POWER GENERATING MACHINERY AND EQUIPMENT	0.04	0.01	0.00	0.01	0.01	0.01	0.01	0.00
72	MACHINERY SPECIALIZED FOR PARTICULAR INDUSTRIES	0.09	0.06	0.09	0.02	0.03	0.03	0.03	0.01
73	METALWORKING MACHINERY	0.02	0.03	0.01	0.06	0.00	0.01	0.02	0.02
74	GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT	0.01	0.04	0.02	0.01	0.02	0.01	0.02	0.01
75	OFFICE MACHINES AND COMPUTERS	0.00	0.14	0.06	0.00	0.00	0.00	0.01	0.00
76	TELECOMMUNICATION, SOUND, TV, VIDEO	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.00
77	ELECTRICAL MACHINERY	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00
78	ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	OTHER TRANSPORT EQUIPMENT	2.63	0.02	0.01	0.00	0.03	0.03	0.01	0.01
8	MISCELLANEOUS MANUFACTURED ARTICLES	0.03	0.01	0.01	0.01	0.03	0.01	0.01	0.00
81	PREFABR. BUILDINGS; SANITARY, HEATING, LIGHTING	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	FURNITURE, BEDDING, MATTRESSES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	TRAVEL GOODS, HANDBAGS AND SIMILAR GOODS	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	ARTICLES OF APPAREL AND CLOTHING ACCESSORIES	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	FOOTWEAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87	PROFESSIONAL, SCIENTIFIC AND CONTROLLING MATERIAL	0.18	0.02	0.09	0.09	0.07	0.09	0.03	0.02
88	PHOTOGRAPHIC APPARATUS AND OPTICAL GOODS, CLOCKS	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
89	MISCELLANEOUS MANUFACTURED	0.00	0.01	0.00	0.00	0.04	0.00	0.01	0.00
9	ARTICLES NOT CLASSIFIED ELSEWHERE	2.69	0.36	0.25	0.56	1.54	1.04	0.28	0.21

Source: Calculation based on EUROSTAT data.

Notes: Scores greater than unity ($RCA > 1$) reveal a comparative advantage, while scores less than unity ($0 \leq RCA < 1$) reveal a comparative disadvantage. Sectors that reveal a comparative advantage are written in bold numbers.

6. REFERENCES

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ENDNOTES

1. Another way of interpreting the index is by rearranging equation (1) so that it can be expressed as follow:

$$RCA_i^I = \frac{X_{kzi}}{X_{wi}} \bigg/ \frac{X_{kz}}{X_w}$$

which is defined by Kazakhstan's share of world exports in industry i (X_{kzi} / X_{wi}) divided by its share of total world exports to the EU-27. So Kazakhstan reveals a comparative advantage in industry i when $RCA_i^I > 1$, that is whenever

$$(X_{kzi} / X_{wi}) > (X_{kz} / X_w)$$

In other words, Kazakhstan reveals a comparative advantage when its share of world exports in industry i is greater than the share of total world exports. More detail of the index can be found in Benedictis & Tambari (2001)

2. <http://www.kazakhstanembassy.org.uk/cgi-bin/index/65>