



Economic Research Center

# **“Mirror Statistics” and Defining Foreign Trade Indicators in the Republic of Azerbaijan**

May, 2010

## Foreward

# SUMMARY

This research was conducted by the experts of Economic Research Centre with the financial support from Open Society Institute-Assistance Foundation within the framework of competition titled “Assistance to analytical centres”. The study report prepared by ERC experts aims at improving the accuracy of the existing statistics by revealing problems with foreign trade statistics in Azerbaijan. With this purpose, the information describing the foreign trade turnover of 16 countries – Azerbaijan’s main foreign trade partners - was included in this research. Thus, the database for this research consists of customs statistics of the Republic of Azerbaijan, statistics of State Statistical Committee on the foreign trade, payment balance of Central Bank and official statistics of foreign countries on export-import operations with Azerbaijan. Using the “mirror statistics” methodology, the State Statistical Committee data was compared with the same-period information on trade with Azerbaijan received from partner countries.. The calculation model based on this methodology allowed to define the amount of unregistered products imported and exported within a certain period. Trend analysis was conducted by using different comparison methodologies during the research. The research findings indicate the difference in import operations between Azerbaijan and its 16 major trade partner countries in the amount of 642 million 800.000 USD for the period of 2003-2009. According to the “mirror statistics” methodology, difference in the same-period statistical information between countries does not cause any debates when it is below 10 percent. Thus, according to international methodology<sup>1</sup>, import exceeding export by 10% is deemed as normal. However, when import exceeds export by more than 10%, assumptions about other trade barriers and corruption are stipulated.

Recommendations are prepared on the basis of these findings, to be further submitted to relevant state agencies. This study can be used by the employees of state agencies, representatives of local and international NGOs, representatives of the diplomatic corps in Azerbaijan, researchers, students and journalists.

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<sup>1</sup> [http://www.itsec.ru/articles2/actual/ekonom\\_bezopasn\\_chast\\_nac\\_bezopasn\\_gosudarstva](http://www.itsec.ru/articles2/actual/ekonom_bezopasn_chast_nac_bezopasn_gosudarstva)

# INTRODUCTION

There is no extended research of public policy on regulation of the activities for organization and development of the statistics in Azerbaijan. Measures taken to improve and reconcile this field with the international standards are not considered to be satisfactory yet. Some of the statistical data vital for the country's economic and social life can easily be challenged even upon the initial comparison. For example, when comparing Azerbaijan to other countries, according to the official statistics, Azerbaijan has better indicators for the level of poverty compared to Great Britain, better indicators for the Gini (inequality) coefficient compared to Switzerland and better indicators for the level of unemployment compared to United States. Thus, the official statistics distorts the reality in some fields. Acknowledging the the official statistics that claims 900,000 new job places to be opened in Azerbaijan during last 7 years, we have to assume that foreign labor force has been imported in the country. This is not the end of the list of suspicious statistics. Specifically, the agricultural statistics are not based on any accounting or registration. According to official statistics, the number of big cattle is more than 2.7 million in the country. While the number of big cattle in Azerbaijan is higher compared to that in a relatively large country like Germany, dairy products , such as butter and cheese, sold in the markets are imported from abroad. . The same situation is observed with the small cattle. The official statistics show the number of small cattle around 10 million. This situation in agricultural field can also be explained by lack of tax accounting.

Additionally, the foreign trade statistics is one of the fields causing most concerns in terms of accuracy and reliability. It is especially important to examine and evaluate the real situation in country's foreign trade, given the increased opportunities for Azerbaijan to globalize and integrate into the world economy as well as the preparatory work to join the reputable and influential networks such as World Trade Organization. All these require correct calculation of the actual statistical data using international and comparative methodology.

In 2004, the experts of Economic Research Centre compared import turnover of Azerbaijan with that of its several foreign trade partners. Unfortunately, it was possible to make a comparison only with Turkey and China; analyses werebased on the actual 2003 data on amount of goods exported to Azerbaijan provided by the Undersecretariat Turkish Treasury and China Foreign Trade Of-

fice. When comparing this data with that from the State Statistical Committee of Azerbaijan, the difference was more than 231 million USD, including the differences of 120 million USD on Azerbaijan's import from Turkey and the difference of 111.3 million USD on Azerbaijan's import from China. According to the data from the State Statistical Committee, the value of goods imported to Azerbaijan in that period was 195 million USD from Turkey and 92.4 million USD from China. According to the 2009 data from the State Statistical Committee, Azerbaijan imported goods with total value of 906.1 million USD and 553.3 million USD from Turkey and China respectively. Consequently, during the last 7 years, the volume of Azerbaijan's import from Turkey increased by 5 times while its import from China increased by 6 times. Taking into consideration this growth, the question arises about the amount of non-registered import. The ERC experts decided to research this question in broader geography and deeper dynamics using the internationally practiced "Mirror statistics" methodology; they presented the project proposal to the Open Society Institute-Assistance Foundation. Using the ERC's network, technical and methodological inputs, the research initially funded by the OSI-AF has been transformed into an improved and more comprehensive policy paper

No systematic research has been conducted in Azerbaijan in this direction, and Economic Research Centre is the author of the first systematic and extended research in the country. The practice shows that in many countries a regular correction of the foreign trade statistics is made on the basis of this kind of studies. Reciprocal comparison of the statistical data between the countries is conducted along with comparison of the data from two sources (custom statistics and calculations of Central Banks). Although some calculations in this direction were made in Azerbaijan, they were not systematic and, therefore, did not result in producing the accurate foreign trade statistics: the comparison of short-term trade operations with several countries could not make a substantial argument for changing the final indicators. The findings of the study by Economic Research Centre conducted in 2010 and covering the 2003-2009 data on 16 countries with shares in Azerbaijan's foreign trade ranging from 63% to 80%, can be considered a reliable research material for changes in this directions and corrections of the final indicators.

Like in any other country, the foreign trade statistics in Azerbaijan is analyzed by goods' positions and by countries. Similar statistics exists in the partner countries of Azerbaijan, which allowed applying the reciprocal comparison methodology along the same indicators (import, for example). In this case, the comparability of indicators is enough to substantiate the result. This kind of comparison is called "mirror statistics" in international trade. The "mirror statistics"

methodology has been utilized by many countries. Therefore, it is internationally accepted, and the term of “mirror statistics” is included in the statistical glossary. Although the main research in “mirror statistics” methodology consists of quantitative comparative and trend analysis, the expert evaluations provide an opportunity to add qualitative characteristics. The ERC experts examined the potential causes of findings from statistical analysis and prepared recommendations to address the challenges.

We hope that relevant state agencies and trade partners of Azerbaijan will evaluate the importance of the policy paper presented by ERC from the perspective of accurate assessment of the situation in Azerbaijan, especially vital in light of preparations for country’s acceptance to the World Trade Organization.

This study examines characteristics of the foreign trade of Azerbaijan and the data on Azerbaijan’s trade with 16 partner countries as calculated by both Azerbaijani and the counterpart’s side. Extended data base was created from the information provided by both-Azerbaijan and its trade partners- sides. We believe that this research will become a respectful source of reference during decision-making process in state regulation of foreign trade, particularly when identifying the problems in implementation of foreign trade.

# 1. CONTENT AND DESCRIPTION OF RESEARCH

Back in 2004 the experts of Economic Research Centre made comparisons of import turnover between Azerbaijan and its several trade partners. Unfortunately, that study was limited to Turkey and China. The ERC experts managed to obtain the 2003 data on amount of goods imported to Azerbaijan from the the Undersecretariat Turkish Treasury and China Foreign Trade Office. The difference between official statistics from the State Statistical Committee and that provided by Undersecretariat Turkish Treasury and China Foreign Trade Office was more than 231 million USD, including the difference on import from Turkey (120 million USD) and the difference on import from China (111.3 million USD)<sup>2</sup>. According to the data from the State Statistical Committee, the value of goods imported to Azerbaijan during that period was 195 million USD from Turkey and 92.4 million USD from China. According to 2009 data from the State Statistical Committee, Azerbaijan imported the goods with value of 906.1 million USD and 553.3 million USD from Turkey and China respectively.

In general, the history and geography of this type of studies are ancient and different in the world practice. Assessment of import operations using mirror methodology is widespread, especially in post-socialist countries. In economic literature, there are several examples of studies in this direction covering Russia, Ukraine and China. In some cases, these studies were also conducted for international organizations (UNIDO, DB, etc).

Among these studies, the one conducted - within the UNIDO framework - on China's import-export operations with its 5 main trade partners during 1992-2008 is particularly worth mentioning. This study attracted the world's two biggest trade partners (China and USA), which makes it particularly interesting<sup>3</sup>.

While using the mirror statistics methodology to correct the foreign trade turnover statistics between European Union and Ukraine, the difference of 10 billion euro for just one year was discovered: in Ukrainian sources the amount of trade turnover between European Union countries and Ukraine was shown as 47 billion euro, while in Eurostat this figure equaled 57 billion euro. The biggest difference during the comparison on different countries was noted for Germany: 1,6 billion euro<sup>4</sup>.

<sup>2</sup> <http://www.azadliq.org/content/backgroundereembedded/162755.html>

<sup>3</sup> [http://www.unido.org/fileadmin/user\\_media/Publications/RSF\\_DPR/WP192009\\_Ebook.pdf](http://www.unido.org/fileadmin/user_media/Publications/RSF_DPR/WP192009_Ebook.pdf)

<sup>4</sup> [http://www.prostobiz.ua/biznes/upravlenie\\_biznesom/stati/goskomstat\\_sogreshil\\_na\\_10\\_mldr](http://www.prostobiz.ua/biznes/upravlenie_biznesom/stati/goskomstat_sogreshil_na_10_mldr)

According to the State Statistical Committee, during the last 7 years, the volume of Azerbaijan's import increased by 5 times for imports from Turkey and by more than 6 times for imports from China. Taking into consideration this growth, the question arises about the amount of non-registered import. The ERC experts decided to study this question in broader geography and deeper dynamics based on internationally practiced "Mirror statistics" methodology and presented the project proposal to the Open Society Institute-Assistance Foundation. Using the ERC's network, technical and methodological inputs, the research initially funded by the OSI-AF has been transformed into an improved and more comprehensive policy paper. Upon examining import-export operations of Black Sea countries, the coefficient of difference for Azerbaijan's foreign trade relations with Turkey, Georgia, Bulgaria and etc. was found to be twice as much as the satisfactory limit. This implies problems with transparency of the foreign trade statistics.

Studies show that in calculations related to mirror statistics the import operations – as being comparable indicator – are used more frequently. This methodology contains practical importance and has sectoral idiosyncrasies: people compiling the balance of payments and responsible for customs control are more engaged in applying this methodology<sup>5</sup>.

Concluding from the review of economic literature, 3 main blocs of discrepancy models revealed by mirror statistics can be identified: reasons creating impressions of distortion of the methodological, technical and statistical data<sup>6</sup>.

**Methodological problem:** the imported and exported goods are assessed using different standards (provisionary terms by SIF and FOB); the counteragent principles of "special trade system" applied by some countries diverges from the "common trade system", certain discrepancies emerge in connection with time period, incorrect name of the producing country; some goods, as well as gold, fish hunted in the open sea and etc are not registered.

The factors causing methodological problems can be categorized as follows:

a) "Principles of common trade system" comprise the basis of the foreign trade statistics of Azerbaijan. According to this principle, goods are registered as import-export goods immediately after crossing the state borders. Our country's trade partners (as well as EU countries) apply the "special trade system" policy: goods are registered as import-export goods only after passing the customs control. Difference in registration during foreign trade operations results in a range of discrepancies, including the wrong name of the producing country;

b) According to international standards, countries define statistical prices of imported goods based on SIF regulations and prices of exported goods based on FOB conditions. For example, Russian Central Bank defined SIF and FOB transformation of the prices according to mirror statistics (for foreign countries

<sup>5</sup> <http://finanal.ru/regulirovanie/zerkalnye-sopostavleniya-importa-v-statistike-vneshnei-torgovi>

<sup>6</sup> [http://www.budgetrf.ru/Publications/Magazines/VestnikCBR/2009/VBR200908201639/VBR200908201639\\_p\\_003.htm](http://www.budgetrf.ru/Publications/Magazines/VestnikCBR/2009/VBR200908201639/VBR200908201639_p_003.htm)



5,7 % from 2003 to 2004, 5,88 % from 2005, for CIS countries 5,7 and 10,2 %) and by this way it can be different for different countries and commodity groups.

c) There is range of goods, peculiarities of which make the common approach difficult during their registration in the customs services of different countries. It includes gold, electric energy, bunker fuel and fish hunted in the open sea;

d) There are also differences in registration of individuals. In Azerbaijan, these differences become a challenge when goods in total value below USD 1000 are brought to the country and not declared in the customs. Consequently, this operation is not included in the customs statistics. Meanwhile, in some countries, these very goods are registered as export.

**Technical discrepancies:** these mainly relate to using different exchange rates when expressing the price of any given product as well as to discrepancies in quality and statistical accounting standards between the country and its partner.

The factors causing technical problems can be categorized as follows:

a) Time discrepancy appears during registration of the goods in the country importing and receiving the goods. In international trade, it ranges around 3-4 weeks according to geographical position of the country, means of transportation and character of the product;

b) When assessing the product in a country's currency, different exchange rates are used;

c) Counteragent country participating in export-import operations;

d) Custom services of some countries define different prices for imported and exported goods;

e) In some cases, the product cannot reach its final destination due to damage or confiscation;

f) In most countries, access to information on categories of goods is restricted;

j) Information collected by national statistical services and international organizations do not coincide by time.

The reasons creating an impression of distortion of the statistical data also include faults in the custom documentation on imported goods and distorting mistakes. It shall also be noted that two third (80%) of these discrepancies are formed in relation to imported goods.

The factors causing this problem can be categorized as follows:

a) The good is intentionally not registered by counteragent representing one of the partner countries while it is registered in the other country ;

b) Importers use double invoices and list fewer goods to pay lower customs fees. As a result, difference between the import and export price might appear;

c) Importers manage to minimize their custom payments by declaring false commodity codes;

d) Importers can increase the number and price of commodities on purpose and by this way manage to increase the returned VAT;

e) The sides participating in trade might intentionally show wrong partner country<sup>7</sup>.

In foreign economy literature the reasons of the discrepancies in asymmetric trade statistics are shown as the following:

*\* Different measurement of the operational values of import (SIF) and export (FOB) values ;*

*\* Application of different trade registration systems to import and export goods;*

*\* Different terms and definitions applied by trade partners;*

*\* Existing differences for registration of international trade (it applies more to different perception of the trade notion during small operations);*

*\* Application of different time measurement (during customs registration), existence different categories on commodity positions or incorrect reference to them and smuggling;*

*\* Instability in the registration of exchange rates. (Exchange rates are not always registered in the international trade statistics regularly. In local currency the exchange rate is collected during a year and changed in to USD );*

*\* Rare usage of mirror statistics. The countries, which do not present their trade reports to the UN, use the data of the partner countries more often<sup>8</sup>.*

Along with registered custom operations in import, balance of payment and national calculation system, non-registration of operations in international transfers can be considered of the reasons creating variations. In the background of Azerbaijani reality Production Sharing contracts have special custom regime. This factor always challenges the determination of the real level of common import in Azerbaijan.

<sup>5</sup> [http://www.budgetrf.ru/Publications/Magazines/VestnikCBR/2009/VBR200908201639/VBR200908201639\\_p\\_003.htm](http://www.budgetrf.ru/Publications/Magazines/VestnikCBR/2009/VBR200908201639/VBR200908201639_p_003.htm)

<sup>6</sup> Parniczky, G. (1980) On the inconsistency of world trade statistics, International Statistical Review, 48: 43-48.

## 1.2. Research purpose and methodology

This study aims to contribute to improving the quality of the foreign trade statistics in Azerbaijan and filling the gap in this area. The main objective of the project is to achieve the correction of the statistical indicators on foreign trade. Moreover, this research has the following tasks:

- To contribute to increased reliability and transparency of the foreign trade statistics by conducting research on it;
- To show technical and methodological support to increase the number of studies in the statistical area by creating opportunities for methodological access onto foreign trade statistics;
- To assist improving the quality by delivering real and substantial information to the users of foreign trade statistics;
- To increase transparency of these indicators by providing access to different sources and alternative ways for foreign trade statistics.

One of the main activities implemented within the project was to create the database for research. First of all, methodology of the research was developed and criteria for selecting the country cases were defined. The main criteria in selecting the country cases are the following:

- Main trade partner countries of Azerbaijan, especially import partners (Countries in the top 10 – Russia, Turkey, Germany, Ukraine, China, Great Britain, USA, Japan, France, Belarus);
- The countries bordering with Azerbaijan but not being its main trade partners (Georgia);
- The countries with essential influence in the world foreign trade policy (USA, Japan, and etc.);
- The countries that have export structure similar to that of Azerbaijan, i.e. countries depending more on raw material (Kazakhstan and etc.).

Based on these criteria the following 17 countries were selected by the experts:

The following information sources of official agencies representing partner countries were used with the purpose of gathering information on foreign trade relations of these countries with Azerbaijan during 2003-2009:

*\* Web sites of the relevant official agencies of the selected countries;*

*\* Appeals to the embassies of the selected countries to Azerbaijan (for getting positive response to appeals meetings (Germany, Turkey, Italy), e-mail correspondence and negotiations with some embassies were held ;*

*\* Related information from international and regional organizations (World Trade Organization, World Customs Organization European Union, Eurostat, OECD, IMF, , Statistical Committee of CIS, Customs Union);*

*\* “Journal of foreign trade relations of Azerbaijan-2010” by Azerbaijan State Statistical Committee, Head Office of Statistical and Information Technologies Head Office of the State Customs Committee of the Republic of Azerbaijan, “Customs news” newspaper, bulletens of the Central Bank, Balance of Payment and etc.*

The database comprising the foreign trade statistics from 16 countries was created during implementation of the project (january-may 2010)). We were not able to obtain information only on France among the researched countries. (according to the results of import operations for 2009, this country is in the 9th place in top 10)

The database was created based on the following methodology to achieve comparabile formulation of the data revealed in the further stages of the research:

*\* Given that information from some countries (Japan, United Kingdom, for example) are shown in local currency of those countries and to achieve comparable figures (foreign trade statistics of Azerbaijan is held with USD), the Central Bank was adressed at and official information on currency rates for 2003-2009 was obtained;*

*\* Given that the calendar year of some countries (Iran) is not the same with the calendar year of Azerbaijan (01 January-31 December), information obtained from these countries was adapted into the calendar year of the research;*

*\* Given that some countries presented their information separately – due to their special adminitrative territory division (China and Hong Kong) - information on this countries were summed up and formatted as a country data;*

*\* Information from some countries were in their own language (Georgia, Russia, Turkey)*

The information included in the database was transformed into comparable form based on the fcurrency cross rates, a single calendar year and activity space.

Finally, calculations were made for defining the difference in import and export operations for 2003-2009. Analysis was made based on the formulas obtained from the results and research was extended by this way.

## 2. RESEARCH DIRECTIONS

### 3

#### 3.1.i. Country Analysis

Calculations of Economic Research Centre revealed variations independent of character and volume of the trade operations of 16 countries involved in research. The table below explains situation for 2003-2009.

#### Germany

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	212,6	169,9	42,7	20,1	25,1
2004	291,5	198,5	93	31,9	46,9
2005	548,1	256,3	291,8	53,2	113,9
2006	611,2	403,8	207,4	33,9	51,4
2007	611,9	472,1	139,8	22,8	29,6
2008	776,3	598,6	177,7	22,9	29,7
2009	589,6	551,5	38,1	6,5	6,9
<b>Total</b>	<b>3641,2</b>	<b>2650,7</b>	<b>990,5</b>	<b>27,20</b>	<b>37,37</b>

#### Belarus

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	8,7	6,2	2,5	28,7	40,3
2004	14,9	10,9	4	26,8	36,7
2005	28	18,1	9,9	35,4	54,7
2006	34,5	20,7	13,8	40,0	66,7
2007	86,4	77	9,4	10,9	12,2
2008	105,4	89,6	15,8	15,0	17,6
2009	120,3	136,8	-16,5	13,7	12,1
<b>Total</b>	<b>398,2</b>	<b>359,3</b>	<b>38,9</b>	<b>9,8</b>	<b>10,8</b>

## China

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	203,7	92,4	111,3	54,6	120,5
2004	143,8	145,5	-1,7	1,2	1,2
2005	234	173,8	60,2	25,7	34,6
2006	346,7	222,5	124,2	35,8	55,8
2007	475,3	278,8	196,5	41,3	70,5
2008	686	478,6	207,4	30,2	43,3
2009	553,3	484,8	68,5	12,4	14,1
<b>Total</b>	<b>2642,8</b>	<b>1876,4</b>	<b>766,4</b>	<b>29,0</b>	<b>40,8</b>

## Hungary

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	-	-			
2004	10,2	2,5	7,7	75,5	308,0
2005	16,5	4,8	11,7	70,9	243,8
2006	28,3	10,4	17,9	63,3	172,1
2007	45,7	12,2	33,5	73,3	274,6
2008	85,7	17,1	68,6	80,0	401,2
2009	85,7	14	71,7	83,7	512,1
<b>Total</b>	<b>272,1</b>	<b>61</b>	<b>211,1</b>	<b>77,6</b>	<b>346,1</b>

## Russia

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	410	383,9	26,1	6,4	6,8
2004	621	569,5	51,5	8,3	9,0
2005	858	717,2	140,8	16,4	19,6
2006	1381	1181,6	199,4	14,4	16,9
2007	1395	1004,2	390,8	28,0	38,9
2008	1966	1350,1	615,9	31,3	45,6
2009	1468	1070,9	397,1	27,1	37,1
<b>Total</b>	<b>8099</b>	<b>6277,4</b>	<b>1821,6</b>	<b>22,5</b>	<b>29,0</b>

## Turkey

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	315,5	195,1	120,4	38,2	61,7
2004	404	225	179	44,3	79,6
2005	528,1	313	215,1	40,7	68,7
2006	695,3	385	310,3	44,6	80,6
2007	1407,7	624,6	783,1	55,6	125,4
2008	1667,5	807	860,5	51,6	106,6
2009	1398,5	906,1	492,4	35,2	54,3
<b>Total</b>	<b>6416,6</b>	<b>3455,8</b>	<b>2960,8</b>	<b>46,1</b>	<b>85,7</b>

## Georgia

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	16,4	10,2	6,2	37,8	60,8
2004	25,3	14,5	10,8	42,7	74,5
2005	83,4	45,5	37,9	45,4	83,3
2006	92,3	49,2	43,1	46,7	87,6
2007	137,7	62,9	74,8	54,3	118,9
2008	205,4	51,5	153,9	74,9	298,8
2009	166,5	59,9	106,6	64,0	178,0
<b>Total</b>	<b>727</b>	<b>293,7</b>	<b>433,3</b>	<b>59,6</b>	<b>147,5</b>

## Ukraine

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	142,6	118,8	23,8	16,7	20,0
2004	215,5	170,4	45,1	20,9	26,5
2005	290,7	226,3	64,4	22,2	28,5
2006	422	317,5	104,5	24,8	32,9
2007	631,2	465,6	165,6	26,2	35,6
2008	910,5	567,2	343,3	37,7	60,5
2009	546,6	511,7	34,9	6,4	6,8
<b>Total</b>	<b>3159,1</b>	<b>2377,5</b>	<b>781,6</b>	<b>24,7</b>	<b>32,9</b>

## USA

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	119,8	132,6	-12,8	10,7	9,7
2004	158,8	131,9	26,9	16,9	20,4
2005	132,5	141,3	-8,8	6,6	6,2
2006	231,1	197,9	33,2	14,4	16,8
2007	177,6	269	-91,4	51,5	34,0
2008	239,1	267,2	-28,1	11,8	10,5
2009	222	264,2	-42,2	19,0	16,0
<b>Total</b>	<b>1280,9</b>	<b>1404,1</b>	<b>-123,2</b>	<b>9,6</b>	<b>8,8</b>

## Japan

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	71,7	101,5	-29,8	-41,6	-29,4
2004	78	127,1	-49,1	-62,9	-38,6
2005	54	70,6	-16,6	-30,7	-23,5
2006	157,3	188,3	-31	-19,7	-16,5
2007	96,6	295,1	-198,5	-205,5	-67,3
2008	77,3	241,5	-164,2	-212,4	-68,0
2009	53,1	146,2	-93,1	-175,3	-63,7
<b>Total</b>	<b>588</b>	<b>1170,3</b>	<b>-582,3</b>	<b>-99,0</b>	<b>-49,8</b>

## United Kingdom

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	227,9	286,5	-58,6	-25,7	-20,5
2004	481,6	421,8	59,8	12,4	14,2
2005	386,4	384,9	1,5	0,4	0,4
2006	375,8	453,8	-78	-20,8	-17,2
2007	822,7	411,2	411,5	50,0	100,1
2008	564,4	386	178,4	31,6	46,2
2009	0	274,8	-274,8	#DIV/0!	-100,0
<b>Total</b>	<b>2858,8</b>	<b>2619</b>	<b>239,8</b>	<b>8,4</b>	<b>9,2</b>



## Kazakhstan

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	113,5	138,7	-25,2	-22,2	-18,2
2004	287,1	236,7	50,4	17,6	21,3
2005	129,1	95,3	33,8	26,2	35,5
2006	226,4	127,3	99,1	43,8	77,8
2007	318,8	222,3	96,5	30,3	43,4
2008	208,9	200,1	8,8	4,2	4,4
2009	91,5	63,6	27,9	30,5	43,9
<b>Total</b>	<b>1375,3</b>	<b>1084</b>	<b>291,3</b>	<b>21,2</b>	<b>26,9</b>

## Iran

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	307,4	50,6	256,8	83,5	507,5
2004	343	45,3	297,7	86,8	657,2
2005	330	76,3	253,7	76,9	332,5
2006	223	85,9	137,1	61,5	159,6
2007	322	105,2	216,8	67,3	206,1
2008	347	97,2	249,8	72,0	257,0
2009	0	78,7	-78,7	#DIV/0!	-100,0
<b>Total</b>	<b>1872,4</b>	<b>539,2</b>	<b>1333,2</b>	<b>71,2</b>	<b>247,3</b>

## Italy

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	120	74	46	38,3	62,2
2004	155,9	106,7	49,2	31,6	46,1
2005	124,6	94,6	30	24,1	31,7
2006	189,4	124,6	64,8	34,2	52,0
2007	239,7	140,9	98,8	41,2	70,1
2008	411,3	188,5	222,8	54,2	118,2
2009	310,8	127,7	183,1	58,9	143,4
<b>Total</b>	<b>1551,7</b>	<b>857</b>	<b>694,7</b>	<b>44,8</b>	<b>81,1</b>

## South Korea

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	11	16	-5	-45,5	-31,3
2004	19	24,1	-5,1	-26,8	-21,2
2005	32	41,6	-9,6	-30,0	-23,1
2006	47	46,9	0,1	0,2	0,2
2007	130	91,6	38,4	29,5	41,9
2008	255	162,6	92,4	36,2	56,8
2009	150	124,9	25,1	16,7	20,1
<b>Total</b>	<b>644</b>	<b>507,7</b>	<b>136,3</b>	<b>21,2</b>	<b>26,8</b>

## Israel

Year	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)
2003	2,9	2,9	0	0,0	0,0
2004	5,3	4,1	1,2	22,6	29,3
2005	5,4	10,7	-5,3	-98,1	-49,5
2006	28	26,2	1,8	6,4	6,9
2007	82,6	30,8	51,8	62,7	168,2
2008	129,4	80	49,4	38,2	61,8
2009	264	80,9	183,1	69,4	226,3
<b>Total</b>	<b>517,6</b>	<b>235,6</b>	<b>282</b>	<b>54,5</b>	<b>119,7</b>

### Note:

*Export* – Export from these countries to Azerbaijan

*Import(A)* - Officially registered import of the commodities sent from these countries to Azerbaijan

*Total export* – Total export from these countries to Azerbaijan

*Total import (A)* – Annual amount of the registered official import to Azerbaijan

*K* – annual variation of the researched countries

$K = \text{Total Export} - \text{Total Import (A)}$  (in countries)

*OI* - Official Import (Annual official import of Azerbaijan)

The first column of the table indicates duration of analysis by year, the second column demonstrates official statistical data on export of other side to Azerbaijan, the third column reflects official data from State Statistical Committee on Azerbaijan's import from foreign countries, the fourth column illustrates variations between the data, (+Increase in comparison with indicators of the State Statistical Committee of Azerbaijan, - Decrease in comparison with indicators of the State Statistical Committee of Azerbaijan), the fifth column shows variation (K) against the distribution of exports by Azerbaijan (based on the information from partner country), and the sixth column illustrates the distribution of variation (K) of Azerbaijan's import from foreign countries (based on the information of SSC). Finally, the seventh column presents the distribution of the variation (K) to the sum of export and import in Azerbaijan. Thus the fourth column gives information about variations per year and total variation (in absolute terms), the fifth, sixth and seventh columns give information on special netvariation in specific indicators ( in export to Azerbaijan, in import of Azerbaijan, in sum of export and import). In general, the difference between two (external and internal) sources on import operations made during the last 7 years in these countries is presented in the table below.

#### Non-registered turnover with 16 countries in 2003-2009 (Million USD)

Country	Export	Import (A)	Discrepance = Export – Import (A)	Discrepance / Export	Discrepance / Import (A)	Discrepance/ (Export + Import(A))
Russia	8099,0	6277,4	1821,6	22,5	29,0	12,7
Turkey	6416,6	3455,8	2960,8	46,1	85,7	30,0
Georgia	727,0	293,7	433,3	59,6	147,5	42,5
Ukraine	3159,1	2377,5	781,6	24,7	32,9	14,1
USA	1280,9	1404,1	-123,2	9,6	8,8	4,6
Japan	588,0	1170,3	-582,3	-99,0	-49,8	-33,1
UK	2858,8	2619,0	239,8	8,4	9,2	4,4
Kazakhstan	1375,3	1084,0	291,3	21,2	26,9	11,8
Iran	2244,4	539,2	1705,2	76,0	316,2	61,3
Italy	1551,7	857,0	694,7	44,8	81,1	28,8
S.Korea	644,0	507,7	136,3	21,2	26,8	11,8
Israel	517,6	235,6	282,0	54,5	119,7	37,4
Germany	3641,2	2650,7	990,5	27,2	37,37	15,74
Belarus	398,2	359,3	38,9	9,8	10,8	5,1
China	2642,8	1876,4	766,4	29,0	40,8	17,0
Hungary	272,1	61,0	211,1	77,6	346,1	63,4

According to the data among the countries involved in the research the most amount of variation, especially as to the import operations was recorded in Turkey (2960,8 billion dollar), in Russia (1821,6 million USD), in Germany (990,5 million USD). Meanwhile, the most important point in the table is that the difference between the import statistics in Azerbaijan and the export statistics from the States and Japan to Azerbaijan is favourable for the United States. It is considered that this difference is resulting from the HPS operations of those countries.

### 1.1.i. Trend analysis

2003-2009 are the main periods to be studied. The comparative analysis is provided in the table given below.

Country	2003		2004		2005	
	Export	Imp./A	Export	Imp./A	Export	Imp./A
Germany	212,6	169,9	291,5	198,5	548,1	256,3
Belarus	8,7	6,2	14,9	10,9	28,0	18,1
China	203,7	92,4	143,8	145,5	234,0	173,8
Hungary			10,2	2,5	16,5	4,8
Russia	410,0	383,9	621,0	569,5	858,0	717,2
Turkey	315,5	195,1	404	225,0	528,1	313,0
Georgia	16,4	10,2	25,3	14,5	83,4	45,5
Ukraine	142,6	118,8	215,5	170,4	290,7	226,3
USA	119,8	132,6	158,8	131,9	132,5	141,3
Japan	71,7	101,5	78,0	127,1	54,0	70,6
UK	227,9	286,5	481,6	421,8	386,4	384,9
Kazakhstan	113,5	138,7	287,1	236,7	129,1	95,3
Iran	307,4	50,6	343	45,3	330,0	76,3
Italy	120,0	74	155,9	106,7	124,6	94,6
S.Korea	11,0	16	19,0	24,1	32,0	41,6
Israel	2,9	2,9	5,3	4,1	5,4	10,8
TOTAL	2283,7	1779,3	3254,9	2434,5	3780,8	2670,3
Total presupposed import	3370,9		4700,7		5962,5	
Total import (Az)		2626,4		3515,9		4211,2
-		67,7		69,2		63,4
Total discrepancy (Export-Import (A))	504,4		820,4		1110,5	
Total discrepancy of 16 countries (2003-2009)	10645,9					
Presupposed discrepancy	774,5		1184,3		1751,3	
Total discrepancy in 2003-2009	14200,3					

As it is mentioned, during 2003-2009, the variation amount was 10 billion 645 million 900 USD among 16 countries. To go in depth, the confidential circulation assumed for the efficiency counted for each year was revealed. Afterwards, the share for each 16 countries was found in the import officially declared by State Statistical Committee. It was brought out that these indicators were 67,7 %, in 2003, 69,2% in 2004, 63,4% in 2005, 73% in 2007, 79,9% in 2008, 80% in 2009. The study discloses that the confidential import in total is more than 14 billion 200 million USD.

This calculation is conducted by the method below:

$$AV = OI / OIN$$

Here, *AV* - Assumed variation, *OI* - official import, *OIN* - official import nett

2006		2007		2008		2009	
Export	Imp./A	Export	Imp./A	Export	Imp./A	Export	Imp./A
611,2	403,8	611,9	472,1	776,3	598,6	589,6	551,5
34,5	20,7	86,4	77,0	105,4	89,6	120,3	136,8
346,7	222,5	475,3	278,8	686,0	478,6	553,3	484,8
28,3	10,4	45,7	12,2	85,7	17,1	85,7	14,0
1381,0	1181,6	1395,0	1004,2	1966,0	1350,1	1468,0	1070,9
695,3	385,0	1407,7	624,6	1667,5	807,0	1398,5	906,1
92,3	49,2	137,7	62,9	205,4	51,5	166,5	59,9
422,0	317,5	631,2	465,6	910,5	567,2	546,6	511,7
231,1	197,9	177,6	269	239,1	267,2	222,0	264,2
157,3	188,3	96,6	295,1	77,3	241,5	53,1	146,2
375,8	453,8	822,7	411,2	564,4	386,0	n/a	274,8
226,4	127,3	318,8	222,3	208,9	200,1	91,5	63,6
223,0	85,9	322,0	105,2	347,0	97,2	372,0	78,7
189,4	124,6	239,7	140,9	411,3	188,5	310,8	127,8
47,0	46,9	130,0	91,6	255,0	162,6	150,0	124,9
28,0	26,2	82,6	30,8	129,4	80	264,0	80,9
5089,3	3843,6	6662,1	4563,5	8635,2	5582,8	6710,7	4896,8
6973,6		8340,9		11084,9		8386,6	
	5266,7		5713,5		7166,6		6199,7
	73,0		79,9		77,9		80,0
1245,7		2098,6		3052,4		1813,9	
1706,9		2627,4		3918,3		2266,9	

To calculate the official import nett, total import indicated in Azerbaijani sources needs to be divided by official import.

$$OIN = \text{Total import}(A) / OI$$

During 2003-2009, the general variations for each separate import operations and its share within the import of 16 countries are represented in the table below:

**Statistics of foreign trade relations in 1991-2008 (Million USD)**

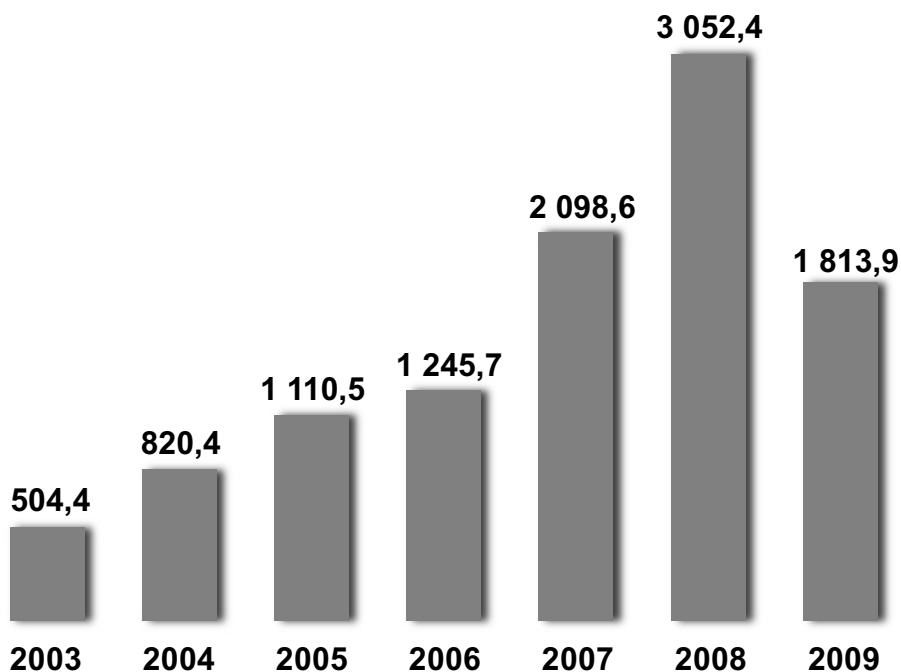
Year	Export (mln.)	Import (A), (mln.)	Discrepance (mln.)	Ratio of discrepancy in import (%)
2003	2283,7	1779,3	504,4	28,3
2004	3254,9	2434,5	820,4	33,7
2005	3780,8	2670,3	1110,5	41,6
2006	5089,3	3843,6	1245,7	32,4
2007	6662,1	4563,5	2098,6	46,0
2008	8635,2	5582,8	3052,4	54,7
2009	6710,7	4896,8	1813,9	37,0
<b>Total</b>	36416,7	25770,8	10645,9	41,3

As it is mentioned in the second column of the table, lately the most variations were recorded in 2008. Thus, during this year, the variation amount in the import operation with 16 countries was 3 milliard 52 million 400 dollar and this constituted 43 per cent of the import officially declared by State Statistical Committee. That was 54,7 per cent of the import over 16 countries.

The last column of the table shows that, according to the official statistics of Azerbaijan variation amount changes between 28,3 and 54,7 % in the official statistics of Azerbaijan.

As we noted in the introduction, according to the Mirror statistics methodology, when the difference between statistical information reflecting the same period for countries is less than 10% then it does not cause doubt. Calculations on the basis of bilateral information of 16 countries held by the experts of Economic Research Centre showed that, during 2003-2009 this difference is 41.3% on the average. This is 4 times more than the norm.

In general it is possible to demonstrate the trend of variation of hidden import with the help of the following diagram:



Trend analysis demonstrates that, dynamics of increase of hidden import which started in 2003, have decreased since 2009. This can be explained by decrease of import to Azerbaijan by 15% comparing to 2008 due to global financial crisis, according to the official statistics of that year.

## CONCLUSION

The study using the interstate mirror methodology on the analyzed period showed that variation in import statistics during 2003-2009 among 16 countries constituted 10 bln 645 mln 900 USD. Differences between the export from Azerbaijan and import from 16 countries to Azerbaijan were not very big. Specifically, during the last years the trend of decrease in these differences is being observed. On the contrary, the increasing difference between the export of partner countries to Azerbaijan and Azerbaijan's import implies a widespread corruption, monopolisation, double invoice, avoidance of registration and violation of transparency procedures.

The study demonstrates that, when calculations are held in accordance with mirror methodology, it is necessary to pay attention to the structure of products. Calculation scheme on food products is organized by the indirect information of the inner statistics, and regulated by retail sale resources of both exported products and products produced in the country. The application of aforementioned mirror method to the issue of discrepancy between intermediate and investment products might create problems in getting correct results. Thus, "utilisation resources" table is prepared for this group of products basing on complex statistical methodology and a list of unregistered goods was shown there. In this case the evaluation of non-consumption import is based on mirror statistics of the last year.

The reasons shown in the research are not presented with the purpose to give quality characteristics to the revealed contradictions. But the fact that mirror difference does not exist during trade operations among world countries can't be denied. Simply, the main issue here is relevance of the revealed difference with the operational shares of import operations during analysis period. The average volume of the share of the revealed difference in import operations is 41,3 per cent for 2003-2009. This is 4 time more than allowed norm.



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# APPENDIX

## Statistics of foreign trade relations in 1991-2008 (Million USD)

Year	Turnover	Import	Export	Balance
1991	4002.2	1881.2	2121.0	239.8
1992	2423.8	939.8	1484.0	544.2
1993	1353.5	628.8	724.7	95.9
1994	1430.6	777.9	652.7	-125.2
1995	1304.9	667.7	637.2	-30.5
1996	1591.9	960.6	631.3	-329.3
1997	1575.7	794.4	781.3	-13.1
1998	1682.6	1076.5	606.1	-470.4
1999	1965.6	1035.9	929.7	-106.2
2000	2917.3	1172.1	1745.2	573.1
2001	3745.3	1431.1	2314.2	883.1
2002	3832.9	1665.5	2167.4	501.9
2003	5216.6	2626.2	2590.4	-35.8
2004	7131.4	3515.9	3615.5	99.6
2005	8558.4	4211.2	4347.2	136.0
2006	11638.9	5266.7	6372.2	1105.5
2007	11771.7	5713.5	6058.2	344.7
2008	54922.8	7166.6	47756.2	40589.6
2008	35999.0	7166.6	28832.4	21665.8
2009	20818.2	6119.7	14698.5	8578.8

**Foreign trade of Azerbaijan with 16 countries**  
(Data are provided by partner countries)

Country	2003		2004		2005		2006		2007		2008		2009	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Germany	212,6	220,1	291,5	214,3	548,1	400,9	611,2	785,3	611,9	1474,4	776,3	2757,1	589,6	1675,4
Belarus	8,7	1,7	14,9	1,2	28,0	2,0	34,5	2,7	86,4	3,2	105,4	6,2	120,3	4,3
China	203,7	34,7	143,8	40,2	234,0	24,4	346,7	22,0	475,3	1,4	686,0	115,0	553,3	128,3
Hungary			10,2	0,1	16,5	0,1	28,3	0,0	45,7	0,2	85,7	0,0	85,7	0,0
Russia	410,0	93,0	621,0	139,0	858,0	206,0	1381,0	260,0	1395,0	328,0	1966,0	412,0	1468,0	311,0
Turkey	315,5	122,6	404	135,5	528,1	272,3	695,3	340,5	1407,7	329,6	1667,5	928,4	1398,5	752,2
Georgia	16,4	93,7	25,3	156,3	83,4	233,4	92,3	318,4	137,7	390,4	205,4	607,8	166,5	377,9
Ukraine	142,6	8,4	215,5	9,0	290,7	27,8	422,0	41,0	631,2	31,1	910,5	75,7	546,6	282,8
USA	119,8	9,5	158,8	38,1	132,5	45,4	231,1	716,1	177,6	1887,4	239,1	4360,9	222,0	1972,6
Japan	71,7	2,8	78,0	1,0	54,0	0,7	157,3	1,3	96,6	185,6	77,3	52,8	53,1	140,6
UK	227,9	26,2	481,6	27,4	386,4	74,5	375,8	430,5	822,7	616	564,4	226,8	n/a	n/a
Kazakhstan	113,5	13,7	287,1	16,1	129,1	21,3	226,4	70,8	318,8	86,6	208,9	256,7	91,5	145,4
Iran	307,4	96,5	343	137,1	330,0	164,0	223,0	282,0	322,0	349,5	347,0	236,0	372,0	171,0
Italy	120,0	716,9	155,9	700,8	124,6	1219,7	189,4	2887,6	239,7	3673,5	411,3	6228,5	310,8	4851,7
S.Korea	11,0	0,0	19,0	1,0	32,0	0,0	47,0	0,0	130,0	316	255,0	12,0	150,0	9,0
Israel	2,9	0,6	5,3	0,1	5,4	0,4	28,0	0,6	82,6	0,2	129,4	0,3	264,0	0,3

**Foreign trade of Azerbaijan with 16 countries  
(Data are provided by State Statistical Committee of Azerbaijan) Million USD**

Country	2003		2004		2005		2006		2007		2008		2009	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Germany	7,3	169,9	37,6	198,5	34,8	256,3	9,0	403,8	19,7	472,1	205,5	598,6	86,7	551,5
Belarus	1,0	6,2	0,8	10,9	1,2	18,1	1,5	20,7	2,3	77,0	5,2	89,6	5,2	136,8
China	19,3	92,4	31,7	145,5	99,2	173,8	6,4	222,5	10,1	278,8	499,0	478,6	129,9	484,8
Hungary	0,0	3,1	0,0	2,5	0,0	4,8	0,0	10,4	0,0	12,2	0,0	17,1	0,0	14,0
Russia	147,8	383,9	209,8	569,5	285,4	717,2	344,3	1181,6	527,21	1004,2	582,9	1350,1	745	1070,9
Turkey	107,0	195,1	182,6	225,0	276,0	313,0	388,1	385,0	1056,3	624,6	626,2	807,0	107,6	906,1
Georgia	111,5	10,2	188,8	14,5	208,4	45,5	285,3	49,2	343,8	62,9	490,7	51,5	395,0	59,9
Ukraine	21,2	118,8	12,3	170,4	35,8	226,3	38,4	317,5	29,2	465,6	172,1	567,2	184,0	511,7
USA	63,9	132,6	26,0	131,9	43,2	141,3	91,9	197,9	228,2	269	6014,3	267,2	1746,8	264,2
Japan	19,8	101,5	0,3	127,1	0,0	70,6	0,0	188,3	0,0	295,1	145,9	241,5	0,0	146,2
UK	7,7	286,5	6,6	421,8	4,5	384,9	5,6	453,8	3,1	411,2	925,9	386,0	196,9	274,8
Kazakhstan	10,1	138,7	9,4	236,7	17,2	95,3	105,7	127,3	127,6	222,3	290,2	200,1	142,1	63,6
Iran	49,1	50,6	153,6	45,3	166,5	76,3	295,9	85,9	434,7	105,2	355,6	97,2	901,0	78,7
Italy	1345,9	74	1614,9	106,7	1315,7	94,6	2845,4	124,6	940,9	140,9	19220,1	188,5	3788,4	127,8
S.Korea	1,0	16	3,8	24,1	0,5	41,6	63,4	46,9	124,8	91,6	696,8	162,6	148,2	124,9
Israel	138,1	2,9	323,7	4,1	195,1	10,8	684,8	26,2	369,8	30,8	3605,8	80	1236,2	80,9