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Regional statistics development in Asia and the Pacific

Note by the Secretary-General

In accordance with a request of the Statistical Commission at its thirty-ninth session, the Secretary-General has the honour to transmit the report of the Economic and Social Commission for Asia and the Pacific. The report provides an overview of the recent progress in statistics development among countries in the Asia and Pacific region, including the key trends in the institutional and technical capacity development of national statistical systems. It identifies the main challenges and opportunities for statistical capacity-building and highlights the important role of bilateral and multilateral statistics development partners. The Commission may wish to comment on the ongoing efforts towards the advancement of statistics development in Asia and the Pacific and provide guidance on the proposed regional initiatives to improve cooperation among development partners.

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Regional statistics development in Asia and the Pacific

Contents

		Page
I.	Introduction	3
II.	Significant progress despite enormous challenges	3
	A. Looking through the statistical capacity indicator	4
	B. Regional participation in global programmes	5
III.	Strengthening legal and institutional arrangements	7
	A. Prerequisite for an effective statistical system	7
	B. Charting a road map for development	8
IV.	Improving technical capacity	9
	A. Building sustainable data collection programmes	9
	B. Implementing international standards	11
	C. Meeting the data demand for assessing progress towards the Millennium Development Goals	14
	D. Making innovative use of information and communications technology	14
V.	Challenges and opportunities	15
	A. Defining future development	15
	B. Building on diversity	16
VI.	Supporting regional statistics development	18
	A. Support by statistics development partners	18
	B. Strategy of the Economic and Social Commission for Asia and the Pacific	19
VII.	Actions to be taken by the Statistical Commission	21

I. Introduction

1. At its thirty-ninth session (26-29 February 2008), the Statistical Commission requested that the Economic and Social Commission for Asia and the Pacific (ESCAP) submit at the fortieth session of the Commission (24-27 February 2009) a report on regional statistics development in Asia and the Pacific.[1]

2. The present report is prepared in response to the request of the Statistical Commission. Focusing on regional experience over the past decade, the report provides an overview of recent progress in statistics development among countries in the Asia and Pacific region. It describes, based on existing assessments and indicators, where the developing countries in the region stand in terms of their overall statistical capacity and the participation of the region in recent global statistical programmes.

3. The report underscores the importance of strengthening the legal and institutional arrangements of national statistical systems. It draws attention to a number of achievements and challenges in technical capacity development in the region, including the ability of countries to provide basic development statistics for measuring progress towards national and internationally agreed development goals, particularly the Millennium Development Goals.

4. The report identifies a set of priority issues that may define the course of future statistics development in the region. It also emphasizes the opportunities for statistical capacity-building, enhanced by the region's vast diversity, particularly through the sharing of good practices and the promotion of technical cooperation.

5. The report also highlights the important role played by many bilateral, subregional, regional and international partners in the statistics development of the region and outlines a recently proposed ESCAP strategy for technical cooperation in statistical capacity-building in the region.

II. Significant progress despite enormous challenges

6. At a special session in 1994, the Statistical Commission adopted the Fundamental Principles of Official Statistics, which defined the role of official statistics and provided guidelines for national statistical systems. Official statistics have since gained prominence, spurred by the unprecedented process of rapid globalization, the expansion of the information society, the growing demand for transparency and evidence-based policymaking and the pressing need to track progress towards time-bound national and global development goals, including the Millennium Development Goals and targets.

7. Promoting statistical capacity-building, especially in developing countries, has consequently become a top priority on the global development agenda. The ongoing national development process and support from bilateral and multilateral statistics development partners have led to visible advancements in the national statistical systems across Asia and the Pacific.

8. As diverse as are their economic development, demographic attributes or geographic make-up, countries of the Asia and Pacific region also differ

[1] See *Official Records of the Economic and Social Council, 2008, Supplement No. 4* (E/2008/24).

considerably in their level of statistics development and in their specific needs for capacity-building. The more developed national statistical systems of such areas as Australia, Hong Kong (China), Japan, the Republic of Korea, Singapore and New Zealand, have continued to evolve over recent years. Many have sought to further strengthen the leadership role of national statistical offices and improve the overall effectiveness of national statistical systems. They have also explored innovative use of information and communications technology (ICT) to develop central national data networks or integrated systems of official statistics that make full use of data from censuses, surveys and administrative sources. Still others have taken the initiative to promote easier public access to data, including microdata, and the effective use of statistics for policy debate and discussions (see country papers submitted at the twelfth East Asian statistical conference, available from http://www.stat.go.jp/english/info/meetings/eastasia/page05.htm).

9. Despite enormous political, financial and technical challenges, most developing countries in the Asia and Pacific region have made important progress towards a stronger national statistical system. Many have strived to address the legal provisions for national statistical systems by establishing new or amending existing statistical laws and acts; they have also made tremendous efforts to improve the technical capacity in both data collection and dissemination. While Central Asian countries have confronted the demanding institutional and methodological requirements for shifting from a centrally planned system to a market economy, some least developed countries have started to build (e.g., Timor-Leste) or rebuild (e.g., Afghanistan) their basic national statistical capacity. Pacific island countries have also made impressive strides in the positive direction under some of the most unique constraints (see E/ESCAP/CST/INF/5).

10. Paragraphs 11 to 14 below discuss where developing countries in the Asia and Pacific region currently stand in terms of their overall statistical development.

A. Looking through the statistical capacity indicator

11. Despite its shortcomings, the statistical capacity indicator, developed by the World Bank, is a useful tool for assessing national statistical capacity across the world (see E/ESCAP/CST/2). As a composite indicator, it summarizes three dimensions of a national statistical system: (a) statistical practice, measured by the availability of statistics and the ability to adhere to the internationally recommended standards and methods, especially in the economic and financial sectors; (b) data collection, composed of the periodicity of agricultural and population censuses as well as poverty and health surveys, and the completeness of vital registration coverage; and (c) indicator availability, referred to as the availability and frequency of key socio-economic indicators, namely, selected Millennium Development Goals indicators and gross domestic product (GDP) growth.[2]

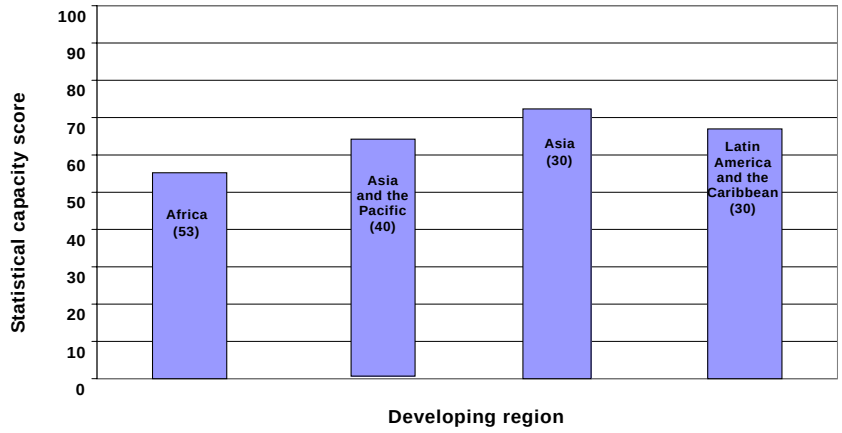
12. As suggested by the average statistical capacity scores for each developing region (see figure) the countries of the Asia and Pacific region (with a score of 64 out of 100) are slightly behind the countries of the Latin America and Caribbean

[2] The statistical capacity indicator covers only countries that borrow from the International Development Association or the International Bank for Reconstruction and Development. The average level of capacity in a developing region could therefore be biased lower.

region (with the highest score of 67), but ahead of Africa (with the lowest score of about 55). When Pacific countries are considered separately, the rest of the Asian countries come out ahead of the countries of the Latin America and Caribbean region, with a score of 72.

13. The disparity in statistical capacity among developing countries in the Asia and Pacific region is glaring, with the following statistical capacity indicator scores: 26 for the Marshall Islands, 38 for Afghanistan and 93 for Armenia. Among countries included in the assessment, the level of statistical capacity is as follows: for the majority of North and Central Asian countries, it is considered to be high (with statistical capacity indicator scores between 76 and 100); for the two countries in East and North-East Asia, it is considered to be high or medium (between 51 and 75); for five out of nine South-East Asian countries, it is considered to be medium (between 51 and 75); and for most of the South and South-West Asian countries, it is considered to be either medium or low (between 26 and 50). Except for Fiji, Samoa and Tonga, which have medium-capacity scores, most Pacific countries fall in the low-capacity category.

Figure 1 Statistical capacity indicator, developing region, 2007[a]



[a] Asia and Pacific includes the developing members and associated members of the Economic and Social Commission for Asia and the Pacific; Africa includes both North Africa and sub-Saharan Africa.

Source: Based on data from the country statistical information database of the World Bank (available from http://go.worldbank.org/0EZU159C70).

Note: Statistical capacity score refers to the average score for countries covered in each region (number of countries is shown in brackets). Only countries that borrow from the International Development Association or the International Bank for Reconstruction and Development are included in the assessments.

B. Regional participation in global programmes

14. Progress in statistics development in the Asia and Pacific region is also reflected in the region's participation in recent global programmes, especially the 2005 round of the International Comparison Programme and the 2010 round of population and housing censuses.

The 2005 round of the International Comparison Programme

15. The International Comparison Programme, a global statistical project set up pursuant to a recommendation of the Statistical Commission, is crucial for cross-country comparisons of living standards as measured by such economic aggregates as GDP, price levels and purchasing power of currencies. Covering 146 economies from all geographic regions, the scale of the recent round of ICP for the benchmark year 2005 was unprecedented. Compared to the participation of only 13 economies in the 1993 round, the contribution of the Asia and Pacific region for 2005 was more impressive: 23 economies from all subregions took part in the programme, under the Asia and Pacific "region", including, for the first time, both of the two most populous and fastest-growing economies, China and India. Another five Asian countries (Australia, Japan, New Zealand, Republic of Korea and Turkey) participated in the programme, under the Organization for Economic Cooperation and Development/Eurostat "region".

16. The success of the 2005 round in Asia and the Pacific, coordinated effectively by the Asian Development Bank, is unparalleled among developing regions, especially considering the large demographic variation, economic diversity and geographic dispersion in the region. It is commendable that all participating economies worked concertedly to generate broadly comparable price and national accounts data. Through the project, the region managed to develop the technical know-how and institutional requirements that would support future International Comparison Programme rounds.[3]

2010 round of population and housing censuses

17. For the more developed statistical systems in the Asia and Pacific region, population censuses are conducted as regularly and frequently as every five years. Some countries, such as Singapore, have already moved to register-based censuses. But for many developing countries, particularly those that are war-torn or going through civil strife or economic transition, it has been financially and technically challenging to ensure regular and proper census undertaking at least once every 10 years. Cambodia, for example, conducted its first population census in 1998, after a gap of 36 years, and still required substantial support to manage the 2010 round of censuses successfully.

18. At the moment, almost all of the countries of the Asia and Pacific region have committed to conducting, or have already conducted, the 2010 round of population and housing censuses. With Afghanistan, Bhutan and Myanmar[4] taking part for the first time in the world programme, the coverage of the 2010 round of population censuses in the Asia and Pacific region is going to be a new record. Most remarkably, Pacific island countries are well on their way to achieve, once again, 100 per cent census coverage in the subregion, despite serious financial and other constraints.[5]

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[3] Asian Development Bank, *Purchasing Power Parities and Real Expenditures* (Manila, 2007).

[4] There is no fixed date, but it is expected that a consensus will be conducted in Myanmar during the period 2005-2014.

[5] The Pacific region is the only subregion in the world that achieved 100 per cent census coverage in the 2000 round of population and housing censuses.

19. However, given the increasing cost of census undertaking, the deterioration of response rates, and the persistent need to improve data accuracy, national statistical offices in the region are working intensively to explore new ways, including with the use of new information and communications technology tools, to ensure the coverage and quality of the upcoming censuses and to improve census data documentation and dissemination.

20. Under the guidance of the 2010 world population and housing census programme managed by the United Nations Statistics Division, in 2006 ESCAP proposed a regional census programme to address the needs expressed by countries in the region. It aims to support the implementation of the global principles and recommendations, promote the collection of data on emerging issues, including migration and disability, and to facilitate the effective use of information and communications technology.

III. Strengthening legal and institutional arrangements

A. Prerequisite for an effective statistical system

21. An effective system of official statistics, comprised of timely, relevant, reliable and easily accessible social, economic and environmental statistics necessary for development planning and monitoring, should ideally be the product of a functioning national statistical system established according to the Fundamental Principles of Official Statistics. The national statistical system should be led by the national (central) statistical office, with the full collaboration of Government agencies that collect data, mainly through administrative systems, which can be used for statistical purposes. Such a national statistical system would serve both the Government and the general public and support national development priorities and international data requirements.

22. Most national statistical systems in the Asia and Pacific region are evolving towards or being developed into such a desired system. Since being endorsed by the Statistical Commission, the Fundamental Principles of Official Statistics have been adopted and implemented, at least in part, by many national statistical offices in the region. For instance, a recent questionnaire survey conducted within the Commonwealth of Independent States indicated that all 12 countries had applied all 10 fundamental principles in planning their statistical activities, though the degree of and mechanisms for the implementation of the principles varied among the countries.[6]

23. The success of the more developed statistical systems testifies to the importance of proper legal provisions, along with political stability and government commitment, as necessary though insufficient conditions for the proper functioning of a national statistical system. In the Asia and Pacific region, 76 per cent of the countries have some form of statistical legislation. North and Central Asia is the only subregion in which all countries have passed a statistical law. In most of the

[6] Interstate Statistical Committee of the Commonwealth of Independent States, 2006 background note entitled, “Comments on existing strategic programmes for statistics development in the Central Asian CIS countries”, prepared for the PARIS21/ESCAP high-level forum on strategic planning in statistics for Central Asian countries.

other subregions, just over 80 per cent of countries have similar legislation, with the exception of the Pacific, where few countries have a statistical law.[7]

24. Over 60 per cent of the countries with legislation for statistics had enacted their statistical laws prior to the endorsement of the Fundamental Principles of Official Statistics, while more than half of the North and Central Asian countries had passed their statistics laws after 1994, during the initial stage of economic transition.

25. Since 1994, a number of developed and developing countries in the region have revised or amended the existing statistical laws. The changes were in many cases intended to help expand the mandate of the central statistical office and strengthen the coordination with government data agencies, in particular taking into account the importance and potential of using administrative data for statistical purposes.[8] For example, the current Statistics Act of New Zealand charges Government statisticians with leading a coordinated system. In 2007, Thailand approved the new Statistics Act (amendment of the 1965 Statistics Act), which sets out to empower the national statistical office to play a strong coordination role for effective management of a quality national statistical system and to allow statistical data to be linked and used in an integrated fashion.[9]

26. Although statistical laws vary in content across countries, they should contain provisions that protect the independence of statistical offices, a condition extremely critical for the credibility of, and public trust in, official statistics. Inevitably, the extent to which those legal provisions are actually translated into practice determines the level of effectiveness of a national statistical system.

B. Charting a road map for development

27. The experiences of the more developed statistics systems are guiding many developing countries in Asia and the Pacific to chart a road map for their own statistics development. Taking into account of the level of development and other specific national conditions, many developing countries in the region are establishing various forms of strategic planning for statistics development.

28. As one of six priority actions, the Marrakech Action Plan for Statistics called for direct support to all low-income developing countries in developing a national strategy for the development of statistics by 2006. As of October 2008, of the 26 countries in Asia that are members of the International Development Association (excluding Yemen), 14 (54 per cent) are in the midst of a national strategy for the development of statistics process. These include 11 countries that are currently implementing a strategy and 3 in the process of designing one. Another 11 countries

[7] Information on statistical legislation is available for less than 60 per cent of the Pacific countries. For details, see the country statistical information database of the World Bank, available from http://go.worldbank.org/0EZU159C70 and the United Nations Statistics Division website http://unstats.un.org/unsd/dnss/SearchResults.aspx.

[8] Dennis Trewin, “Administrative data: opportunities and challenges”, available from http://www.unsiap.or.jp/completed_prog/workshop/ms/ms7/ms7_index.htm.

[9] Vince Galvin and Jirawan Boonperm, presentations at the twelfth East Asian Statistical Conference. Available from http://www.stat.go.jp/english/info/meetings/eastasia/page05.htm.

in the region have neither implemented a strategy nor are designing one; 9 of those, however, have expressed plans to design one.[10]

29. In order to be successful, statistics development needs to become an integrated part of the overall national development strategy. Statistics development is foremost the responsibility of national Governments; external support can only be effective if there is national commitment. In order for a statistics development strategy to be of real value, it should contain not only a long-term strategic vision but also strategic planning for human resource development. It should cover the entire national statistical system, engage users of statistics and promote the leadership role of a national statistical office in setting statistical standards and coordinating the national system. In some countries in the Asia and Pacific region, statistics development plans still address only the central statistical office, although the trend is now towards a system-wide approach. Other countries, such as the Lao People's Democratic Republic and Cambodia, face enormous funding gaps when it comes to implementing the plans set out in their strategies.[11] Lack of resources is a persistent challenge for many developing statistical systems in the region.

IV. Improving technical capacity

A. Building sustainable data collection programmes

30. Building sustainable national data collection programmes is clearly a challenging priority for many developing countries in the Asia and Pacific region. While some of the more developed statistical systems in the region, such as Singapore and New Zealand, are already on their way to developing an integrated data system with advanced statistical methodology and ICT applications, many developing countries are still struggling to establish regular censuses and household survey programmes and to make better utilization of the existing administrative and vital registration data.

31. Administrative and vital registration systems, often better established in more developed countries, continue to remain inadequate in many developing countries in the region. As shown in table 1 (the last two columns), the majority of developing countries in the region (that borrow from the International Development Association or the International Bank for Reconstruction and Development) do not have complete vital registration coverage: close to 80 per cent in South-East Asia and 70 per cent in South and South-West Asia and the Pacific.

32. Besides population and housing censuses, most Governments place high importance on developing economic censuses, agricultural censuses and other sector-specific censuses for collecting basic economic statistics. During recent years, many developing countries have undertaken their first agricultural or economic censuses and have in the process received technical support from more

[10] PARIS21 Secretariat, 2008. "National strategies for the development of statistics: worldwide report on progress and emerging issues", available from http:www/paris21.org/documents/3323.pdf.

[11] See, for example, "Statistical master plan for Cambodia" (National Institute of Statistics, Ministry of Planning, Cambodia) and "Strategies and measures for the official statistical system development of the Lao People's Democratic Republic 2006-2010" (National Statistical Centre, Lao People's Democratic Republic).

developed countries. For example, while undertaking an economic census is a regular activity carried out in Indonesia every 10 years and in Malaysia every five years, Cambodia is currently preparing to conduct its first agricultural census in 2009 and an economic census in 2011.[1] Both developing and developed countries, however, face the common issue of obtaining adequate business registers for producing quality economic statistics.

Table 1
National and international household surveys and vital registration coverage, Asia and the Pacific, 1999-2007[a]

	Countries with at least two national household surveys (1999-2007)		*Countries with at least two international household surveys (1999-2007)*		*Countries with complete vital registration coverage (2007)*	
Region/country groupings	*Number*	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Asia and the Pacific	22	55	18	44	18	45
East and North-East Asia[b]	2	100	1	33	1	50
South-East Asia	5	56	5	56	2	22
South and South-West Asia	5	50	5	50	3	30
North and Central Asia	8	89	6	67	9	100
Pacific	2	20	1	10	3	30
Low-income	6	46	9	64	3	15
Medium-income	16	59	9	33	23	56

Sources: Based on data from the country statistical information database of the World Bank (http://go.worldbank.org/0EZUI59C70), the MEASURE DHS site (http://www.measuredhs.com/aboutsurveys/dhs/start.cfm) and the ChildInfo website of the United Nations Children's Fund (http://www.childinfo.org/).

Note: Including only countries that borrow from the International Development Association or the International Bank for Reconstruction and Development.

[a] National household surveys considered here include household income and expenditure surveys, household budget surveys, labour force surveys, economic activity surveys or integrated surveys; international household surveys refer to surveys sponsored by international agencies, including demographic and health surveys, multiple indicator cluster surveys or living standards measurement surveys.

[b] The Democratic People's Republic of Korea is included in the international household surveys analysis but excluded from national household surveys and completeness of vital registration coverage.

33. Household surveys have in the recent decades become a major instrument for data collection, especially for social statistics. For a long time, production of social statistics used to be largely dependent on periodical population censuses and administrative records that were often inadequate. Though rapidly growing, international standards for social statistics have not been as prevalent as they have been for economics statistics.[12] To address the serious lack of social statistics on such essential topics as health, education and poverty and the need for monitoring internationally agreed development goals, bilateral and multilateral donors have in recent years focused on investing in household surveys, including the internationally sponsored surveys, as a means to obtain data in many developing countries. That

[12] Dennis Trewin, "The evolution of national statistical systems: trends and implications" (draft, 1 February 2007).

approach has doubtlessly helped to increase the availability of social statistics but has also raised concerns over the sustainability of national survey programmes.

34. As shown in table 1, countries (that borrow from the International Development Association or International Bank for Reconstruction and Development) in North and Central Asia appear to have, on average, a better national capacity to implement household survey programmes than countries in other subregions, and few Pacific countries have a regular survey programme. One striking observation is the contrast between low-income and medium-income countries: many low-income countries rely on internationally sponsored household surveys for data collection, with about 64 per cent of them having conducted at least two international surveys between 1999 and 2007, whereas the majority of medium-income countries have more regular national survey programmes, with nearly 60 per cent of them having conducted at least two national household surveys during the same period.

35. As elsewhere in the world, both the developing and developed countries in the Asia and Pacific region are confronted with the issue of how to develop a more integrated system of official statistics that would make the most efficient use of data from censuses, surveys and administrative sources so as to reduce response burden, balance costs and increase sustainability.

B. Implementing international standards

36. With the introduction and continuing refinement of the System of National Accounts, economic statistics over the years have become much more integrated under a unifying framework than have most social statistics. Many countries in Asia and the Pacific have developed significant national capacity to produce economic statistics in accordance with established international standards, though many challenges remain. In assessing national capacity in the area of economic statistics, subscription to the General Data Dissemination System (GDDS) and Special Data Dissemination Standard (SDDS), as well as compliance with System of National Accounts milestones and other guidelines, can be considered as indicators.

Subscription to the General Data Dissemination System and the Special Data Dissemination Standard

37. The General Data Dissemination System and the Special Data Dissemination Standard, both initiatives of the International Monetary Fund (IMF) created in response to the emerging market crises of the mid-1990s, are international standards for the dissemination of economic and financial statistics. The two differ, however, in focus and scope as well as in membership requirements.[13] With improved linkages between GDDS and SDDS, subscription to SDDS could be integrated as an end goal for GDDS members.[14] Countries that subscribe to GDDS could therefore be regarded as having made a commitment to improving the quality of the relevant statistics, whereas countries that subscribe to SDDS could be considered as having a

[13] See “Differences between the SDDS and the GDDS”, available from http://dsbb.imf.org/applications/web/gdds/gddsdiffbw/.

[14] See “Assessing the General Data Dissemination System: what has been accomplished after 10 years and where do we go from here?”. Available from www.imf.org/external/pubs/ft/sdds/gdds-assess-08/pdf.

relatively higher statistical capacity than countries that only subscribe to GDDS or not at all.

Table 2
Subscription to the General Data Dissemination System and the Special Data Dissemination Standard, world region and Asia-Pacific country groupings, 2008

Region/country groupings	*Number of International Monetary Fund members*	*General Data Dissemination System (per cent)*	*Special Data Dissemination Standard (per cent)*	*Combined subscription (per cent)*
Africa	**53**	**77**	**2**	**79**
Asia and the Pacific	**48**	**38**	**31**	**69**
East and North-East Asia	6	50	50	100
South-East Asia	11	27	45	73
South and South-East Asia	10	50	20	70
North and Central Asia	9	33	44	77
Pacific	12	33	8	41
Low-income	13	54	8	62
Middle-income	27	33	33	67
High-income	8	12	63	75
Europe and North America	**42**	**10**	**79**	**89**
Latin America and the Caribbean	**32**	**63**	**32**	**95**

Source: General Data Dissemination System site, available from http://dsbb.imf.org/Applications/web/gdds/gddscountrylist/, and the Special Data Dissemination Standard site, available from http://dsbb.imf.org/Applications/web/sddscountrylist.

Note: For the purpose of this analysis, Hong Kong, China, and Macao, China, are counted as individual International Monetary Fund members.

38. According to table 2, among the regions that comprise the developing world, Latin America and the Caribbean has the highest combined GDDS and SDDS subscription rate (95 per cent of IMF member countries), followed by Africa (79 per cent), largely a result of their high subscription rates for GDDS. When it comes to SDDS subscription, Europe and North America lead the way (with 79 per cent), while Asia and the Pacific and Latin America and the Caribbean are on a par (31 per cent and 32 per cent, respectively). As is the case in the Asia Pacific region, the higher the level of income of a country, the more likely it is to subscribe to SDDS.

39. Among countries in Asia and the Pacific, the SDDS subscription rate is the highest for East and North-East Asia (50 per cent), followed by South-East Asia (45 per cent) and North and Central Asia (44 per cent). The Pacific subregion, at 8 per cent, has the lowest subscription rate to either of the systems.

40. Most of the 15 SDDS subscriptions in the Asia and Pacific region were made between 1999 and 2001, soon after the launch of SDDS. In 2003 and 2004, Armenia, Kazakhstan and Kyrgyzstan “graduated” from GDDS into SDDS. In 2005, the Russian Federation became the latest country in the region to subscribe to the

system. At present, 15 countries that are members of both ESCAP and IMF do not yet subscribe to either system.

Compilation of national accounts

41. National statistical capacity is also reflected in the content and quality of national accounts a country can compile. For the implementation of the 1993 System of Nations Accounts, the United Nations Statistics Division, which leads the development and implementation of international standards for economic statistics and statistics in other important areas, monitors the content of national accounts in countries. The assessment is based on information collected through questionnaires on country compliance with important milestones, as well as with the minimum required data set (MRDS) and other recommended and desirable data sets (see E/CN.3/2004/10).

42. National capacity to compile national accounts statistics varies greatly among countries in the Asia and Pacific region. Among countries that had reported to the Statistics Division at least once between 1999 and 2007, 49 per cent produced at least six tables and 27 per cent produced all the tables required for MRDS. East and North-East Asia has the highest proportion of countries (83 per cent) that can provide at least six MRDS tables, followed by South and South-West Asia (70 per cent). The Pacific lags far behind, with only 13 per cent of countries producing at least six tables.

43. Considering milestones 1 and 2, which are easier for a country to satisfy than to meet the MRDS requirements (see E/ESCAP/CST/2), 75 per cent of countries in the Asia and Pacific region can satisfy the requirements of milestone phase 1 and 63 per cent the requirements of phase 2. While all East and North-East Asian countries and over 90 per cent of South and South-West Asian countries meet the benchmarks of both phases, only 31 per cent of Pacific countries can produce the basic GDP indicators and 25 per cent can produce the gross national income and other primary indicators.

44. To address the quality of national accounts, the data quality assessment framework for national accounts contained in the reports on the observance of standards and codes is informative. Though the reports are only available for 17 countries in the Asia and Pacific region (six of the countries are from North and Central Asia and five are from South and South-West Asia), the assessments are revealing. While all 17 countries satisfy milestones 1 and 2 and 15 of them produce six or more MRDS tables, significant challenges remain. In nine countries, the standards for statistical techniques are not observed. In six countries, the source data do not provide an adequate basis for compiling statistics or resources, including staff, facilities, computing resources and financing, and are deemed incommensurate with the needs of the statistical programme. In five countries, the scope of national accounts is not in accordance with internationally accepted standards, guidelines or good practices.

45. Efforts to support countries in the Asia and Pacific region to develop stronger statistical capacity for producing better economic statistics clearly remains a top regional priority, particularly considering the severe impact of the ongoing global financial crisis and its implications for more timely and comparable statistics across all countries and economies.

C. Meeting the data demand for assessing progress towards the Millennium Development Goals

46. Since the early 1990s, the calls for monitoring progress towards the internationally agreed development goals, most prominently the Millennium Development Goals, have had an increasing influence over what basic social and environmental statistics national statistical systems should produce. Internationally sponsored household survey programmes, such as the Demographic and Health Survey and the Multiple Indicators Cluster Survey, have contributed to the increasing availability of social statistics in many developing countries.

47. Information on the availability of data for trend analyses for selected Millennium Development Goal indicators (see table 3) indicates that, despite recent improvements, the capacity of many developing countries to produce data for some of the most basic social and environmental indicators remains poor. For example, only 63 per cent of developing countries in Asia and the Pacific have sufficient data for assessing trends (since 1990) in primary school enrolment (measured by the primary net enrolment ratio), a proportion that varies from 82 per cent in South-East Asia to only 37 per cent in the Pacific.

Table 3
Data availability for selected Millennium Development Goal indicators, developing region and Asia-Pacific subregion, since 1990

Region/country groupings	*Underweight children under 5 (per cent)*	*Primary net enrolment ratio (per cent)*	*Antenatal care coverage (at least 1 visit) (per cent)*	*Access to sanitation: rural areas (per cent)*
Sub-Saharan Africa	**80**	**84**	**74**	**96**
Latin America and the Caribbean	**48**	**72**	**57**	**83**
Asia and the Pacific	**51**	**63**	**47**	**90**
East and North-East Asia	43	71	29	57
South-East Asia	73	82	64	82
South and South-West Asia	90	80	70	100
North and Central Asia	67	78	89	89
Pacific	—	37	—	84

Source: Based on data contained in the global Millennium Development Goal database, as of 12 December 2008, available from http://mdgs.un.org/unsd/mdg/.

Note: Data availability is defined as having two data points, at least three years apart, during the period 1990 to the latest year for which data are available for a given indicator.

D. Making innovative use of information and communications technology

48. The advancement of ICT has contributed immeasurably to the improved effectiveness of national statistical systems in recent decades. Innovative use of ICT has facilitated new forms of data collection, increased the productivity of data processing and editing, enabled more effective management of information,

promoted easier access to data, including microdata, and improved the management and communication of national statistical offices, both within and externally.[12]

49. The level of national capacity able to make use of existing ICT varies remarkably across countries in the region. While some countries, such as the Republic of Korea, Singapore and New Zealand, have moved to internet-based data collection or have started developing integrated national data systems, many developing countries have just started to use geographic information system mapping technology and optical data capturing devices.

50. The conducting of population censuses is perhaps one of the areas which has seen the biggest impact of ICT. A 2007 ESCAP information survey on the past practices and future plans of countries with respect to ICT applications for population and housing censuses helped identify country expertise and specific needs for support in different areas of census operation. It formed the basis for establishing a regional network of national experts and for facilitating technical cooperation among countries in the region.[15]

51. The national capacity to apply new technologies in conducting population censuses varies greatly among countries. According to responses from 40 countries to the survey, in the 2000 round of population and housing censuses, 17 countries used project management and tracking software; 22 applied geographic information system technology; 15 used digital maps; and 20 used automated data capture tools (including internet-based). For the 2010 round of censuses, 24 countries requested assistance with cartography and mapping; 20 with tabulation and database design; 19 with data quality assurance; and 16 with census output dissemination.

52. As part of the 2010 World Population and Housing Census Programme, the United Nations Statistics Division, with the support of ESCAP, conducted regional workshops in 2007 and 2008 in Asia to provide training and to share good practices in the areas of census cartography, mapping, data capturing and editing. Other workshops are planned for 2009 on census data compilation and dissemination.

V. Challenges and opportunities

A. Defining future development

53. Despite recent progress, the Asia-Pacific region still faces daunting challenges in pursuing greater statistics development in many countries. The future of statistics development in the region depends on how some of the priority issues are addressed.

54. For example, national statistical systems in many developing countries, especially those least developed or small island developing States, are still struggling with the persistent lack of political support for statistics development and the consequently severe shortage of financial and human resources. Those statistical systems are often dependent on external support, which is not sustainable in the long run. Furthermore, in spite of the increasing existence of statistical laws in the

[15] See “Use of information technology in population and housing censuses in the ESCAP region: past practices and plans for the 2010 round”. Available from http://www.unescap.org/stat/meet/egm2007/index.asp.

region, the autonomy and independence of some national statistical offices continues to be threatened, which can easily lead to the erosion of trust in official statistics by both national and international users.[16]

55. With growing recognition of the need to develop more integrated statistical systems, including the better use of data from administrative sources, the need to strengthen the leadership role of national statistical offices in setting statistical standards and coordinating the national statistical system has become ever more pressing. A well-coordinated national system will not only enhance the development of an integrated national system of official statistics, which reduces response burden and increases the overall efficiency of the system, but will also reduce data inconsistencies, in particular between national and international sources. Such data discrepancies could seriously hamper the policy discussions within countries and undermine both the national and international statistical systems.

56. While the national statistical capacity to implement international standards in the area of economic statistics needs to be further strengthened in many countries, the urgent need to develop better international standards in many areas of social and environmental statistics should receive adequate attention and investment. At the same time, countries need to be properly supported in developing sustainable capacity to produce data for some of the most essential social and economic statistics, including through the innovative use of existing administrative data.

57. Many countries in the Asia and Pacific region lack the adequate quality assurance and evaluation mechanisms that help to ensure that the production of quality statistics meets evolving user needs. At the same time, promoting easier data access and supporting the effective use of statistics remain an enormous challenge for many national statistical offices.

58. Basic statistical training and the updating of statistical skills continue to be in large demand in many developing countries in the Asia and Pacific region. Currently, few developing countries in the region have established regular national statistical training programmes. Most basic statistical training continues to be funded and organized by international and regional organizations, which are not always able to respond adequately and in a timely manner to the specific needs in a country. As for other kinds of capacity-building, statistical training activities should be planned and organized in close collaboration among development partners (donors and recipients) and involve the relevant national institutions.

B. Building on diversity

59. The vast diversity in statistics development among countries in Asia and the Pacific reflects the amount of challenges facing the region. It also defines the scale of the region's potential and offers unique opportunities for further development, particularly through sharing of good practices and the promotion of technical cooperation.

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[16] Dennis Trewin, "Summary of discussion on evolution of national statistical systems". Available from http://unstats.un.org/unsd/statcom/statcom_seminar/Summary%20-%20Evolution%20Seminar.pdf.

Engaging in high-level, strategic regional discussions

60. The regional diversity in statistics development has been an inspirational force guiding high-level, strategic discussions of issues that are of regional concern and require collective action. Through dedicated regional statistical forums, leaders of national statistical offices engage with each other to share experiences, identify priorities and explore options. Through the processes they also form common regional positions and influence global discussions and decisions on critical statistics development policies and programmes, in particular through the Statistical Commission.

61. The ESCAP Committee on Statistics, a subsidiary body in the conference structure of the Commission, is such a dedicated forum. It had served the region up to 2002 and, after six years, was re-established by the Commission at its sixty-fourth session. During the interim, countries in the region had sought to continue the regional dialogue through an informal arrangement, the Forum for Asia/Pacific Statisticians, and had met twice during 2005 and 2006. With the upcoming first session of the re-established Committee on Statistics (4-6 February 2009), leaders of national statistical offices are expected to gather in Bangkok once again to set out a new direction for regional cooperation and collaboration in statistics development in the current fast-changing environment (additional information available from http://www.unescap.org/stat/cst/1/index.asp).

62. In addition, the Statistical Institute for Asia and the Pacific/ESCAP senior management seminar for the heads of national statistical offices, designed to strengthen statistical capability in the area of leadership and management, has offered another opportunity for regional strategic discussion and exchange of experiences. The seven seminars conducted since 2003 have covered a broad range of priority issues, from the use of information and communications technology to the management of population censuses to the potential and challenges of using administrative data; all have strong bearings on long-term statistics development in the region.

Strengthening subregional support

63. The existing regional diversity has also fostered a subregional approach to statistics development. Over the past decade, many subregional organizations, including the Association of South-East Asian Nations, the Interstate Statistical Committee of the Commonwealth of Independent States, the South Asian Association of Regional Cooperation and the Secretariat of the Pacific Community, have become increasingly active in promoting national statistical capacity-building in their respective subregion (see E/ESCAP/CST/INF/19, E/ESCAP/CST/INF/17 and E/ESCAP/CST/INF/23).

64. While the Association of South-East Asian Nations, with strong support, including from the IMF, the European Union and the United States Agency for International Development, has focused on harmonization of standard classifications for economic statistics among countries in South-East Asia, the Interstate Statistical Committee of the Commonwealth of Independent States has provided strong methodological and institutional support to many Central Asian countries during their transition to new statistical systems under a market economy. The Secretariat of the Pacific Community has been a critical player in promoting statistical capacity development in the Pacific, particularly in the area of population and housing

censuses, and has forged strong partnerships, including with Australia and New Zealand. The South Asian Association of Regional Cooperation has recently committed to giving high priority to regional cooperation in statistics development and has constituted a permanent group on statistics to help pursue the goal. Such subregional initiatives should be strongly supported and coordinated with other international and regional programmes to maximize impact.

Increasing triangular and South-South cooperation

65. The existing diversity in national statistical capacity in the region is a strong basis for technical cooperation among countries, not only through bilateral cooperation, with support from more developed statistical systems being provided to less developed ones, but also through triangular and South-South cooperation among developing countries.

66. For example, while continuing to contribute to a broad range of region-wide statistical initiatives, Australia and New Zealand have been focusing on the Pacific, providing direct technical support to many countries, often with funding from the national development aid agencies. Japan, another important donor actively supporting statistical capacity-building in the region and beyond, has also been engaged in bilateral technical cooperation in many countries. In preparing its 2008 population census, Cambodia has benefited from extensive technical support provided by the Japanese Statistics Bureau, including in mapping, editing, coding and tabulation, with funding from the Japanese International Cooperation Agency.

67. A number of developing countries have been active in sharing technical expertise through South-South or triangular cooperation. The national statistical office of Turkey, for example, has offered training, consultancy services and equipment to many countries in Central Asia since 1994, with financial support from the Turkish International Cooperation Agency. The Philippines has become one of the most active countries in the region when it comes to technical assistance: its national statistics office, with facilitation and funding from regional and international agencies, has provided assistance to more than 20 countries in a broad range of areas, including civil registration, agricultural censuses, household survey designs, data processing and statistical computing.

68. The potential of South-South and triangular cooperation is visibly recognized by the Secretary-General. The Asia and Pacific region needs to tap further into that potential, especially considering the fact that only a small proportion of the current $550 million of worldwide financial disbursements for statistics development flows into the region.

VI. Supporting regional statistics development

A. Support by statistics development partners

69. Over recent years, many countries in Asia and the Pacific have continued to receive support for statistical capacity-building from various statistics development partners. According to the results of a recent survey on donor support by the Partnership in Statistics for Development in the Twenty-First Century, institutional development such as the design of strategic statistical planning, human resource

development and/or provision of technological resources for large activities, including population censuses and household surveys, have been some of the priority areas supported by multilateral and bilateral donors.

70. Among the international and regional organizations, the United Nations Statistics Division, as the leader of the United Nations statistical system in developing and implementing international statistical standards, has supported statistics development in Asia and the Pacific by working closely with national statistical systems through technical assistance and advisory services.

71. The World Bank has been focusing on, in addition to other activities, supporting the development of statistical development strategies; IMF, on technical assistance for national accounts and other economic and financial statistics; ILO, on technical assistance for labour force and enterprise surveys and other labour market statistics; and the Asian Development Bank, on financial and technical support for development of economic statistics and other statistical capacity. The European Commission provides significant support to Central Asian countries in their statistical institutional reform and to ASEAN with its statistical harmonization and statistical capacity-building efforts. While each manages a statistics subprogramme in a regional commission, ESCAP and the Economic Commission for Europe have established close collaboration in developing joint projects to serve the needs of Central Asian countries.

72. Japan, as one of the biggest bilateral donors, has supported statistical capacity-building in many countries across the region. The support it has provided to the Statistical Institute for Asia and the Pacific has also contributed to the region's statistics development through statistical training. In addition to Australia, Germany, the Netherlands, Sweden and New Zealand, the United Kingdom of Great Britain and Northern Ireland, as a major supporter of statistics development at both the national and international levels, has contributed to the strategic and institutional development of many national statistical systems in the region,

73. The PARIS21 survey results reiterated the need to improve partner collaboration in statistics development. A side event on coordinating support for statistics development in Asia and the Pacific is being organized in conjunction with the upcoming first session of the ESCAP Committee on Statistics. The event will bring countries and major international, regional, subregional and bilateral statistics development partners together to explore ways to improve coordination and cooperation. In particular, it will include discussion on the possibility of establishing an informal mechanism, such as a regional version of the Coordination Committee for Statistical Activities, to allow partners to regularly exchange information, identify opportunities for cooperation and address issues that require collective efforts, especially at the country level.

B. Strategy of the Economic and Social Commission for Asia and the Pacific

74. Statistics development has traditionally been a main component of the ESCAP Statistics Division work programme. In recent years, however, ESCAP has sought to become a more proactive and stronger regional player. Its work programme is supported by the Statistical Institute for Asia and the Pacific (a subsidiary body of ESCAP) though the two have distinct roles to play: the ESCAP Statistics Division

focuses on technical cooperation, targeting areas with emerging international standards and methodologies, while the Statistical Institute provides and facilitates statistical training in the practical application of established international standards and methodologies. The clear division of labour also provides a strong basis for the training programme of the Institute and the statistical capacity-building activities of the ESCAP Statistics Division to complement each other.

75. As a regional organization, ESCAP is well placed to support global initiatives by addressing regional perspectives and country needs while focusing on priority areas, in which there are urgent policy demands for better statistics and where international standards have yet to be fully developed or implemented.

76. The statistical capacity-building initiatives of ESCAP are guided by the following principles:

(a) Promoting international standards while incorporating regional perspectives;

(b) Giving priority to areas with urgent policy needs for better data while international standards have yet to be fully developed;

(c) Seeking synergy by linking up with other important global, regional and subregional initiatives;

(d) Pursuing a strategic mix of activities whenever possible to maximize impact, including combining advocacy and awareness-raising activities with the development of standard measurements and regional guidelines, targeted training, advisory services and knowledge management, particularly focusing on establishing regional networks of national experts in given areas of statistics and, through them, facilitating triangular and South-South cooperation;

(e) Aligning with national priorities and starting with a small number of countries during pilot phases, using their experience to derive good practices and lessons learned that can subsequently be applied beyond the initial project countries.

77. Over the past three years, under the new technical cooperation strategy, ESCAP has led the development and implementation of several technical cooperation projects, including an interregional cooperation project on improving the measurements on the informal sector and informal employment and a project on improving disability measurements and statistics in support of the Biwako Millennium Framework for Action towards an Inclusive, Barrier-free and Rights-based Society for Persons with Disabilities in Asia and the Pacific. Both projects are funded by the United Nations Development Account and are pursued in close partnership with leading international and regional agencies and expert groups in each area (see E/ESCAP/CST/3).

78. Through these projects and participation in other global initiatives, countries in the Asia-Pacific region contribute directly to the development of international statistical standards and further develop national technical capacity in selected areas.

VII. Actions to be taken by the Statistical Commission

79. **The present report provides a brief overview of the main achievements and remaining challenges in statistics development among countries in the Asia and Pacific region. The Commission may wish to:**

(a) **Comment on ongoing efforts towards advancement in statistics development among countries in the Asia and Pacific region, particularly key achievements and pressing challenges;**

(b) **Comment on the role of the newly established ESCAP Committee on Statistics in promoting statistics development in the region;**

(c) **Comment on the proposed regional initiative to establish an informal coordinating mechanism among statistics development partners in the Asia and Pacific region;**

(d) **Provide advice on the need to strengthen the linkages between the United Nations Statistics Division and the statistics offices of the regional commissions in order to improve regional support for the development and implementation of international statistics development programmes and initiatives lead by the Division;**

(e) **Provide guidance on the proposed technical cooperation strategy of the ESCAP secretariat in promoting statistical capacity-building in the region.**

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THE ECONOMY OF KAZAKHSTAN UNDER THE WORLD MARKETS INSTABILITY

Kazakhstan is a small open economy with a limited number of exported goods and commodities that put the country into the vulnerable position in case of an adverse world market situation. It is thus necessary to expect any consequences of the decline in the world prices for exported goods, especially for oil, and consider this vulnerability during the process of making macroeconomic forecasts.

There are a number of features that allow to reveal the raw-material orientation of the economy. In standard terms, the share of raw sector in GDP and export structure would serve as a main indicator. Indeed, the experience of the last few years demonstrate the tendency in Kazakhstan of mineral raw resources share predominance in combined exports of the country. Petroleum and petroleum products have become fundamental strategic export items (60-70% of the total exports) (fig.1).

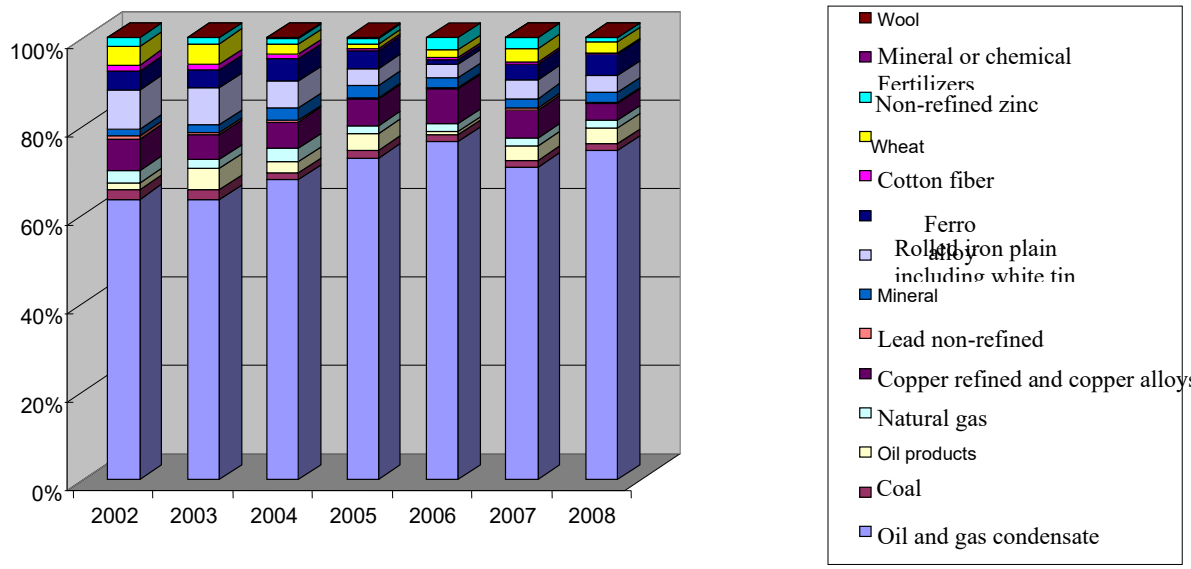


Figure 1 –Exports structure in the Republic of Kazakhstan.

Source: Statistics Agency of the RoK.

Kazakhstan occupies the 11th place in the world by explored reserves of oil[1]. Confirmed resources of oil in the country are estimated 30[2] to 39.828 billion

[1] <http://www.wired.com/special_multimedia/2008/oilreserves>.
[2] PennWell Corporation, *Oil & Gas Journal*, №. 105.48. Включает газовый конденсат. Данные на 1 янв. 2008 г. <http://www.eia.doe.gov/emeu/international/reserves.html>.

barrels of oil[3] (2.2-3% of the world total). Discovered in 1979, the Tengiz oilfield contains from 6 to 9 billion barrels of oil. Another huge oilfield, Kashagan, discovered in 2000, is estimated to contain 13 billion barrels.

According to the preliminary data, oil and gas condensate volumes in Kazakhstan extracted between January and November 2008 comprised 471 mln. barrels, 4.6% higher than in the analogical period of the year 2007.

Let's observe the raw-materials content of the economy in the GDP structure (Table 1). The mining sector has increased its share from 13 to 20.6% during the 2000-2008 period, but the services still comprise some 50% of GDP, which says about sufficient level of economic development (the developed countries enjoy the share of services at around 75% GDP).

Table 1 – GDP structure of the Republic of Kazakhstan for 2000-2008.

GDP structure	2000	2001	2002	2003	2004	2005	2006	2007	2008 *
Goods production	**45.9**	**44.9**	**43.8**	**42.9**	**42.5**	**44**	**44.9**	**43.4**	**47.9**
Agriculture and fishery	8.1	8.7	8.0	7.9	7.1	6.4	5.5	5.7	5.7
Mining production	13	11.4	12.1	12.1	13.6	15.8	16.1	15.1	20.6
Manufacturing	16.5	16.4	14.5	14.2	13.3	12	11.6	11.5	12.5
Services	**48.4**	**49.4**	**50.5**	**51.8**	**53.4**	**52**	**51.6**	**54.2**	**50.2**

*January – September

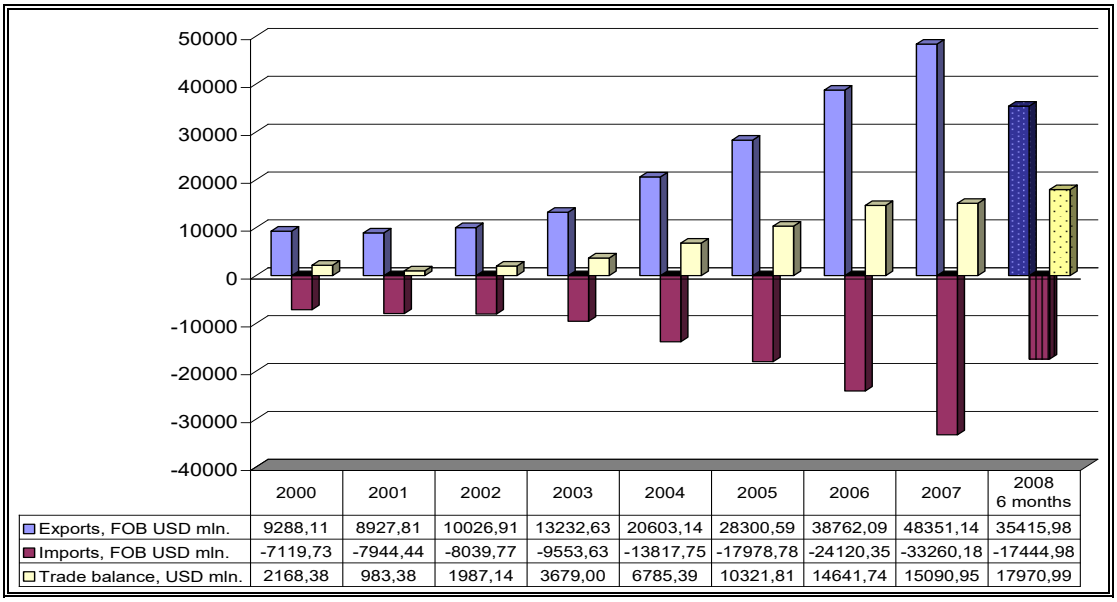
Source: Statistics Agency of the RoK.

It gives a right to make a conclusion that the GDP growth in Kazakhstan is not provided by exports-led development alone. Mining sector which is about 80.4% of export in 2007, occupied just 15.1% of GDP. Most of the real GDP growth is defined by non oil-gas sector of the economy, the output which is absorbed by the domestic consumption.

The price factor influence of the world markets is reflected on the balance of payments in the following directions.

1. Balance of payments. With the prices and volumes of imported goods stable, and prices of exported goods decreasing, the positive ratio of the trade balance may be diminished. For the first 6 months of 2008 trade balance ratio has comprised $17 971 bln. under the favorable price conditions for exported goods (fig.2).

[3] Ibid. *British Petroleum Energy Sources Review*, June 2008. Includes gas condensate and liquefied natural gas.



	2000	2001	2002	2003	2004	2005	2006	2007	2008 6 months
Exports, FOB USD mln.	9288,11	8927,81	10026,91	13232,63	20603,14	28300,59	38762,09	48351,14	35415,98
Imports, FOB USD mln.	-7119,73	-7944,44	-8039,77	-9553,63	-13817,75	-17978,78	-24120,35	-33260,18	-17444,98
Trade balance, USD mln.	2168,38	983,38	1987,14	3679,00	6785,39	10321,81	14641,74	15090,95	17970,99

Figure 2 – Trade balance of the RK.

Source: National Bank of the Republic of Kazakhstan.

To reveal raw dependence of Kazakhstan it is possible to track change of the world prices and dynamics of trading balance (fig. 3).

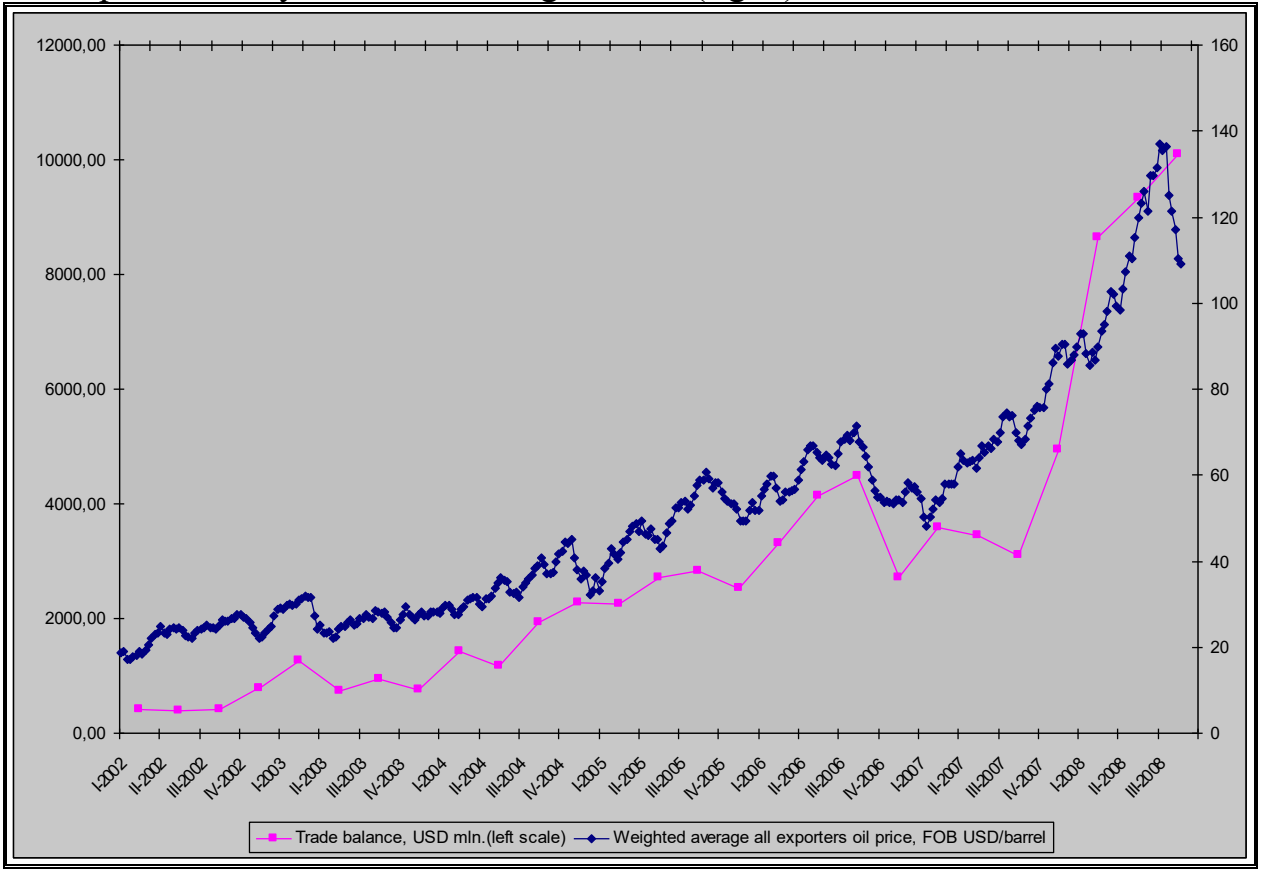


Figure 3 – Comparison of dynamics of the world prices for oil and trade balance.

The trade balance practically directly is dependent on dynamics of prices for oil.

2. Balance of investment incomes. Incomes from foreign direct investments to Kazakhstan, which had positive dynamics of growth from 2002 to 2007, influence the balance of investment incomes.

The volume of foreign direct investments flown into Kazakh economy increased 4.3 times during 2002-2008 (fig.4).

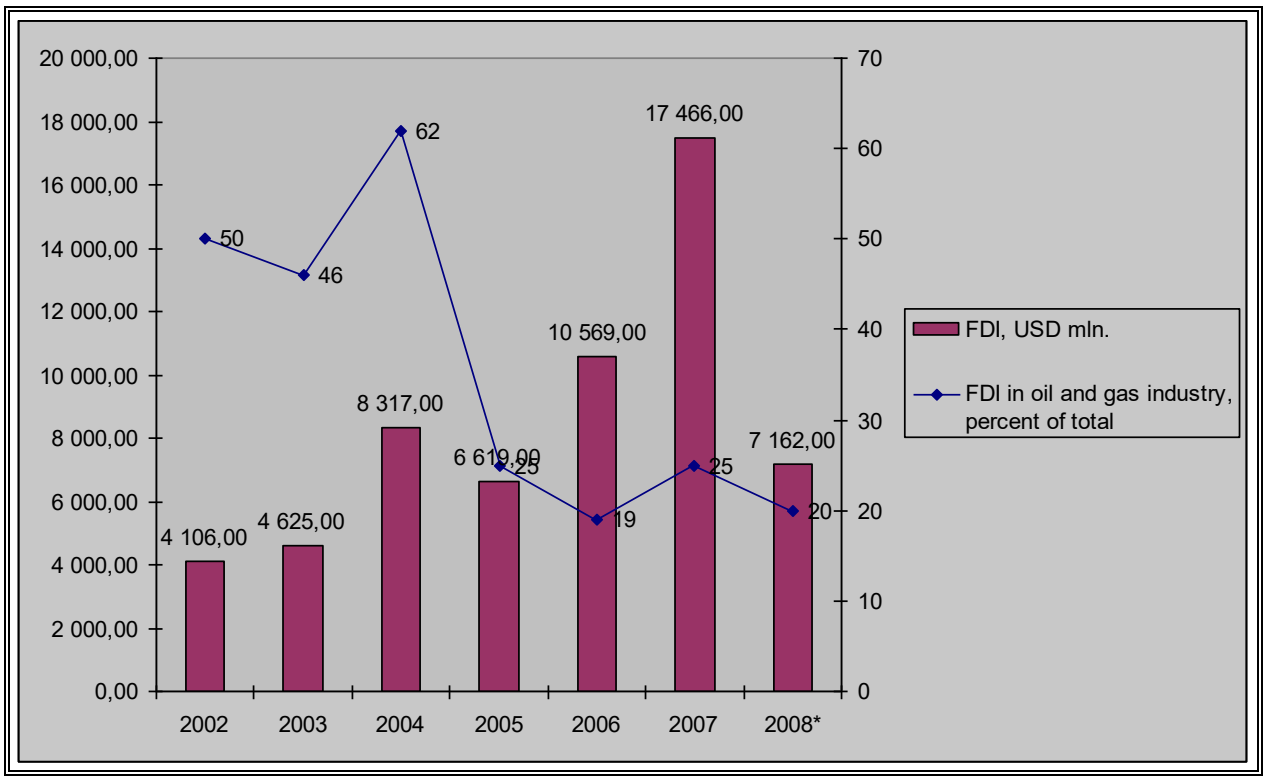


Figure 4 – Foreign direct investments in Kazakhstan from 2002 to 2008.

Source: National bank of the RK. FDI ratio – right scale; * - data for the first 6 months of 2008

Starting from the large-scale development of oil deposits in 1996 to the present time, $29.2 billion of foreign direct investment was attracted into mining industry of Kazakhstan, $23.7 billion was attracted into geological survey works. Foreign direct investment for analogical period was 69.4%. Large portion of the total investments had flown into oil and gas sector.

FDI rate of profit increased from 4.7% in the 1st quarter of 2006 to 8.7 % in the 2nd quarter of 2008.

Table 2 – FDI rate of profit in Kazakhstan

	1 quarter 2006	2 quarter 2006	3 quarter 2006	4 quarter 2006	1 quarter 2007	2 quarter 2007	3 quarter 2007	4 quarter 2007	1 quarter 2008	2 quarter 2008
Direct investments in Kazakhstan, mln. US dollars (end of the period)	27 407	28 768	29 849	32 689	35 410	37 949	39 537	43 381	45 678	47868

Incomes of non-residents from direct investments, mln. US dollars (during the period)	1279	2080	2223	2058	1918	2740	2245	3380	2615	4178
Income of FDI - volume of FDI ration	**4,7%**	**7,2%**	**7,4%**	**6,3%**	**5,4%**	**7,2%**	**5,7%**	**7,8%**	**5,8%**	**8,7%**

3. **Balance of Services.** Conditions of the world markets influence the balance of services through the volumes and prices of providing services by the residents and non-residents. Economy of Kazakhstan is dependent on services provided by the non-residents (services import) in construction sphere (in the 1st quarter of 2008 it comprised $1660 mln.), transportation service ($1093.5 mln.), consultation services ($227.4 mln.), architectural and other technical services ($844.7 mln.).

Until 2008, the Current Account balance of the BoP had a negative sign since the negative balances of investment incomes, services, transfers and payments exceeded in aggregate the positive trade balance. During the first six months of 2008 under the conditions of the world prices growth on basic exported goods of the RoK, the trade balance has covered negative balance on other elements of the Current Account. The positive balance of Current Account of BoP made 6506, $2 million. According to the "Economic Research Institute" estimates, during the second six months the positive balance of current account will remain within the limits of $7350 million.

4. **Financial Account.** Capital flow is created by the investment portfolio of non-residents in Kazakhstan accumulated so far. By 06/30/08, direct investments made 38% of all foreign investments, 11% - portfolio investments and 51% - other investments presented by basic loans and the trade credits. Leadership in foreign investment attraction belongs to the financial activity sector (67 % of investments into Kazakhstan), sector of operations with the real estate, rent and service (30 %, basically in geological survey and research), and mining industry (20 %).

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The negative impact of the world financial crisis on Kazakhstani economy had begun in the second half of 2007 and caused decrease of volumes and toughening conditions of external loans.

In 2008, delay of economy growth, decline in demand and fall in prices on basic commodities create threats for the stable growth of Kazakhstan's economy.

As the European Bank of Reconstruction and Development estimates, growth rate of Kazakhstan's economy will reach 4.3 % in 2008, and GDP growth will make 3,0% in 2008.

The IMF made a forecast of GDP growth for 2008 – 4.5%, for 2009 – 5.3%.

The Economic Research Institute makes a forecast of GDP for short-term and medium-term perspectives using economic and mathematical models,

considering oil prices. By the Institute estimation, with oil price per barrel within $40-60, the GDP growth will make 2.6% in 2009, 4.3 in 2010, and 6.3% in 2011. There is a National Fund created through the state incomes from oil sector by analogy with the leading oil-producing countries. The republican budget is formed by non-oil incomes and guaranteed transfers from the National fund.

The Government also considers possibility of worsening economic situation and consequent shrinkage of the revenue side below the planned budget levels. On this basis, expenditure cut mechanism of three-years budget is developed given the oil price $25 per barrel. Social expenditures planned by the government connected to a pension increment and upgrading of benefits remaines unchanged in the Republic budget.

As a result of the decrease in the projected oil price, budget deficit was corrected and is expected to comprise 3.4% of GDP in 2009, 3.5% and 2.4% in 2010 and 2011 respectively.

The economy dependence on the commodities world price variations is high, but these are not determinant factors in the scenario choice of an economic development. Variation of oil prices is considered in preparation of the three year budget process, but directions providing economic growth are included in the longer-tern programs.

Due to neutralization of the negative impact of the world financial crisis, the Government of the Republic of Kazakhstan adopted a decision to use the accumulated capital of the National Fund to finance anti-crisis measures.

Government-run Program of anti-crisis measures that was adopted on November 25, 2008 represents five basic directions of the realization.

The Government reduced the level of expected world oil prices, put in the budget project for 2010-2011, from $60 USA to 40$ USA per barrel in 2009, to $50 USA in 2010 and 2011.

1. **Stabilization of the financial sector assumes**

- recapitalization of the 4 major banks through the purchase of common stocks and preference shares, as well as by providing subordinated loans in the amount of no less that $4 billion;
- creation of the public fund for risky assets with nominal capital of $1.5 billion in order to improve credit portfolios of national banks by bailing out unprofitable assets and managing those assets afterwards;
- provision with additional liquidity sources in order for banks to serve their liabilities in time;
- government guarantees of pension savings;

- expanding insurance guarantees for physical entities, who have deposits in commercial banks, up to $41 thousands (5 million tenge).

1. **Real estate market stabilization** means injection of $3 billion and includes the following:

- A special program for mortgage loans and development of the real estate sector on incomplete construction objects in Astana and Almaty, as well as on lowering rates for previously obtained mortgage loans;
- Government purchases of new housing on behalf of national companies and joint stock companies with government participation;
- Realization of public housing program that makes provisions for preliminary mortgage loans with low interest rates for public servants, employees of public sphere and young families.

2. **Supporting small and medium business** includes:

- Financial support in the amount of $1 billion for crediting of small and medium business;
- Development of micro financing programs in the countryside and rural areas;
- Providing access for the subjects of small and medium business to orders of state agencies, holdings and national companies;
- Securing guarantees and long-term orders for state holdings and national companies.

4. Agricultural sector development

Expenditures for agricultural sector development are planned in the amount of $3 bln. from republican budget for 2009-2011. Additional $1 bln. will be directed through "Kazagro" Holding to assist agricultural sector development.

5. Breakthrough, industrial and infrastructure projects implementation.

Infrastructure building and modernization will be carried out to solve economic development issues and to provide employment. There will be continued work on "30 corporative leaders" Program realization to maintain the economic growth. To implement breakthrough industrial and infrastructure

projects there will be directed additional $1 bln. (120 bln. tenge), also direct foreign investments will be attracted in amount of $3 bln. by the “Samruk-Kazuna” national welfare Fund.

According to the Economic Researches Institute estimation, additional financial resources from National fund can provide GDP growth at 2-3 % per year.

Venture Capital Systems; Theories and experiences,
With specific emphasis to ECO member countries

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Introduction

Funding through Venture Capital (VC) is very new and quite useful for attracting the not-used capitals in the globe especially for risky programs/projects, so this article tries to give a brief overview on venture capitals.

As the ECO Secretariat has managed to establish a Transfer of Technology Center in the region named ETT-Center(ECO Technology Transfer Center) which in case of operationalization , these resources may assist the entrepreneurs, innovators, investors and stakeholders of the member states to invest more effectively in their projects.

Definition

Private equity is a broad term which commonly refers to any type of equity investment in an asset in which the equity is not freely tradable on a public stock market. More accurately, private equity refers to the manner in which the funds have been raised, namely on the private markets, as opposed to the public markets. Venture capital is a type of private equity capital typically provided by professional, outside investors to new, growth businesses. So, venture capital defines as:

I. Money available for investment in innovative enterprises or research, especially in high technology, in which both the risk of loss and the potential for profit may be considerable.
II. Also known as risk capital, it is the finance provided by professionals or **V**enture **C**apital **F**irms who invest alongside management in companies which seem to have the potential to develop into significant economic contributors, basically investing in unproven businesses usually new and young companies.

A venture capital fund primarily invests the financial capital of third-party investors in enterprises that are too risky for the standard capital markets or bank loans. Venture capital can also include managerial and technical expertise. Most venture capital comes from a group of wealthy investors, investment banks and other financial institutions that pool such investments or partnerships. This form of fund raising is popular among new companies, or ventures, with limited operating history, which cannot raise funds through a debt issue.

When venture capital firms raise money from these sources, they group the committed money into a fund. Since investors in venture capital funds have specific return-on-

investment requirements, a venture capitalist should have expectations of potential investments similar to return-on-investment consideration.

Since the return-on-investment is so critical, venture capitalists invest with certain criteria in mind. In the US experience many funds invest between $6-10 million in a given company over a three to five year period and look for companies with market potential of $75-200 million. As a venture fund typically invests in only 20-30 companies, each investment must be screened carefully. Venture capitalists will be looking for a 30 to 40 percent—or more—annual return-on-investment and for a total return of five to 20 times their investment. Venture capitalists are not passive investors and become involved as advisors to management, usually as members of the company's board of directors. Venture capitalists seek to maximize their return by actively participating in their investments.

Background

General Georges Doriot is considered to be the father of the modern venture capital industry. In 1946, Doriot founded **A**merican **R**esearch and **D**evelopment **C**orporation (AR&D), whose biggest success was Digital Equipment Corporation. When Digital Equipment went public in 1968, it provided AR&D with 101% annualized **R**eturn **o**n **I**nvestment (ROI).

It is commonly accepted that the first venture-backed startup is Fairchild Semiconductor, funded in 1959 by Venrock Associates. One of the first steps toward a professionally-managed venture capital industry was the passage of the **S**mall **B**usiness **I**nvestment **A**ct (SBIA) of 1958. The 1958 Act officially allowed the U.S. **S**mall **B**usiness **A**dministration (SBA) to license private "**S**mall **B**usiness **I**nvestment **C**ompanies" (SBICs) to help the financing and management of the small entrepreneurial businesses in the United States.

Generally, venture capital is closely associated with the technologically innovative ventures and started mostly in the United States. Due to structural restrictions imposed on American banks in the 1930s, there was no private merchant banking industry in the United States, a situation that was quite unique in developed nations. Not only United States but also its industrialized rivals—notably Germany and Japan—which at that time were gaining ground in automotive and consumer electronics markets tried to enter the risky markets through venture capital mechanism.

The Silicon Valley project is a very good experience for the venture capital funding. During the 1960s and 1970s, venture capital firms focused their investment activity primarily on starting and expanding companies. Venture capital firms suffered a temporary downturn in 1974, when the stock market crashed and investors were naturally cautious of this new kind of investment fund. 1978 was the first big year for venture capital. The industry raised approximately $750 thousand in 1978.

In 1980, legislation made it possible for pension funds to invest in venture capital firms. 1983 was the boom year - the stock market went through the roof and there were over 100 initial public offerings for the first time in U.S. history.

Due to the excess of IPOs (Initial **P**ublic **O**fferings) and the inexperience of many venture capital managers, VC returns were very low through the 1980s. VC firms worked hard to make their portfolio companies successful.

The late 1990s were a boom time for the VC firms. A number of large IPOs had taken place, and access to "friends and family" shares became a reason for gaining benefits from any such IPOs.

For 2000s, let's look at the NASDAQ (**N**ational **A**ssociation of **S**ecurities **D**ealers **A**utomated **Q**uotations system) report. The crisis that started in March 2000, shook some VC funds significantly by the resulting disastrous losses from overvalued and non-performing startups. By 2003 many firms were forced to write off companies they had funded just a few years earlier, and many funds were found "under water "; (the market value of their portfolio companies were less than the invested value). By mid-2003,as it is shown in the graph, the venture capital share decreased to about half its 2001 capacity. Nevertheless, **P**rice**W**aterhouse**C**oopers' **M**oney **T**ree **S**urvey shows that total venture capital investments hold steady at 2003 levels through the second quarter of 2005. The revival of an Internet-driven environment of **eBay's** purchase of **Skype**, the **News Corporation's** purchase of **MySpace**, and the very-successful **Google** have helped to revive the VC environment with over $60 billion in debt.

For the first half of 2007, venture capital firms have raised approximately 62 percent of volume raised in the first half of 2006.

Refer to experiences of US economy; Medical Devices, Biotechnology and Software were the most important sectors with regards to venture capitals. The main user of venture capital is high technology industries. The experience of US presents that the life sciences sector including biotech and medical devices are the main component of VC users.

The supply of venture capital is also likely to continue growing. Within the past seven years, numerous pension funds have invested in private equity for the first time. According to the experiences of US and Europe, most venture capital comes from pension funds.

Basis on neoclassical economics, examining of both short-run and long-run supply and demand have effects. In the short run, intense competition between private-equity groups may lead to pay a premium for certain types of firms. This is unlikely to be a sustainable strategy in the long run: firms that persist in such a strategy will eventually achieve low returns and will be unable to raise their needed funds.

The components of the long-run, steady-state supply of venture capital in the economy are likely to be more fundamental. These will include: the magnitude of fundamental technological innovation in the economy, the volume of liquidity and competitive markets for venture capitalists to sell their investments, and the willingness of highly skilled managers and engineers to work in entrepreneurial environments.

Recommendations for ECO

ECO countries share around 6% of total population, 4.5% of total world labor force, but their share on total world GDP is only around 1.7%. Industrial sector in the ECO region has several common problems which call for common regional approaches. Some of our common problems and targets are increasing productivity, enhancement of institutional capacities, development of infrastructures, promotion of industrial trade and enhancing innovative capacities. In order to achieve these targets, member states, in addition to their national endeavors, need to promote and utilize their investment needs.

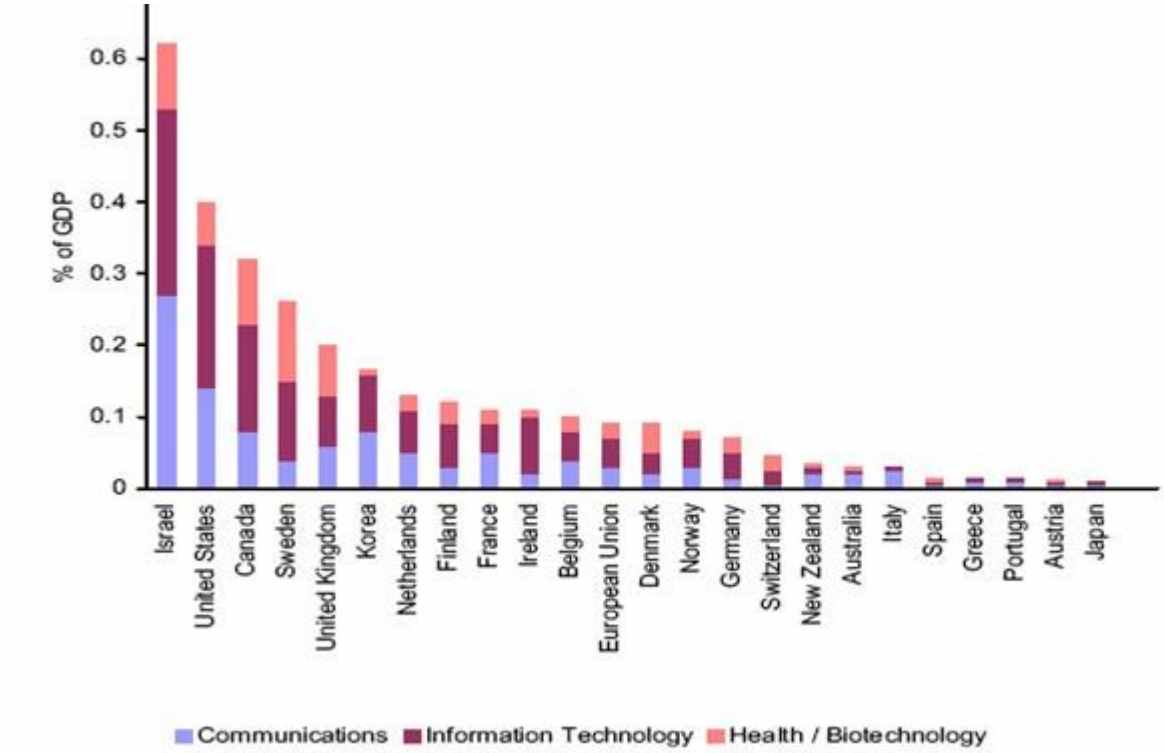
Venture capital (VC), which is only one element of the risk capital spectrum, is crucial to bringing innovation to market, particularly for the knowledge and skills venture capitalists bring to their investment firms. From that perspective, ECO members would ensure their VC market efficiency and the policy-makers in region must address perceived and real weaknesses in the VC market through appropriate actions that target the relevant players in the VC industry. These include: suppliers of capital (e.g. individual, institutions, corporations, governments, etc.), investors [e.g. private independent funds, labor sponsored venture capital corporations, governments and others, entrepreneurs, universities, governments and others.

Refer to the issues discussed previously, and according to the experiences of developed nations in the field of VC, the basic needs for successful operation of any VCs in developing countries including ECO member countries are as:

- ❖ A well- established legal system, with good investor and intellectual property protection.
- ❖ A supportive, but non-interventionist government.
- ❖ A free (and mobile) labor market, rich in engineering talent.
- ❖ A non-punitive taxation regime that allows use of stock options.
- ❖ A strong R&D culture especially in Universities or national labs.
- ❖ A vibrant IPO market
- ❖ Extension of entrepreneurship culture and motivation for higher profit-making
- ❖ Presence of foreign venture capitalists and promotion of foreign investments
- ❖ Development of High-Tech Industries
- ❖ Establishment of a comprehensive and integrated communication system through networking

And owing to the challenges of ECO countries and the importance of venture capital investments I recommend the followings:

- The VC model is an applicable model for economic growth and a successful financial model in many countries and can be duplicated in ECO countries as well.
- Since no banks takes the risk of investing in high tech fields, establishing VC companies is of great importance in development of high paying job sectors in the ECO countries.
- The governments should play the role of a facilitator, regulatory watch dog and supporter of the VC practices and to support the intellectual property rights by creating a very diligent, efficient and dynamic patent process.
- Lack of coordination and data exchange among the member countries have been a major problem in the past
- Making common definition of strategic business terms between member countries
- The governments should reduce information and document exchange barriers.
- Taxation policy to avoid double taxation



The above graph shows the share of each sector to Gross Domestic Product (GDP) in some selected countries in the field of venture capital use.

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Economic Globalization and its Impact on Poverty and Inequality: Evidence From Pakistan

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ABSTRACT

Proponents of economic globalization view it as a key to future economic development and in general it is considered a positive force for improved quality of life, acceleration of economic growth, efficient allocation of resources and greater productivity enhancements. Whereas, anti-globalization camp argues that it increases poverty and leads to worsening in the distribution of income. Like many other developing countries Pakistan also embarked on a path towards integrating its economy with global economy through liberalizing its investment and trade regimes with the expectation that it will stimulate economic growth and improve the living standards of the poor. This paper attempts to assess the impact of economic globalization on poverty and inequality in Pakistan by focusing on trade liberalization aspect of globalization. Results from Granger causality point out that trade liberalization has played a positive role in employment generation but has had a negative influence on per capita GDP. Overall, our results seem to suggest that globalization while leading to reduction in poverty has at the same time exacerbated income inequality. Lastly, it is contended that if Pakistan wants to reap maximum benefit from economic globalization, it needs to be accompanied with adoption of pro-poor growth policies which emphasize investment in human development and provide a structure for social safety nets for the poor.

I-Introduction

Development implies change. It is a dynamic and continuous process that moves economies from lower stage to higher stage of development. It is a process of economic and social transformation within countries. The concept of development is essential to embrace the major economic and social objectives and values that societies strive for. The purpose of development is to reduce poverty, inequality, and unemployment. Major objectives of development discourse are to reduce poverty and to provide basic needs simultaneously.

Ideas embodied in development discourse and the suggestive remedial economic policies postulated to reduce poverty and achieve development in developing countries have been advocated by International Financial Institutions (IFIs) especially, International Monetary Fund (IMF) and World Bank (WB) since their inception. In 1950s and 1960s the main focus of trickle-down theory was to achieve high growth rates. Industrialization was the mechanism for enhanced growth rate and in this era agriculture suffered at the expense of industry and terms of trade worsened against agriculture. At the end of 1960s, IFIs realized that their over-emphasis on achieving high growth rates was problematic in the sense that least developed countries (LDCs) showed poor performance on human indicators. As a result WB proposed alternative policies packaged as 'Basic Needs' and 'Redistribution with Growth'. In these policies growth was still important and considered to be a necessary precondition for sustained development, but countries were advised to look after their poor and provide basic facilities to them as well. After the debt crisis in 1980s, many countries experienced extremely high inflation

and worsening of balance of payment positions. Around this time the IMF and WB had been the driving force on a global level, thinking under the guise of Washington consensus and had facilitated and guided economic restructuring in a number of countries. Essentially, LDCs were asked to open up their economies and integrate with the world economy through adopting Structural Adjustment Programs (SAP). Post-SAP the process of economic liberalization and globalization emerged in LDCs and still continues today.

The present scenario of globalization is based on ideal view of world where markets work efficiently, capital and technology flow freely and people have access to all the knowledge, information and have the ability to take part in the market on an equivalent basis. Economic globalization is occurring partially due to improvements in technology and decreased transportation costs, and partially due to deliberate choice on behalf of many national governments to increase their integration with the global economy. Although economic globalization has many dimensions, loosely speaking it refers to removal of trade restriction (such as tariff, quota), liberalization of capital markets and free movements of labor. All these could be considered as the indicators of economic globalization. During 1980s to 1990s many developing countries sharply curtailed quantitative controls on imports and brought down tariff rates and eliminated restrictions on foreign direct investment (FDI). In general, globalization leads toward higher growth and productivity and hence reduces poverty. During 1980s to 1990s many developing countries sharply curtailed quantitative controls on imports and brought down tariff rates and eliminated restrictions on foreign direct investment (FDI). In general, globalization leads toward higher growth and productivity and hence reduces poverty.

Globalization is a multi-faceted phenomenon. It has had a mixed outcome. Anti-globalists argue that globalization adversely affects the poor and particularly poor countries while pro-globalizers claim that it has lead to poverty reduction (Round and Whalley, 2002). East Asia provides an example of a positive effect of globalization on growth. The spectacular growth of the countries of East Asia raised per capita income by eightfold and raised hundreds of millions out of poverty.

Similarly China benefited enormously from foreign direct investment (FDI), a reflection for globalization, while others such as Korea have made little use of it. Similarly, in some regions of Latin American countries that followed the SAP policies have lead to depressing economic prospects.

Countries that managed the globalization process astutely proved that it can be a powerful force for economic growth and those who could not were adversely affected as evidenced by dismal record on economic growth and poverty. Empirically, a huge body of literature indicates that economic globalization stimulates economic growth, reduces poverty and generates employment opportunities (Cuadros et al. (2004), Greenway et al. (2002) and Kemal et al. (2002)). But globalization affects growth in different countries in different ways due to difference in government policies, population growth rate and the different institutional factors across countries.

The objective of the study is to analyze the relationship between economic globalization, poverty and income inequality in Pakistan. The analysis is based on Granger causality tests.

The organization of the paper is as follows. Section two provides an overview of the methodology. Section three provides description of data. Section four discusses results. Finally, section five sums up the conclusions.

II-Methodology

In this study we examine the relationship between economic globalization, poverty, and inequality in Pakistan through the use of Granger causality testing. Granger (1969) defines the casual orderings such that X Granger causes Y if the current value of Y can be predicted more accurately, in the sense of mean square error, with use of past values of X and Y rather than value of Y only.

The study employs two methodologies to carry out Granger causality testing. In the first approach a Vector Error Correction model (VECM) is estimated whereas the second approach employs Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) (referred to as TYDL) framework. VECM approach allows one to test for short-run and long-run causality whereas TYDL approach tests for only short-run causality but has the advantage that it does not require pre-testing.

VECM Approach

A multivariate VAR model is employed to evaluate the relationship between globalization, poverty and inequality. In the unrestricted VAR approach, testing for Granger causality in time series analysis is not possible because of the existence of stochastic trends in variables which lead to spurious causality results. The traditional F-test and Wald test employed to determine if some parameters of a system are jointly zero are not valid for non-stationary processes as the test statistics do not have a standard

distributions (Toda and Philips, 1993). As a matter of fact, evidence of cointegration between variables rules out the possibility of Granger non-causality, although it does not say anything about the direction of the causal relationship. This temporal Granger causality can be captured through the VECM derived from the long-run cointegrating vectors. Engle and Granger (1987) and Toda and Phillips (1993) demonstrate that in the presence of cointegration the standard $VAR(p)$ representation in the first difference is mis-specified and suggest a vector-error-correction representation as follows:

$$\Delta Z_t = a + \sum_{i=1}^{p} A_i \Delta Z_{t-i} - d(\beta' Z_{t-1}) + \nu_t \qquad (1)$$

where Z_t is an $n \times 1$ vector of a variables, Δ is a difference operator, a is an $n \times 1$ vector of constant terms, p is the lag length, d is an $n \times r$ matrix of coefficients, v is an $n \times 1$ column vector of disturbances such that $E(\nu_t \nu_t') = \Omega$. The $p - order$ VAR is constructed in terms of their first differences, the I(0) variable, with the addition of an error-correction term $(\beta' Z_{t-1})$.

However, this procedure demand information on both, the order of integration of the underlying series and the identification of the possible long-term relationships among the integrated variables included in the system. As a preliminary step, it is necessary to establish the order of integration and to identify the possible long-term relationships among the integrated variables included in the system. The present study employs the Augmented Dickey-Fuller (ADF) unit root test to determine the order of integration for all the series and employs Johansen's (1988) and Johansen and Juselius (1990) methodology to test for long-run relationship among the variables specified in the study.

Incorporating the error-correction term (ECT) into the equation re-introduces the information lost in the first-difference process, thereby, allowing for long-run as well as short-run dynamics (Granger, 1988; Toda and Phillips, 1993, 1994). Through the error-correction term, the VECM establishes an additional channel for Granger causality to emerge, a channel that is ignored by the standard Granger and Sims tests. Thus, application of VECM allows the direction of the causality to be revealed as well as helps distinguish between the short-run and the long-run Granger causality. Causality in cointegrated systems is established if the lagged ECT term, which captures the long-term dynamics, and the sum of lagged coefficients of the other variables, which captures short-run dynamics, are both significant. The significance of the ECT term, in turn, is checked with an ordinary t-test, while the joint significance of the lagged coefficients is detected by employing χ^2 test.

TYDL Approach

The VECM approach which involves pre-testing through unit root and cointegration tests suffers from size distortions and can often lead to wrong conclusions regarding causality. To address these problems, TYDL proposed a technique for Granger causality that is applicable irrespective of integration and cointegration properties of model. The TYDL procedure basically involves estimation of an augmented VAR (k $+d_{max}$) model, where k is the optimal lag length in the original VAR system and d_{max} is maximal order of integration of the variables in the VAR system. The Granger causality test employed in TYDL procedure utilises a modified Wald (MWALD) test statistic to test zero restrictions on the parameters of the original VAR (k) model. The remaining d_{max} autoregressive parameters are assumed zero and ignored in the VAR(k) model. The

reason for ignoring the d_{max} parameters is that it helps to overcome the problem of non-standard asymptotic properties associated with standard Wald test for integrated variables. Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) suggest over fitting the VAR order and ignoring the extra parameters (d_{max}) in testing for Granger causality. Rambaldi and Doran (1996) show that using MWALD statistic for testing Granger Causality can be made computationally simple by using a seemingly unrelated regression (SUR) framework.

III- Data

The sample size of the study consists of annual time series observations over the period 1970-2004 for Pakistan. The data on poverty (POV) (head count ratio), income inequality (INEQ) (household Gini coefficient), gross domestic product (GDP), exports and imports, GDP deflator, per capita GDP (PGDP), population, unemployed labor force and employed labor force were collected from various issues of Economic Survey of Pakistan. Some missing observations on POV and INEQ were filled through interpolation with help of cubic spline function.

Trade liberalization (TL) index is constructed by expressing sum of total exports and imports as a ratio of GDP. Unemployment rate (UMPL) is expressed as a ratio of unemployed labor force to total labor force in the economy. Nominal GDP and per capita GDP are expressed in million of rupees at constant market prices by taking 1990-91 as the base year.

IV-Estimation and Results

In this section we discuss results for two models estimated in this study. In Model 1 we included the following five variables: POV, TL, GDP, PGDP and UMPL. Our focus

is on analyzing the impact of TL on POV. In Model 2 we substitute INEQ for POV, and other variables included are the same as in Model 1. Our focus here is to analyze the impact of TL on INEQ.

Granger Causality Results: VECM Approach

We first discuss results from VECM model estimation and then present results from TYDL approach. Before proceeding with analysis of data, the study followed the standard practice of testing stationarity of variables by conducting unit root tests to determine the order of integration. For all the variables the null hypothesis of one unit root cannot be rejected at 5 percent level of significance but the null hypothesis of non-stationary in first difference is rejected for all the series[1]. So the evidence of unit root suggests that all the variables have a unit root in their levels but all of them turn out to be difference stationary.

In order to perform Granger causality using the error correction framework, we first need to identify any long-run relationship among the variables. Table 1 and 2 report the results from Johansen's cointegration test and the estimated cointegration vectors, respectively. The estimated cointegration coefficients are obtained by normalizing the poverty variable in Model 1 and inequality variable in Model 2. In Model 1 negative sign on trade liberalization coefficient depicts that trade liberalization is negatively related with poverty in the long-run. In Model 2 a positive relationship exists for trade liberalization and inequality in long-run.

[1] The results are available from the author .

Table 1: Johansen's Test For Multiple Cointegrating Vectors

Model 1				
	Hypothesis		Test Statistics	
Vectors	H_0 :	H_A:	Max Eigenvalue	Trace
[POV, TL, GDP, PGDP, UMPL]	$r = 0$	$r \succ 0$	39.52**	110.93***
	$r \leq 1$	$r \succ 2$	30.31	71.41**
	$r \leq 2$	$r \succ 3$	18.73	41.10
	$r \leq 3$	$r \succ 4$	13.62	22.37
	$r \leq 4$	$r \succ 5$	8.75	8.75

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively*.

Model 2				
	Hypothesis		Test Statistics	
Vectors	H_0 :	H_A:	Max Eigenvalue	Trace
[INEQ, TL, GDP, PGDP, UMPL]	$r = 0$	$r \succ 0$	75.96***	157.90***
	$r \leq 1$	$r \succ 2$	42.63***	81.94***
	$r \leq 2$	$r \succ 3$	24.92	39.31
	$r \leq 3$	$r \succ 4$	8.33	14.40
	$r \leq 4$	$r \succ 5$	6.06	6.06

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively*.

Table 2 :Estimated Cointegrated Vectors

	POV	INEQ	TL	FDI	GDP	PGDP	UNEM
Model 1	1.00	-	- 0.40	-	-11.44	11.11	-10.98
Model 2	-	1.00	0.89	-	-2.18	1.90	- 0.580

The next stage in the analysis is to formulate and estimate a VECM. Cointegration tests carried out earlier indicate the long-term relationship between variables but say nothing about the direction of causal relationship. An estimation of

VECM makes it possible both to separate the long-term relationship between the economic variables from their short-term responses, as well as to determine the direction of the Granger long-term causality. Causality can be derived through the significance of lagged error correction term (ECT) and the χ^2 test of the joint significance of lags of other variables (Wald Test) to detect the presence of long-run and short-run causality, respectively.

The study estimated two models described earlier by the error correction framework. Based on the LM test we don't find any evidence of autocorrelation in the disturbance terms of the estimated of VECM's. The results of VECM estimation are presented in Table 3 and 4. The trace and maximum eigenvalue test from Johansen procedure identified one cointegration relationship for Model 1 and two cointegrating vectors for Models 2. Hence, one error correction term (ECT) is included in the Model 1 and two ECT are included in Model 2. The estimation of VECM shows that ECT is statistically significant in the poverty equation for Model 1 which implies long-run unidirectional causality running from trade liberalization to poverty. The estimated VECMs for Model 2 show that ECT's are significant in the inequality equation.

Concerning short-run causality, the first five columns of Table 3 and 4 report χ^2 values for individual and joint significance of other variables i.e, $\sum \chi^2$, with four degrees of freedom. Based on these results, it is concluded that the null hypothesis of the joint significance of other variables is rejected for the POV equation in Model 1 and INEQ, TL and UMPL equations in Model 2. In terms of individual variables, we find that trade liberalization, GDP, PGDP Granger cause poverty in Model 1 whereas none of the individual variables are significant in INEQ equation. To conclude we find strong support

for short-run and long-run causality running from openness to poverty and from openness to inequality.

Table 3:Granger Causality Results Based On VECM

Model 1							
Dependent variable	ΔPOV	ΔTL	ΔGDP	$\Delta PGDP$	$\Delta UMPL$	$\sum \chi^2$	ECT_{t-1}
ΔPOV	-	4.13**	12.84***	13.07***	0.091	13.48***	2.87***
ΔTL	0.57	-	0.038	0.048	5.45**	7.12	-1.63
ΔGDP	2.84*	0.02	-	0.017	0.85	3.09	-0.36
$\Delta PGDP$	2.96*	0.11	0.085	-	0.725	3.23	-0.187
$\Delta UMPL$	0.190	0.083	2.14	2.07	-	3.58	-0.132

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

Table 4:Granger Causality Results Based On VECM

Model 2								
Dependent variable	$\Delta INEQ$	ΔTL	ΔGDP	$\Delta PGDP$	$\Delta UMPL$	$\sum \chi^2$	ECT_{t-1}	ECT_{t-1}
$\Delta INEQ$	-	3.42	2.68	2.15	1.09	21.62***	-1.77*	2.02**
ΔTL	64.97***	-	2.04	2.05	16.41***	90.47***	4.53***	-6.17***
ΔGDP	1.342	4.53	-	4.82*	2.06	7.89	1.46	-1.14
$\Delta PGDP$	1.52	4.62*	5.15*	-	2.10	8.77	1.34	-1.02
$\Delta UMPL$	1.495	4.483	11.34***	11.70***	-	27.01***	2.08**	-1.50

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

Finally, to capture a more clear and precise relationship between openness and poverty and openness and inequality, generalized[2] impulse response functions (IRFs) are generated for both models. The impulse response function traces the dynamic response of a variable to the effect of a shock in one of endogenous variable on the entire endogenous system. In other words, the impulse response function map out the dynamic response path of a variable e.g. response of poverty due to a one period standard deviation shock to another variable e.g. trade liberalization. Figure 1 plots the response of poverty level to a shock in the trade liberalization and shows that initially poverty increases but

[2] Generalized impulse response functions are invariant to the ordering of the variables.

Figure: 1

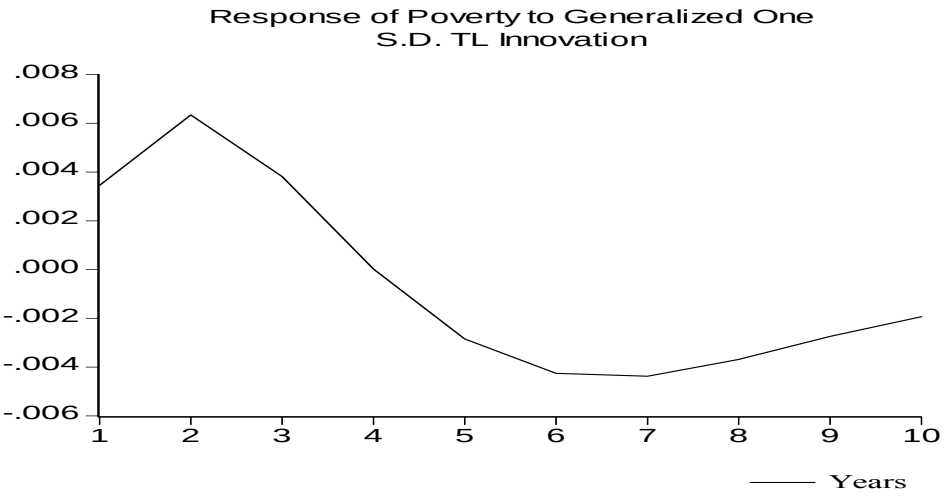
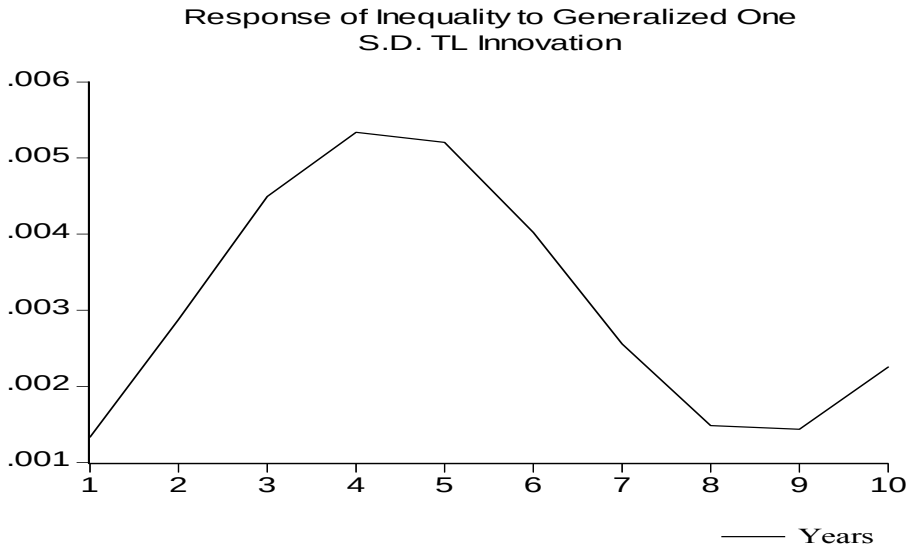


Figure: 2



after two years it starts to decline. This result is consistent with trickle-down theory. In general, the result of impulse response analysis suggests that impact of trade liberalization on poverty is negative in the long-run. These results are similar to ones obtained using the TYDL approach reported in the next sub-section.. Figure 2 shows that the impact of trade liberalization on inequality is positive in the short-run but after five

years the impact turns negative. The above finding is similar to results reported in Siddiqui and Kemal (2002) wherein increase in inequality is found to be the greatest at around four years but tends to diminish in the long-run in the era of liberalization.

Granger Causality Results: TYDL Approach

The result of five variable VAR model estimated using SUR regression technique are presented in Table 5. This outcome of Granger causality is based on TYDL augmented lag method. These models are estimated with lag length of 3. Results from Model 1 show that TL Granger causes POV and is significant at 5% level Furthermore, existence of a negative relationship running from TL to POV can be deduced from the sum of the lagged coefficients ($\sum_{coeff}$) of the TL in the POV equation, which has a negative sign. The results support the study of Din (2005) in which PGDP and TL has a positive impact on poverty reduction in Pakistan. There is unidirectional causality between TL and GDP, in which TL Granger causes GDP at 10 percent level of significance.

Table 5 : Estimates of Granger Causality Based on TYDL

Model 1										
Sources of Causation										
	POV		TL		GDP		PGDP		UMPL	
Dependent variables	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$
POV	-	-	10.49^{**}	-0.22	16.33^{***}	0.13	17.23^{***}	-0.20	11.23^{**}	-0.37
TL	43.61^{***}	-0.50	-	-	4.58	-0.05	5.19	0.17	15.68^{***}	-0.42
GDP	6.70^{*}	0.04	7.23^{*}	-0.24	-	-	19.14^{***}	-1.51	2.29	-0.06
PGDP	6.47^{*}	0.06	7.46^{*}	-0.19	17.98^{***}	0.67	-	-	2.32	-0.04
UMPL	26.02^{***}	0.09	9.61^{**}	-0.07	18.49^{***}	0.16	14.36^{***}	-0.22	-	-

*Note: *, **and *** indicates that significance at 10 %, 5% and 1% respectively.*

Model 2										
Sources of Causation										
	INEQ		TL		GDP		PGDP		UMPL	
Dependent variables	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$
INEQ	-	-	11.14^{**}	0.08	6.99^{*}	-0.04	6.82^{*}	0.09	2.50	0.06
TL	11.29^{**}	1.30	-	-	1.26	-0.08	2.17	0.26	15.50^{***}	-2.54
GDP	19.01^{***}	0.34	24.26^{***}	-1.19	-	-	39.53^{***}	-2.40	14.49^{***}	-1.75
PGDP	20.06^{***}	0.16	24.30^{***}	-1.09	37.31^{***}	1.192	-	-	14.96^{***}	-1.45
UMPL	41.31^{***}	0.498	20.65^{***}	-0.22	17.72^{***}	0.160	17.11^{***}	-0.28	-	-

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

But TL is negatively associated with GDP, i.e. more trade openness is not beneficial for economy as it adversely affects the growth of economy. Although GDP does not cause TL it is in negatively related with TL. This outcome may occur due to the inconsistencies in policy formation and implementation. Another possibility for the observed negative relationship could that the above model, given that is estimated with short lags, might not

be able to capture precise relationship between TL and GDP, especially given the fact that as a country begins to opens up its economy it faces international competition in initial years. However, this result is in line with Khasnobis and Bari (2000) who found that open trade regimes do not support growth. In GDP equation the impact of unemployment on GDP has expected sign but it is insignificant. Unemployment coefficient has the expected sign in PGDP equation but it is also insignificant.

In PGDP equation, TL is significant at 10 percent level of significance but with an unexpected negative sign. As tariff reduction on imports reduce the import prices and consumer get benefit due to availability of cheap consumer goods their real income increases. But in case of Pakistan composition of imports has not changed much in spite of trade liberalization and tariff rates have not come down, so mostly imported products remained expensive, which increased the price level and could have led to decline in real PGDP.

In the unemployment equation, trade liberalization has positive influence on unemployment level in the economy. Unemployment level has fallen due to trade liberalization in Pakistan and level of unemployment is significant at 5 percent level. The study of Siddiqui and Kemal (2002) depicts that after trade liberalization employment and output show positive performance in export sector. The increase in export generates more demand not only for imported raw material but also for labor force. As a result unemployment level reduces for the economy. Also PGDP Granger causes unemployment, which is significant at 1 percent level. This is theoretically sound as increases in PGDP can reflect reduction for the unemployment level from the economy.

The results of Model 2 are shown in Table 5. The results show that TL has a positive influence in Granger sense on the extent of inequality in Pakistan. It is likely that observed positive relationship could be due to reallocation of resources on account of trade liberalization which change factor rewards and their distribution. Due to increased demand for capital, distribution of income becomes more skewed towards capital factor. According to the study of Siddiqui and Kemal (2002) the degree of inequality has increased in Pakistan in the era of liberalization. GDP negatively Granger causes inequality at 10 percent level of significance. PGDP positively Granger causes inequality at 10 percent level of significance. The above result could be due to the fact that there can be more variation in the income of higher income groups as compared to middle-income groups. Other results of model are similar to Model 1 except that in GDP and PGDP equations, unemployment appears to be significant at 1 percent level of significance with GDP and PGDP, both having expected signs.

V. Conclusion

Trade has always been considered a vital engine of growth and development of a poor country may depend upon its securing adequate trade expansion. According to UN (2004) report most LDCs undertook deep trade liberalization in the 1990s. They also received some degree of preferential market access from developed and developing countries. But trade liberalization plus enhanced market access does not necessarily equal poverty reduction. Many LDCs are in the paradoxical situation that they are the ones needing the multilateral trading system the most, but they find it hardest to derive benefits from the application of its central general systemic principles: liberalization and equal treatment for all its members.

The objective of this paper was to analyze the relationship between economic globalization, poverty and income inequality in Pakistan. The empirical work is based on the Granger causality testing. In this study economic globalization is found to negatively impact poverty in the long-run by employing TYDL approach and this result is further corroborated by the impulse response functions. The estimates from VECM show that there exists a short-run as well as long-run relationship between trade liberalization and poverty. Estimates from TYDL and IRFs show an adverse impact of globalization on inequality. Overall, the study shows that globalization reduces poverty in the long-run, generates employment opportunities but worsens inequality. It is purported that trade liberalization aspect of globalization is a necessary but not sufficient condition for growth. There are other mediating factors which affect the growth of the economy ranging from political and institutional framework to historical trend in macroeconomic variables included but not limited to population, inflation, investment and government spending dynamics.

In short, globalization is a contested concept. However, in general it is considered to be beneficial for the growth of economy. But there are also many adverse effects of globalization on growth in many developing countries. It increases poverty and worsens the income distribution. On the other hand, positive impacts of globalization have been witnessed in East Asian Countries. These countries integrated with the world economy within a carefully planned framework that was consistent with resource endowment, and as a result economic rewards were shared by the poor in the long-run. It seems that the extent of benefits reaped from economic globalization in any economy depend upon

domestic macroeconomic policies, market structure, initial condition of economy, quality of institution and degree of political stability.

Lastly, it is contended that if Pakistan wants to reap maximum benefit from fruits of economic globalization, it needs to be accompanied with adoption of pro-poor growth policies which emphasize investment in human development and provide a structure for social safety nets for the poor.

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Economic Globalization and its Impact on Poverty and Inequality: Evidence From Pakistan

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ABSTRACT

Proponents of economic globalization view it as a key to future economic development and in general it is considered a positive force for improved quality of life, acceleration of economic growth, efficient allocation of resources and greater productivity enhancements. Whereas, anti-globalization camp argues that it increases poverty and leads to worsening in the distribution of income. Like many other developing countries Pakistan also embarked on a path towards integrating its economy with global economy through liberalizing its investment and trade regimes with the expectation that it will stimulate economic growth and improve the living standards of the poor. This paper attempts to assess the impact of economic globalization on poverty and inequality in Pakistan by focusing on trade liberalization aspect of globalization. Results from Granger causality point out that trade liberalization has played a positive role in employment generation but has had a negative influence on per capita GDP. Overall, our results seem to suggest that globalization while leading to reduction in poverty has at the same time exacerbated income inequality. Lastly, it is contended that if Pakistan wants to reap maximum benefit from economic globalization, it needs to be accompanied with adoption of pro-poor growth policies which emphasize investment in human development and provide a structure for social safety nets for the poor.

I-Introduction

Development implies change. It is a dynamic and continuous process that moves economies from lower stage to higher stage of development. It is a process of economic and social transformation within countries. The concept of development is essential to embrace the major economic and social objectives and values that societies strive for. The purpose of development is to reduce poverty, inequality, and unemployment. Major objectives of development discourse are to reduce poverty and to provide basic needs simultaneously.

Ideas embodied in development discourse and the suggestive remedial economic policies postulated to reduce poverty and achieve development in developing countries have been advocated by International Financial Institutions (IFIs) especially, International Monetary Fund (IMF) and World Bank (WB) since their inception. In 1950s and 1960s the main focus of trickle-down theory was to achieve high growth rates. Industrialization was the mechanism for enhanced growth rate and in this era agriculture suffered at the expense of industry and terms of trade worsened against agriculture. At the end of 1960s, IFIs realized that their over-emphasis on achieving high growth rates was problematic in the sense that least developed countries (LDCs) showed poor performance on human indicators. As a result WB proposed alternative policies packaged as 'Basic Needs' and 'Redistribution with Growth'. In these policies growth was still important and considered to be a necessary precondition for sustained development, but countries were advised to look after their poor and provide basic facilities to them as well. After the debt crisis in 1980s, many countries experienced extremely high inflation

and worsening of balance of payment positions. Around this time the IMF and WB had been the driving force on a global level, thinking under the guise of Washington consensus and had facilitated and guided economic restructuring in a number of countries. Essentially, LDCs were asked to open up their economies and integrate with the world economy through adopting Structural Adjustment Programs (SAP). Post-SAP the process of economic liberalization and globalization emerged in LDCs and still continues today.

The present scenario of globalization is based on ideal view of world where markets work efficiently, capital and technology flow freely and people have access to all the knowledge, information and have the ability to take part in the market on an equivalent basis. Economic globalization is occurring partially due to improvements in technology and decreased transportation costs, and partially due to deliberate choice on behalf of many national governments to increase their integration with the global economy. Although economic globalization has many dimensions, loosely speaking it refers to removal of trade restriction (such as tariff, quota), liberalization of capital markets and free movements of labor. All these could be considered as the indicators of economic globalization. During 1980s to 1990s many developing countries sharply curtailed quantitative controls on imports and brought down tariff rates and eliminated restrictions on foreign direct investment (FDI). In general, globalization leads toward higher growth and productivity and hence reduces poverty. During 1980s to 1990s many developing countries sharply curtailed quantitative controls on imports and brought down tariff rates and eliminated restrictions on foreign direct investment (FDI). In general, globalization leads toward higher growth and productivity and hence reduces poverty.

Globalization is a multi-faceted phenomenon. It has had a mixed outcome. Anti-globalists argue that globalization adversely affects the poor and particularly poor countries while pro-globalizers claim that it has lead to poverty reduction (Round and Whalley, 2002). East Asia provides an example of a positive effect of globalization on growth. The spectacular growth of the countries of East Asia raised per capita income by eightfold and raised hundreds of millions out of poverty.

Similarly China benefited enormously from foreign direct investment (FDI), a reflection for globalization, while others such as Korea have made little use of it. Similarly, in some regions of Latin American countries that followed the SAP policies have lead to depressing economic prospects.

Countries that managed the globalization process astutely proved that it can be a powerful force for economic growth and those who could not were adversely affected as evidenced by dismal record on economic growth and poverty. Empirically, a huge body of literature indicates that economic globalization stimulates economic growth, reduces poverty and generates employment opportunities (Cuadros et al. (2004), Greenway et al. (2002) and Kemal et al. (2002)). But globalization affects growth in different countries in different ways due to difference in government policies, population growth rate and the different institutional factors across countries.

The objective of the study is to analyze the relationship between economic globalization, poverty and income inequality in Pakistan. The analysis is based on Granger causality tests.

The organization of the paper is as follows. Section two provides an overview of the methodology. Section three provides description of data. Section four discusses results. Finally, section five sums up the conclusions.

II-Methodology

In this study we examine the relationship between economic globalization, poverty, and inequality in Pakistan through the use of Granger causality testing. Granger (1969) defines the casual orderings such that X Granger causes Y if the current value of Y can be predicted more accurately, in the sense of mean square error, with use of past values of X and Y rather than value of Y only.

The study employs two methodologies to carry out Granger causality testing. In the first approach a Vector Error Correction model (VECM) is estimated whereas the second approach employs Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) (referred to as TYDL) framework. VECM approach allows one to test for short-run and long-run causality whereas TYDL approach tests for only short-run causality but has the advantage that it does not require pre-testing.

VECM Approach

A multivariate VAR model is employed to evaluate the relationship between globalization, poverty and inequality. In the unrestricted VAR approach, testing for Granger causality in time series analysis is not possible because of the existence of stochastic trends in variables which lead to spurious causality results. The traditional F-test and Wald test employed to determine if some parameters of a system are jointly zero are not valid for non-stationary processes as the test statistics do not have a standard

distributions (Toda and Philips, 1993). As a matter of fact, evidence of cointegration between variables rules out the possibility of Granger non-causality, although it does not say anything about the direction of the causal relationship. This temporal Granger causality can be captured through the VECM derived from the long-run cointegrating vectors. Engle and Granger (1987) and Toda and Phillips (1993) demonstrate that in the presence of cointegration the standard $VAR(p)$ representation in the first difference is mis-specified and suggest a vector-error-correction representation as follows:

$$\Delta Z_t = a + \sum_{i=1}^{p} A_i \Delta Z_{t-i} - d(\beta' Z_{t-1}) + \nu_t \qquad (1)$$

where Z_t is an $n \times 1$ vector of a variables, Δ is a difference operator, a is an $n \times 1$ vector of constant terms, p is the lag length, d is an $n \times r$ matrix of coefficients, v is an $n \times 1$ column vector of disturbances such that $E(\nu_t \nu_t') = \Omega$. The $p - order$ VAR is constructed in terms of their first differences, the I(0) variable, with the addition of an error-correction term $(\beta' Z_{t-1})$.

However, this procedure demand information on both, the order of integration of the underlying series and the identification of the possible long-term relationships among the integrated variables included in the system. As a preliminary step, it is necessary to establish the order of integration and to identify the possible long-term relationships among the integrated variables included in the system. The present study employs the Augmented Dickey-Fuller (ADF) unit root test to determine the order of integration for all the series and employs Johansen's (1988) and Johansen and Juselius (1990) methodology to test for long-run relationship among the variables specified in the study.

Incorporating the error-correction term (ECT) into the equation re-introduces the information lost in the first-difference process, thereby, allowing for long-run as well as short-run dynamics (Granger, 1988; Toda and Phillips, 1993, 1994). Through the error-correction term, the VECM establishes an additional channel for Granger causality to emerge, a channel that is ignored by the standard Granger and Sims tests. Thus, application of VECM allows the direction of the causality to be revealed as well as helps distinguish between the short-run and the long-run Granger causality. Causality in cointegrated systems is established if the lagged ECT term, which captures the long-term dynamics, and the sum of lagged coefficients of the other variables, which captures short-run dynamics, are both significant. The significance of the ECT term, in turn, is checked with an ordinary t-test, while the joint significance of the lagged coefficients is detected by employing χ^2 test.

TYDL Approach

The VECM approach which involves pre-testing through unit root and cointegration tests suffers from size distortions and can often lead to wrong conclusions regarding causality. To address these problems, TYDL proposed a technique for Granger causality that is applicable irrespective of integration and cointegration properties of model. The TYDL procedure basically involves estimation of an augmented VAR (k $+d_{max}$) model, where k is the optimal lag length in the original VAR system and d_{max} is maximal order of integration of the variables in the VAR system. The Granger causality test employed in TYDL procedure utilises a modified Wald (MWALD) test statistic to test zero restrictions on the parameters of the original VAR (k) model. The remaining d_{max} autoregressive parameters are assumed zero and ignored in the VAR(k) model. The

reason for ignoring the d_{max} parameters is that it helps to overcome the problem of non-standard asymptotic properties associated with standard Wald test for integrated variables. Toda and Yamamoto (1995) and Dolado and Lutkepohl (1996) suggest over fitting the VAR order and ignoring the extra parameters (d_{max}) in testing for Granger causality. Rambaldi and Doran (1996) show that using MWALD statistic for testing Granger Causality can be made computationally simple by using a seemingly unrelated regression (SUR) framework.

III- Data

The sample size of the study consists of annual time series observations over the period 1970-2004 for Pakistan. The data on poverty (POV) (head count ratio), income inequality (INEQ) (household Gini coefficient), gross domestic product (GDP), exports and imports, GDP deflator, per capita GDP (PGDP), population, unemployed labor force and employed labor force were collected from various issues of Economic Survey of Pakistan. Some missing observations on POV and INEQ were filled through interpolation with help of cubic spline function.

Trade liberalization (TL) index is constructed by expressing sum of total exports and imports as a ratio of GDP. Unemployment rate (UMPL) is expressed as a ratio of unemployed labor force to total labor force in the economy. Nominal GDP and per capita GDP are expressed in million of rupees at constant market prices by taking 1990-91 as the base year.

IV-Estimation and Results

In this section we discuss results for two models estimated in this study. In Model 1 we included the following five variables: POV, TL, GDP, PGDP and UMPL. Our focus

is on analyzing the impact of TL on POV. In Model 2 we substitute INEQ for POV, and other variables included are the same as in Model 1. Our focus here is to analyze the impact of TL on INEQ.

Granger Causality Results: VECM Approach

We first discuss results from VECM model estimation and then present results from TYDL approach. Before proceeding with analysis of data, the study followed the standard practice of testing stationarity of variables by conducting unit root tests to determine the order of integration. For all the variables the null hypothesis of one unit root cannot be rejected at 5 percent level of significance but the null hypothesis of non-stationary in first difference is rejected for all the series[1]. So the evidence of unit root suggests that all the variables have a unit root in their levels but all of them turn out to be difference stationary.

In order to perform Granger causality using the error correction framework, we first need to identify any long-run relationship among the variables. Table 1 and 2 report the results from Johansen's cointegration test and the estimated cointegration vectors, respectively. The estimated cointegration coefficients are obtained by normalizing the poverty variable in Model 1 and inequality variable in Model 2. In Model 1 negative sign on trade liberalization coefficient depicts that trade liberalization is negatively related with poverty in the long-run. In Model 2 a positive relationship exists for trade liberalization and inequality in long-run.

[1] The results are available from the author .

Table 1: Johansen's Test For Multiple Cointegrating Vectors

Model 1				
	Hypothesis		Test Statistics	
Vectors	H_0 :	H_A:	Max Eigenvalue	Trace
[POV, TL, GDP, PGDP, UMPL]	$r = 0$	$r \succ 0$	39.52**	110.93***
	$r \leq 1$	$r \succ 2$	30.31	71.41**
	$r \leq 2$	$r \succ 3$	18.73	41.10
	$r \leq 3$	$r \succ 4$	13.62	22.37
	$r \leq 4$	$r \succ 5$	8.75	8.75

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively*.

Model 2				
	Hypothesis		Test Statistics	
Vectors	H_0 :	H_A:	Max Eigenvalue	Trace
[INEQ, TL, GDP, PGDP, UMPL]	$r = 0$	$r \succ 0$	75.96***	157.90***
	$r \leq 1$	$r \succ 2$	42.63***	81.94***
	$r \leq 2$	$r \succ 3$	24.92	39.31
	$r \leq 3$	$r \succ 4$	8.33	14.40
	$r \leq 4$	$r \succ 5$	6.06	6.06

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively*.

Table 2 :Estimated Cointegrated Vectors

	POV	INEQ	TL	FDI	GDP	PGDP	UNEM
Model 1	1.00	-	- 0.40	-	-11.44	11.11	-10.98
Model 2	-	1.00	0.89	-	-2.18	1.90	- 0.580

The next stage in the analysis is to formulate and estimate a VECM. Cointegration tests carried out earlier indicate the long-term relationship between variables but say nothing about the direction of causal relationship. An estimation of

VECM makes it possible both to separate the long-term relationship between the economic variables from their short-term responses, as well as to determine the direction of the Granger long-term causality. Causality can be derived through the significance of lagged error correction term (ECT) and the χ^2 test of the joint significance of lags of other variables (Wald Test) to detect the presence of long-run and short-run causality, respectively.

The study estimated two models described earlier by the error correction framework. Based on the LM test we don't find any evidence of autocorrelation in the disturbance terms of the estimated of VECM's. The results of VECM estimation are presented in Table 3 and 4. The trace and maximum eigenvalue test from Johansen procedure identified one cointegration relationship for Model 1 and two cointegrating vectors for Models 2. Hence, one error correction term (ECT) is included in the Model 1 and two ECT are included in Model 2. The estimation of VECM shows that ECT is statistically significant in the poverty equation for Model 1 which implies long-run unidirectional causality running from trade liberalization to poverty. The estimated VECMs for Model 2 show that ECT's are significant in the inequality equation.

Concerning short-run causality, the first five columns of Table 3 and 4 report χ^2 values for individual and joint significance of other variables i.e, $\sum \chi^2$, with four degrees of freedom. Based on these results, it is concluded that the null hypothesis of the joint significance of other variables is rejected for the POV equation in Model 1 and INEQ, TL and UMPL equations in Model 2. In terms of individual variables, we find that trade liberalization, GDP, PGDP Granger cause poverty in Model 1 whereas none of the individual variables are significant in INEQ equation. To conclude we find strong support

for short-run and long-run causality running from openness to poverty and from openness to inequality.

Table 3:Granger Causality Results Based On VECM

Model 1							
Dependent variable	ΔPOV	ΔTL	ΔGDP	$\Delta PGDP$	$\Delta UMPL$	$\sum \chi^2$	ECT_{t-1}
ΔPOV	-	4.13**	12.84***	13.07***	0.091	13.48***	2.87***
ΔTL	0.57	-	0.038	0.048	5.45**	7.12	-1.63
ΔGDP	2.84*	0.02	-	0.017	0.85	3.09	-0.36
$\Delta PGDP$	2.96*	0.11	0.085	-	0.725	3.23	-0.187
$\Delta UMPL$	0.190	0.083	2.14	2.07	-	3.58	-0.132

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

Table 4:Granger Causality Results Based On VECM

Model 2								
Dependent variable	$\Delta INEQ$	ΔTL	ΔGDP	$\Delta PGDP$	$\Delta UMPL$	$\sum \chi^2$	ECT_{t-1}	ECT_{t-1}
$\Delta INEQ$	-	3.42	2.68	2.15	1.09	21.62***	-1.77*	2.02**
ΔTL	64.97***	-	2.04	2.05	16.41***	90.47***	4.53***	-6.17***
ΔGDP	1.342	4.53	-	4.82*	2.06	7.89	1.46	-1.14
$\Delta PGDP$	1.52	4.62*	5.15*	-	2.10	8.77	1.34	-1.02
$\Delta UMPL$	1.495	4.483	11.34***	11.70***	-	27.01***	2.08**	-1.50

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

Finally, to capture a more clear and precise relationship between openness and poverty and openness and inequality, generalized[2] impulse response functions (IRFs) are generated for both models. The impulse response function traces the dynamic response of a variable to the effect of a shock in one of endogenous variable on the entire endogenous system. In other words, the impulse response function map out the dynamic response path of a variable e.g. response of poverty due to a one period standard deviation shock to another variable e.g. trade liberalization. Figure 1 plots the response of poverty level to a shock in the trade liberalization and shows that initially poverty increases but

[2] Generalized impulse response functions are invariant to the ordering of the variables.

Figure: 1

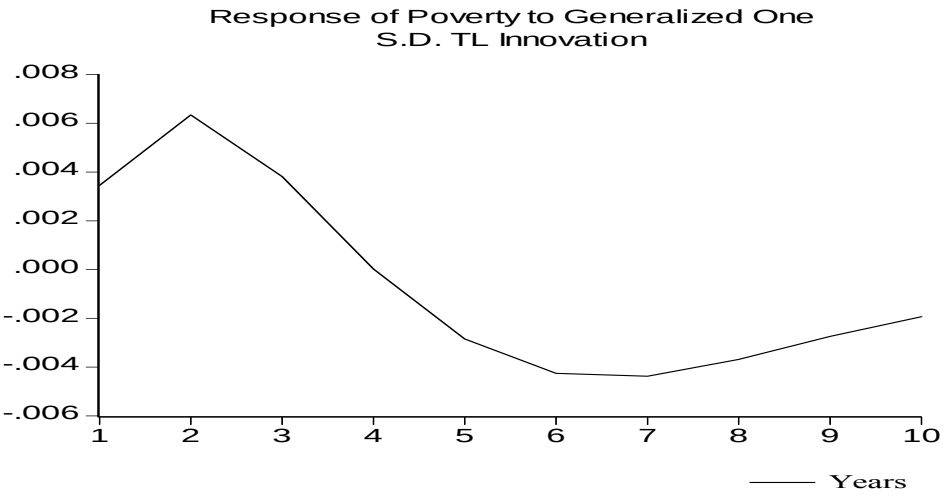
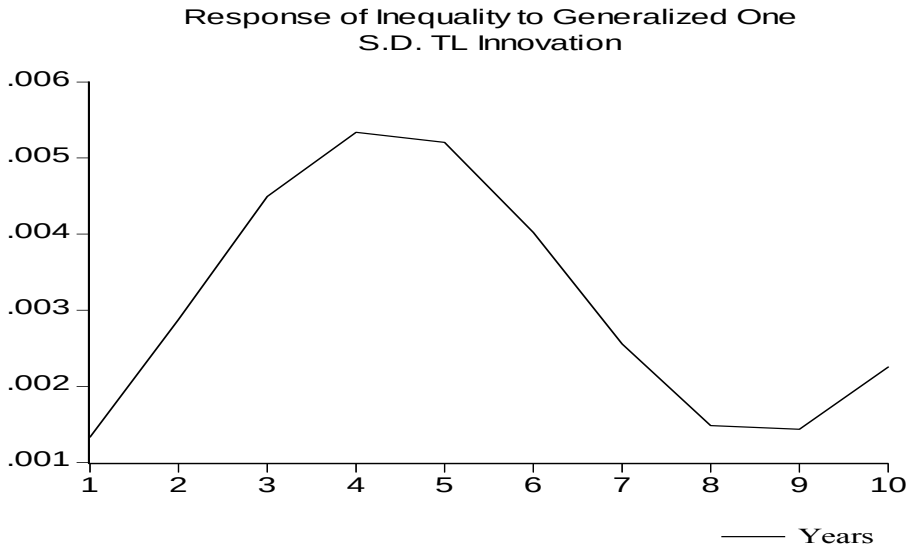


Figure: 2



after two years it starts to decline. This result is consistent with trickle-down theory. In general, the result of impulse response analysis suggests that impact of trade liberalization on poverty is negative in the long-run. These results are similar to ones obtained using the TYDL approach reported in the next sub-section.. Figure 2 shows that the impact of trade liberalization on inequality is positive in the short-run but after five

years the impact turns negative. The above finding is similar to results reported in Siddiqui and Kemal (2002) wherein increase in inequality is found to be the greatest at around four years but tends to diminish in the long-run in the era of liberalization.

Granger Causality Results: TYDL Approach

The result of five variable VAR model estimated using SUR regression technique are presented in Table 5. This outcome of Granger causality is based on TYDL augmented lag method. These models are estimated with lag length of 3. Results from Model 1 show that TL Granger causes POV and is significant at 5% level Furthermore, existence of a negative relationship running from TL to POV can be deduced from the sum of the lagged coefficients ($\sum_{coeff}$) of the TL in the POV equation, which has a negative sign. The results support the study of Din (2005) in which PGDP and TL has a positive impact on poverty reduction in Pakistan. There is unidirectional causality between TL and GDP, in which TL Granger causes GDP at 10 percent level of significance.

Table 5 : Estimates of Granger Causality Based on TYDL

Model 1										
Sources of Causation										
	POV		TL		GDP		PGDP		UMPL	
Dependent variables	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$
POV	-	-	10.49^{**}	-0.22	16.33^{***}	0.13	17.23^{***}	-0.20	11.23^{**}	-0.37
TL	43.61^{***}	-0.50	-	-	4.58	-0.05	5.19	0.17	15.68^{***}	-0.42
GDP	6.70^{*}	0.04	7.23^{*}	-0.24	-	-	19.14^{***}	-1.51	2.29	-0.06
PGDP	6.47^{*}	0.06	7.46^{*}	-0.19	17.98^{***}	0.67	-	-	2.32	-0.04
UMPL	26.02^{***}	0.09	9.61^{**}	-0.07	18.49^{***}	0.16	14.36^{***}	-0.22	-	-

*Note: *, **and *** indicates that significance at 10 %, 5% and 1% respectively.*

Model 2										
Sources of Causation										
	INEQ		TL		GDP		PGDP		UMPL	
Dependent variables	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$	$\chi^2(2)$	$\sum_{coeff}$
INEQ	-	-	11.14^{**}	0.08	6.99^{*}	-0.04	6.82^{*}	0.09	2.50	0.06
TL	11.29^{**}	1.30	-	-	1.26	-0.08	2.17	0.26	15.50^{***}	-2.54
GDP	19.01^{***}	0.34	24.26^{***}	-1.19	-	-	39.53^{***}	-2.40	14.49^{***}	-1.75
PGDP	20.06^{***}	0.16	24.30^{***}	-1.09	37.31^{***}	1.192	-	-	14.96^{***}	-1.45
UMPL	41.31^{***}	0.498	20.65^{***}	-0.22	17.72^{***}	0.160	17.11^{***}	-0.28	-	-

*Note: *, ** and *** indicates that significance at 10 %, 5% and 1% respectively.*

But TL is negatively associated with GDP, i.e. more trade openness is not beneficial for economy as it adversely affects the growth of economy. Although GDP does not cause TL it is in negatively related with TL. This outcome may occur due to the inconsistencies in policy formation and implementation. Another possibility for the observed negative relationship could that the above model, given that is estimated with short lags, might not

be able to capture precise relationship between TL and GDP, especially given the fact that as a country begins to opens up its economy it faces international competition in initial years. However, this result is in line with Khasnobis and Bari (2000) who found that open trade regimes do not support growth. In GDP equation the impact of unemployment on GDP has expected sign but it is insignificant. Unemployment coefficient has the expected sign in PGDP equation but it is also insignificant.

In PGDP equation, TL is significant at 10 percent level of significance but with an unexpected negative sign. As tariff reduction on imports reduce the import prices and consumer get benefit due to availability of cheap consumer goods their real income increases. But in case of Pakistan composition of imports has not changed much in spite of trade liberalization and tariff rates have not come down, so mostly imported products remained expensive, which increased the price level and could have led to decline in real PGDP.

In the unemployment equation, trade liberalization has positive influence on unemployment level in the economy. Unemployment level has fallen due to trade liberalization in Pakistan and level of unemployment is significant at 5 percent level. The study of Siddiqui and Kemal (2002) depicts that after trade liberalization employment and output show positive performance in export sector. The increase in export generates more demand not only for imported raw material but also for labor force. As a result unemployment level reduces for the economy. Also PGDP Granger causes unemployment, which is significant at 1 percent level. This is theoretically sound as increases in PGDP can reflect reduction for the unemployment level from the economy.

The results of Model 2 are shown in Table 5. The results show that TL has a positive influence in Granger sense on the extent of inequality in Pakistan. It is likely that observed positive relationship could be due to reallocation of resources on account of trade liberalization which change factor rewards and their distribution. Due to increased demand for capital, distribution of income becomes more skewed towards capital factor. According to the study of Siddiqui and Kemal (2002) the degree of inequality has increased in Pakistan in the era of liberalization. GDP negatively Granger causes inequality at 10 percent level of significance. PGDP positively Granger causes inequality at 10 percent level of significance. The above result could be due to the fact that there can be more variation in the income of higher income groups as compared to middle-income groups. Other results of model are similar to Model 1 except that in GDP and PGDP equations, unemployment appears to be significant at 1 percent level of significance with GDP and PGDP, both having expected signs.

V. Conclusion

Trade has always been considered a vital engine of growth and development of a poor country may depend upon its securing adequate trade expansion. According to UN (2004) report most LDCs undertook deep trade liberalization in the 1990s. They also received some degree of preferential market access from developed and developing countries. But trade liberalization plus enhanced market access does not necessarily equal poverty reduction. Many LDCs are in the paradoxical situation that they are the ones needing the multilateral trading system the most, but they find it hardest to derive benefits from the application of its central general systemic principles: liberalization and equal treatment for all its members.

The objective of this paper was to analyze the relationship between economic globalization, poverty and income inequality in Pakistan. The empirical work is based on the Granger causality testing. In this study economic globalization is found to negatively impact poverty in the long-run by employing TYDL approach and this result is further corroborated by the impulse response functions. The estimates from VECM show that there exists a short-run as well as long-run relationship between trade liberalization and poverty. Estimates from TYDL and IRFs show an adverse impact of globalization on inequality. Overall, the study shows that globalization reduces poverty in the long-run, generates employment opportunities but worsens inequality. It is purported that trade liberalization aspect of globalization is a necessary but not sufficient condition for growth. There are other mediating factors which affect the growth of the economy ranging from political and institutional framework to historical trend in macroeconomic variables included but not limited to population, inflation, investment and government spending dynamics.

In short, globalization is a contested concept. However, in general it is considered to be beneficial for the growth of economy. But there are also many adverse effects of globalization on growth in many developing countries. It increases poverty and worsens the income distribution. On the other hand, positive impacts of globalization have been witnessed in East Asian Countries. These countries integrated with the world economy within a carefully planned framework that was consistent with resource endowment, and as a result economic rewards were shared by the poor in the long-run. It seems that the extent of benefits reaped from economic globalization in any economy depend upon

domestic macroeconomic policies, market structure, initial condition of economy, quality of institution and degree of political stability.

Lastly, it is contended that if Pakistan wants to reap maximum benefit from fruits of economic globalization, it needs to be accompanied with adoption of pro-poor growth policies which emphasize investment in human development and provide a structure for social safety nets for the poor.

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THE ECONOMY OF KAZAKHSTAN UNDER THE WORLD MARKETS INSTABILITY

Kazakhstan is a small open economy with a limited number of exported goods and commodities that put the country into the vulnerable position in case of an adverse world market situation. It is thus necessary to expect any consequences of the decline in the world prices for exported goods, especially for oil, and consider this vulnerability during the process of making macroeconomic forecasts.

There are a number of features that allow to reveal the raw-material orientation of the economy. In standard terms, the share of raw sector in GDP and export structure would serve as a main indicator. Indeed, the experience of the last few years demonstrate the tendency in Kazakhstan of mineral raw resources share predominance in combined exports of the country. Petroleum and petroleum products have become fundamental strategic export items (60-70% of the total exports) (fig.1).

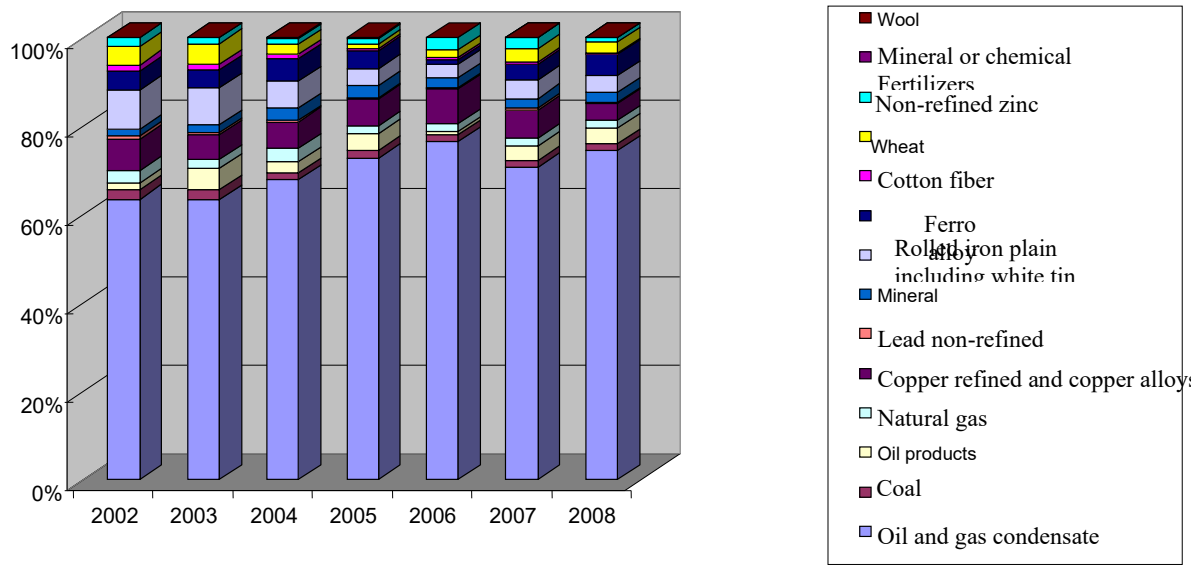


Figure 1 –Exports structure in the Republic of Kazakhstan.

Source: Statistics Agency of the RoK.

Kazakhstan occupies the 11th place in the world by explored reserves of oil[1]. Confirmed resources of oil in the country are estimated 30[2] to 39.828 billion

[1] <http://www.wired.com/special_multimedia/2008/oilreserves>.
[2] PennWell Corporation, *Oil & Gas Journal*, №. 105.48. Включает газовый конденсат. Данные на 1 янв. 2008 г. <http://www.eia.doe.gov/emeu/international/reserves.html>.

barrels of oil[3] (2.2-3% of the world total). Discovered in 1979, the Tengiz oilfield contains from 6 to 9 billion barrels of oil. Another huge oilfield, Kashagan, discovered in 2000, is estimated to contain 13 billion barrels.

According to the preliminary data, oil and gas condensate volumes in Kazakhstan extracted between January and November 2008 comprised 471 mln. barrels, 4.6% higher than in the analogical period of the year 2007.

Let's observe the raw-materials content of the economy in the GDP structure (Table 1). The mining sector has increased its share from 13 to 20.6% during the 2000-2008 period, but the services still comprise some 50% of GDP, which says about sufficient level of economic development (the developed countries enjoy the share of services at around 75% GDP).

Table 1 – GDP structure of the Republic of Kazakhstan for 2000-2008.

GDP structure	2000	2001	2002	2003	2004	2005	2006	2007	2008 *
Goods production	**45.9**	**44.9**	**43.8**	**42.9**	**42.5**	**44**	**44.9**	**43.4**	**47.9**
Agriculture and fishery	8.1	8.7	8.0	7.9	7.1	6.4	5.5	5.7	5.7
Mining production	13	11.4	12.1	12.1	13.6	15.8	16.1	15.1	20.6
Manufacturing	16.5	16.4	14.5	14.2	13.3	12	11.6	11.5	12.5
Services	**48.4**	**49.4**	**50.5**	**51.8**	**53.4**	**52**	**51.6**	**54.2**	**50.2**

*January – September

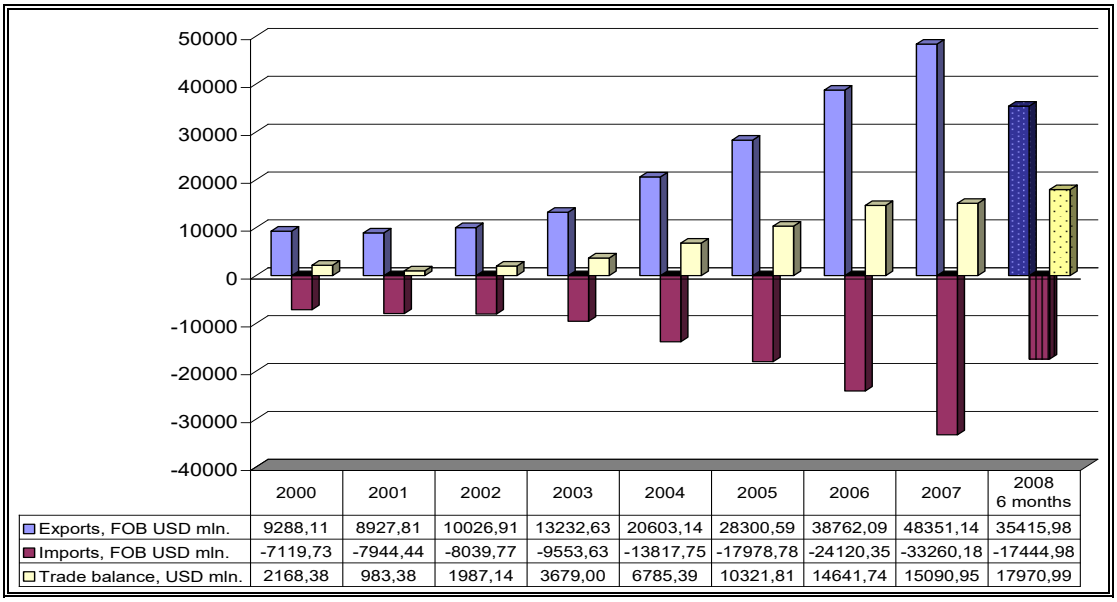
Source: Statistics Agency of the RoK.

It gives a right to make a conclusion that the GDP growth in Kazakhstan is not provided by exports-led development alone. Mining sector which is about 80.4% of export in 2007, occupied just 15.1% of GDP. Most of the real GDP growth is defined by non oil-gas sector of the economy, the output which is absorbed by the domestic consumption.

The price factor influence of the world markets is reflected on the balance of payments in the following directions.

1. Balance of payments. With the prices and volumes of imported goods stable, and prices of exported goods decreasing, the positive ratio of the trade balance may be diminished. For the first 6 months of 2008 trade balance ratio has comprised $17 971 bln. under the favorable price conditions for exported goods (fig.2).

[3] Ibid. *British Petroleum Energy Sources Review*, June 2008. Includes gas condensate and liquefied natural gas.



	2000	2001	2002	2003	2004	2005	2006	2007	2008 6 months
Exports, FOB USD mln.	9288,11	8927,81	10026,91	13232,63	20603,14	28300,59	38762,09	48351,14	35415,98
Imports, FOB USD mln.	-7119,73	-7944,44	-8039,77	-9553,63	-13817,75	-17978,78	-24120,35	-33260,18	-17444,98
Trade balance, USD mln.	2168,38	983,38	1987,14	3679,00	6785,39	10321,81	14641,74	15090,95	17970,99

Figure 2 – Trade balance of the RK.

Source: National Bank of the Republic of Kazakhstan.

To reveal raw dependence of Kazakhstan it is possible to track change of the world prices and dynamics of trading balance (fig. 3).

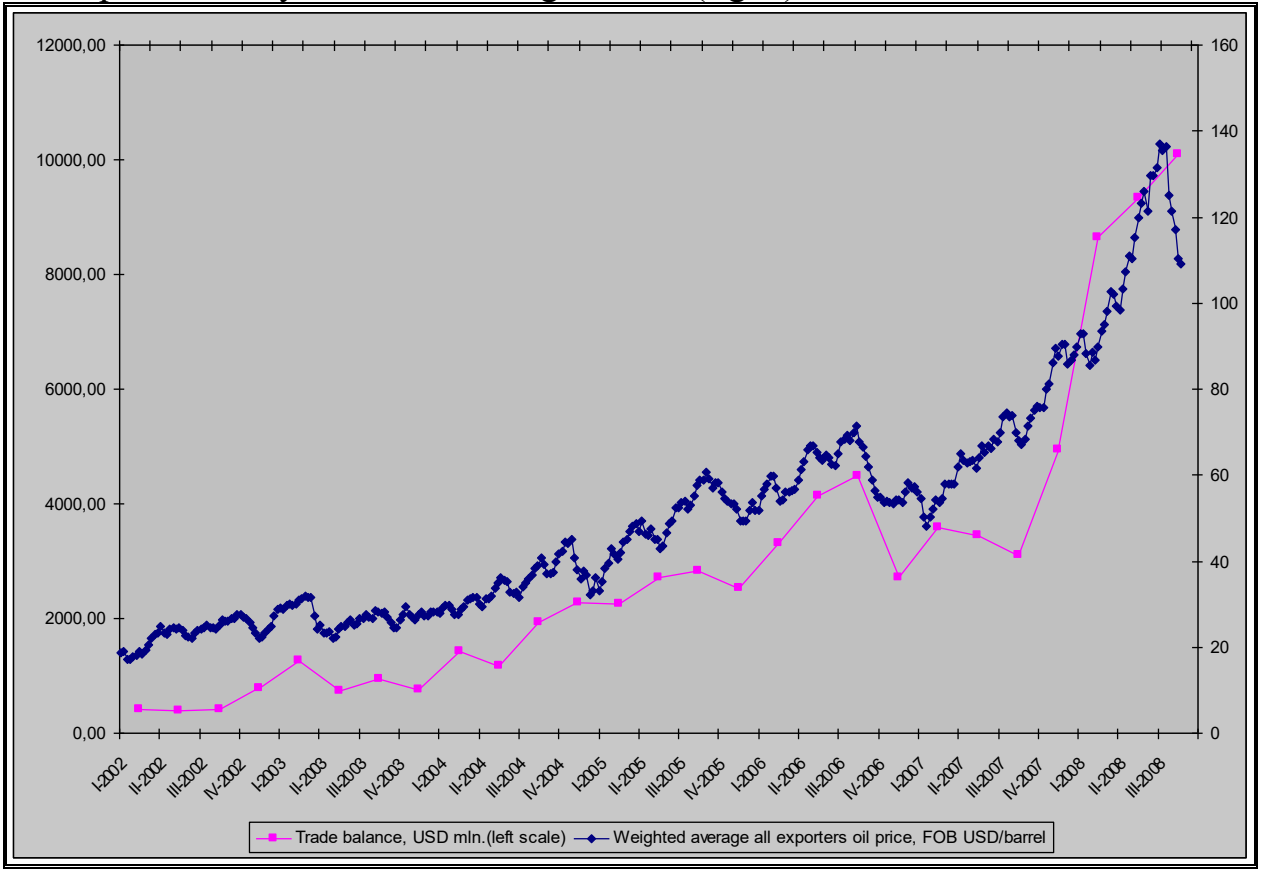


Figure 3 – Comparison of dynamics of the world prices for oil and trade balance.

The trade balance practically directly is dependent on dynamics of prices for oil.

2. Balance of investment incomes. Incomes from foreign direct investments to Kazakhstan, which had positive dynamics of growth from 2002 to 2007, influence the balance of investment incomes.

The volume of foreign direct investments flown into Kazakh economy increased 4.3 times during 2002-2008 (fig.4).

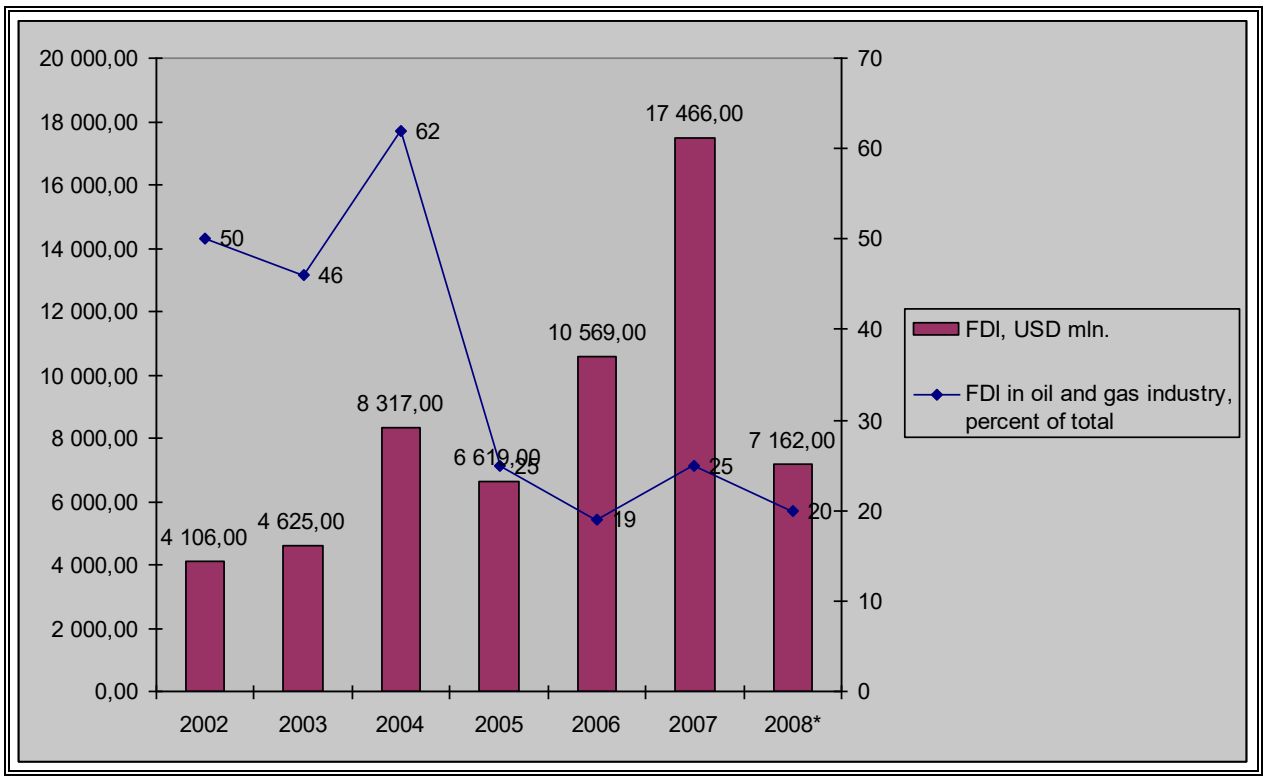


Figure 4 – Foreign direct investments in Kazakhstan from 2002 to 2008.

Source: National bank of the RK. FDI ratio – right scale; * - data for the first 6 months of 2008

Starting from the large-scale development of oil deposits in 1996 to the present time, $29.2 billion of foreign direct investment was attracted into mining industry of Kazakhstan, $23.7 billion was attracted into geological survey works. Foreign direct investment for analogical period was 69.4%. Large portion of the total investments had flown into oil and gas sector.

FDI rate of profit increased from 4.7% in the 1st quarter of 2006 to 8.7 % in the 2nd quarter of 2008.

Table 2 – FDI rate of profit in Kazakhstan

	1 quarter 2006	2 quarter 2006	3 quarter 2006	4 quarter 2006	1 quarter 2007	2 quarter 2007	3 quarter 2007	4 quarter 2007	1 quarter 2008	2 quarter 2008
Direct investments in Kazakhstan, mln. US dollars (end of the period)	27 407	28 768	29 849	32 689	35 410	37 949	39 537	43 381	45 678	47868

Incomes of non-residents from direct investments, mln. US dollars (during the period)	1279	2080	2223	2058	1918	2740	2245	3380	2615	4178
Income of FDI - volume of FDI ration	**4,7%**	**7,2%**	**7,4%**	**6,3%**	**5,4%**	**7,2%**	**5,7%**	**7,8%**	**5,8%**	**8,7%**

3. **Balance of Services.** Conditions of the world markets influence the balance of services through the volumes and prices of providing services by the residents and non-residents. Economy of Kazakhstan is dependent on services provided by the non-residents (services import) in construction sphere (in the 1st quarter of 2008 it comprised $1660 mln.), transportation service ($1093.5 mln.), consultation services ($227.4 mln.), architectural and other technical services ($844.7 mln.).

Until 2008, the Current Account balance of the BoP had a negative sign since the negative balances of investment incomes, services, transfers and payments exceeded in aggregate the positive trade balance. During the first six months of 2008 under the conditions of the world prices growth on basic exported goods of the RoK, the trade balance has covered negative balance on other elements of the Current Account. The positive balance of Current Account of BoP made 6506, $2 million. According to the "Economic Research Institute" estimates, during the second six months the positive balance of current account will remain within the limits of $7350 million.

4. **Financial Account.** Capital flow is created by the investment portfolio of non-residents in Kazakhstan accumulated so far. By 06/30/08, direct investments made 38% of all foreign investments, 11% - portfolio investments and 51% - other investments presented by basic loans and the trade credits. Leadership in foreign investment attraction belongs to the financial activity sector (67 % of investments into Kazakhstan), sector of operations with the real estate, rent and service (30 %, basically in geological survey and research), and mining industry (20 %).

***

The negative impact of the world financial crisis on Kazakhstani economy had begun in the second half of 2007 and caused decrease of volumes and toughening conditions of external loans.

In 2008, delay of economy growth, decline in demand and fall in prices on basic commodities create threats for the stable growth of Kazakhstan's economy.

As the European Bank of Reconstruction and Development estimates, growth rate of Kazakhstan's economy will reach 4.3 % in 2008, and GDP growth will make 3,0% in 2008.

The IMF made a forecast of GDP growth for 2008 – 4.5%, for 2009 – 5.3%.

The Economic Research Institute makes a forecast of GDP for short-term and medium-term perspectives using economic and mathematical models,

considering oil prices. By the Institute estimation, with oil price per barrel within $40-60, the GDP growth will make 2.6% in 2009, 4.3 in 2010, and 6.3% in 2011. There is a National Fund created through the state incomes from oil sector by analogy with the leading oil-producing countries. The republican budget is formed by non-oil incomes and guaranteed transfers from the National fund.

The Government also considers possibility of worsening economic situation and consequent shrinkage of the revenue side below the planned budget levels. On this basis, expenditure cut mechanism of three-years budget is developed given the oil price $25 per barrel. Social expenditures planned by the government connected to a pension increment and upgrading of benefits remaines unchanged in the Republic budget.

As a result of the decrease in the projected oil price, budget deficit was corrected and is expected to comprise 3.4% of GDP in 2009, 3.5% and 2.4% in 2010 and 2011 respectively.

The economy dependence on the commodities world price variations is high, but these are not determinant factors in the scenario choice of an economic development. Variation of oil prices is considered in preparation of the three year budget process, but directions providing economic growth are included in the longer-tern programs.

Due to neutralization of the negative impact of the world financial crisis, the Government of the Republic of Kazakhstan adopted a decision to use the accumulated capital of the National Fund to finance anti-crisis measures.

Government-run Program of anti-crisis measures that was adopted on November 25, 2008 represents five basic directions of the realization.

The Government reduced the level of expected world oil prices, put in the budget project for 2010-2011, from $60 USA to 40$ USA per barrel in 2009, to $50 USA in 2010 and 2011.

1. **Stabilization of the financial sector assumes**

- recapitalization of the 4 major banks through the purchase of common stocks and preference shares, as well as by providing subordinated loans in the amount of no less that $4 billion;
- creation of the public fund for risky assets with nominal capital of $1.5 billion in order to improve credit portfolios of national banks by bailing out unprofitable assets and managing those assets afterwards;
- provision with additional liquidity sources in order for banks to serve their liabilities in time;
- government guarantees of pension savings;

- expanding insurance guarantees for physical entities, who have deposits in commercial banks, up to $41 thousands (5 million tenge).

1. **Real estate market stabilization** means injection of $3 billion and includes the following:

- A special program for mortgage loans and development of the real estate sector on incomplete construction objects in Astana and Almaty, as well as on lowering rates for previously obtained mortgage loans;
- Government purchases of new housing on behalf of national companies and joint stock companies with government participation;
- Realization of public housing program that makes provisions for preliminary mortgage loans with low interest rates for public servants, employees of public sphere and young families.

2. **Supporting small and medium business** includes:

- Financial support in the amount of $1 billion for crediting of small and medium business;
- Development of micro financing programs in the countryside and rural areas;
- Providing access for the subjects of small and medium business to orders of state agencies, holdings and national companies;
- Securing guarantees and long-term orders for state holdings and national companies.

4. Agricultural sector development

Expenditures for agricultural sector development are planned in the amount of $3 bln. from republican budget for 2009-2011. Additional $1 bln. will be directed through "Kazagro" Holding to assist agricultural sector development.

5. Breakthrough, industrial and infrastructure projects implementation.

Infrastructure building and modernization will be carried out to solve economic development issues and to provide employment. There will be continued work on "30 corporative leaders" Program realization to maintain the economic growth. To implement breakthrough industrial and infrastructure

projects there will be directed additional $1 bln. (120 bln. tenge), also direct foreign investments will be attracted in amount of $3 bln. by the “Samruk-Kazuna” national welfare Fund.

According to the Economic Researches Institute estimation, additional financial resources from National fund can provide GDP growth at 2-3 % per year.

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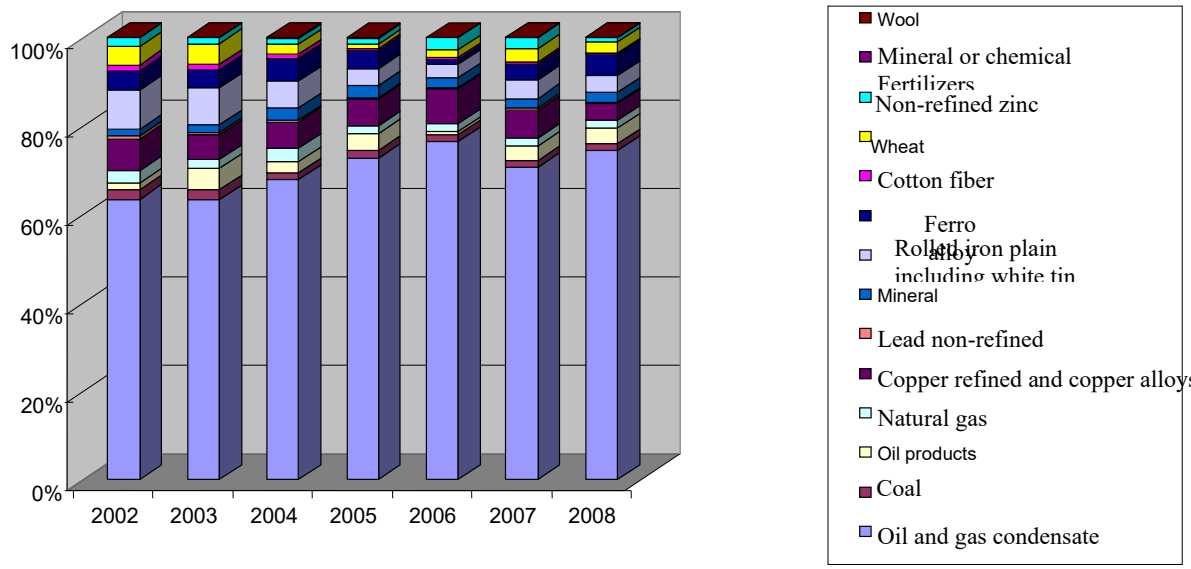

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Let's observe the raw-materials content of the economy in the GDP structure (Table 1). The mining sector has increased its share from 13 to 20.6% during the 2000-2008 period, but the services still comprise some 50% of GDP, which says about sufficient level of economic development (the developed countries enjoy the share of services at around 75% GDP).

Table 1 – GDP structure of the Republic of Kazakhstan for 2000-2008.

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Goods production	**45.9**	**44.9**	**43.8**	**42.9**	**42.5**	**44**	**44.9**	**43.4**	**47.9**
Agriculture and fishery	8.1	8.7	8.0	7.9	7.1	6.4	5.5	5.7	5.7
Mining production	13	11.4	12.1	12.1	13.6	15.8	16.1	15.1	20.6
Manufacturing	16.5	16.4	14.5	14.2	13.3	12	11.6	11.5	12.5
Services	**48.4**	**49.4**	**50.5**	**51.8**	**53.4**	**52**	**51.6**	**54.2**	**50.2**

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Source: Statistics Agency of the RoK.

It gives a right to make a conclusion that the GDP growth in Kazakhstan is not provided by exports-led development alone. Mining sector which is about 80.4% of export in 2007, occupied just 15.1% of GDP. Most of the real GDP growth is defined by non oil-gas sector of the economy, the output which is absorbed by the domestic consumption.

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1. Balance of payments. With the prices and volumes of imported goods stable, and prices of exported goods decreasing, the positive ratio of the trade balance may be diminished. For the first 6 months of 2008 trade balance ratio has comprised $17 971 bln. under the favorable price conditions for exported goods (fig.2).

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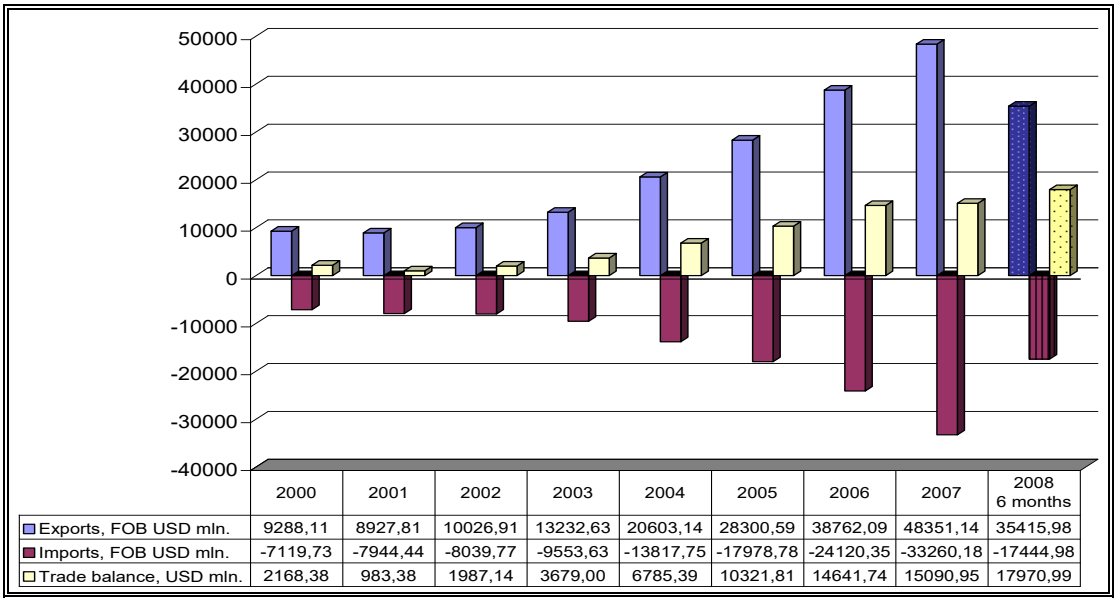

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Trade balance, USD mln.	2168,38	983,38	1987,14	3679,00	6785,39	10321,81	14641,74	15090,95	17970,99

Figure 2 – Trade balance of the RK.

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To reveal raw dependence of Kazakhstan it is possible to track change of the world prices and dynamics of trading balance (fig. 3).

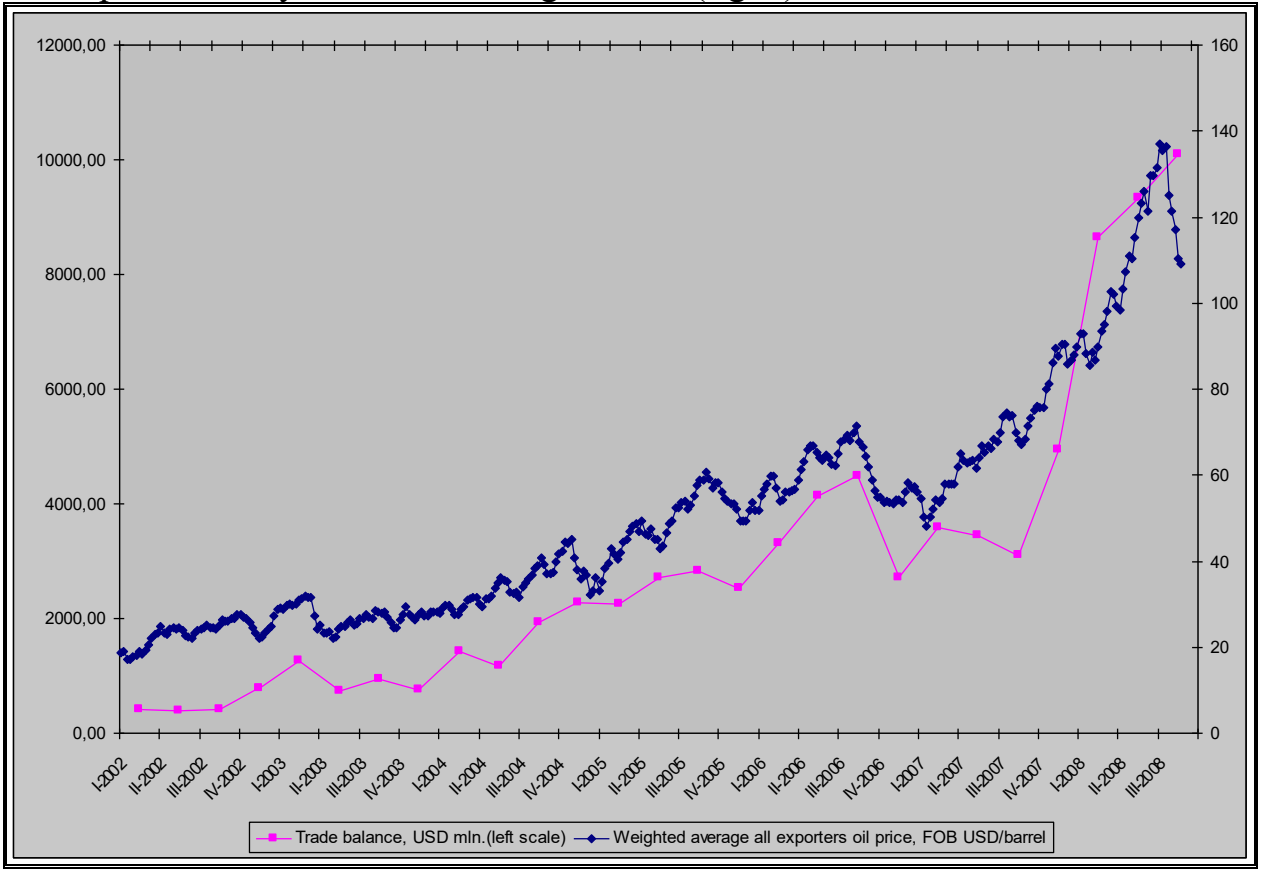

Figure 3 – Comparison of dynamics of the world prices for oil and trade balance.

The trade balance practically directly is dependent on dynamics of prices for oil.

2. Balance of investment incomes. Incomes from foreign direct investments to Kazakhstan, which had positive dynamics of growth from 2002 to 2007, influence the balance of investment incomes.

The volume of foreign direct investments flown into Kazakh economy increased 4.3 times during 2002-2008 (fig.4).

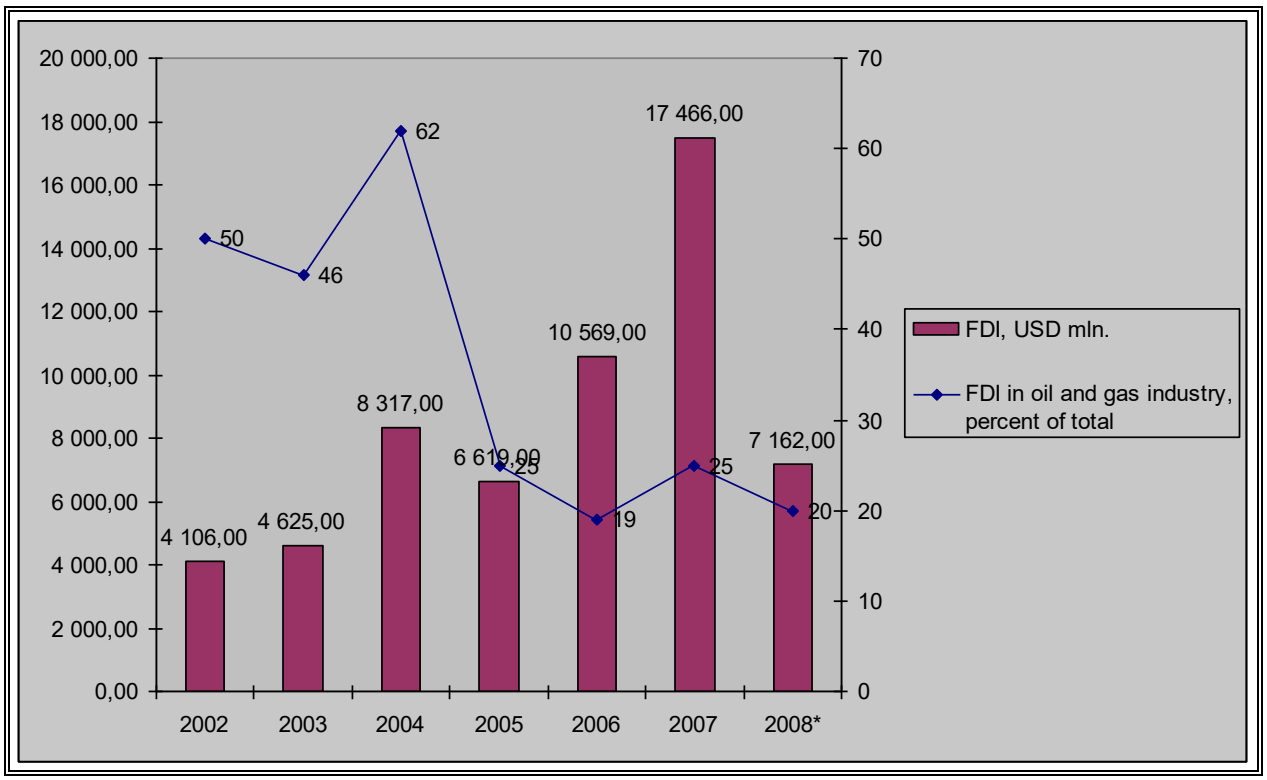

Figure 4 – Foreign direct investments in Kazakhstan from 2002 to 2008.

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Starting from the large-scale development of oil deposits in 1996 to the present time, $29.2 billion of foreign direct investment was attracted into mining industry of Kazakhstan, $23.7 billion was attracted into geological survey works. Foreign direct investment for analogical period was 69.4%. Large portion of the total investments had flown into oil and gas sector.

FDI rate of profit increased from 4.7% in the 1st quarter of 2006 to 8.7 % in the 2nd quarter of 2008.

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Income of FDI - volume of FDI ration	**4,7%**	**7,2%**	**7,4%**	**6,3%**	**5,4%**	**7,2%**	**5,7%**	**7,8%**	**5,8%**	**8,7%**

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The negative impact of the world financial crisis on Kazakhstani economy had begun in the second half of 2007 and caused decrease of volumes and toughening conditions of external loans.

In 2008, delay of economy growth, decline in demand and fall in prices on basic commodities create threats for the stable growth of Kazakhstan's economy.

As the European Bank of Reconstruction and Development estimates, growth rate of Kazakhstan's economy will reach 4.3 % in 2008, and GDP growth will make 3,0% in 2008.

The IMF made a forecast of GDP growth for 2008 – 4.5%, for 2009 – 5.3%.

The Economic Research Institute makes a forecast of GDP for short-term and medium-term perspectives using economic and mathematical models,

considering oil prices. By the Institute estimation, with oil price per barrel within $40-60, the GDP growth will make 2.6% in 2009, 4.3 in 2010, and 6.3% in 2011. There is a National Fund created through the state incomes from oil sector by analogy with the leading oil-producing countries. The republican budget is formed by non-oil incomes and guaranteed transfers from the National fund.

The Government also considers possibility of worsening economic situation and consequent shrinkage of the revenue side below the planned budget levels. On this basis, expenditure cut mechanism of three-years budget is developed given the oil price $25 per barrel. Social expenditures planned by the government connected to a pension increment and upgrading of benefits remaines unchanged in the Republic budget.

As a result of the decrease in the projected oil price, budget deficit was corrected and is expected to comprise 3.4% of GDP in 2009, 3.5% and 2.4% in 2010 and 2011 respectively.

The economy dependence on the commodities world price variations is high, but these are not determinant factors in the scenario choice of an economic development. Variation of oil prices is considered in preparation of the three year budget process, but directions providing economic growth are included in the longer-tern programs.

Due to neutralization of the negative impact of the world financial crisis, the Government of the Republic of Kazakhstan adopted a decision to use the accumulated capital of the National Fund to finance anti-crisis measures.

Government-run Program of anti-crisis measures that was adopted on November 25, 2008 represents five basic directions of the realization.

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- recapitalization of the 4 major banks through the purchase of common stocks and preference shares, as well as by providing subordinated loans in the amount of no less that $4 billion;
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According to the Economic Researches Institute estimation, additional financial resources from National fund can provide GDP growth at 2-3 % per year.

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THE ECONOMY OF KAZAKHSTAN UNDER THE WORLD MARKETS INSTABILITY

Kazakhstan is a small open economy with a limited number of exported goods and commodities that put the country into the vulnerable position in case of an adverse world market situation. It is thus necessary to expect any consequences of the decline in the world prices for exported goods, especially for oil, and consider this vulnerability during the process of making macroeconomic forecasts.

There are a number of features that allow to reveal the raw-material orientation of the economy. In standard terms, the share of raw sector in GDP and export structure would serve as a main indicator. Indeed, the experience of the last few years demonstrate the tendency in Kazakhstan of mineral raw resources share predominance in combined exports of the country. Petroleum and petroleum products have become fundamental strategic export items (60-70% of the total exports) (fig.1).

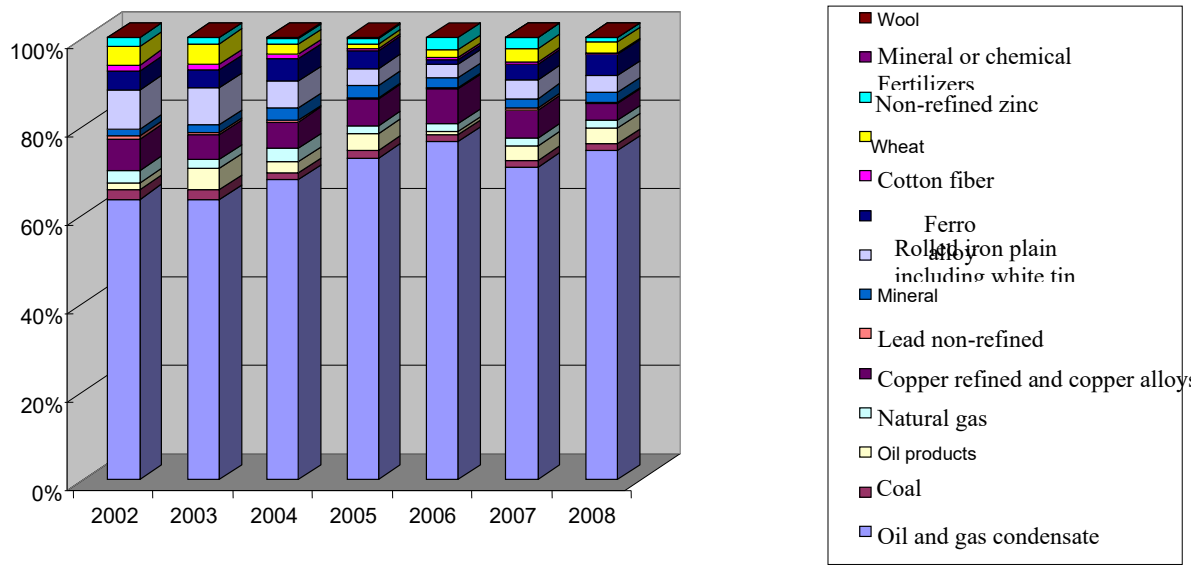

Figure 1 –Exports structure in the Republic of Kazakhstan.

Source: Statistics Agency of the RoK.

Kazakhstan occupies the 11th place in the world by explored reserves of oil[1]. Confirmed resources of oil in the country are estimated 30[2] to 39.828 billion

[1] <http://www.wired.com/special_multimedia/2008/oilreserves>.
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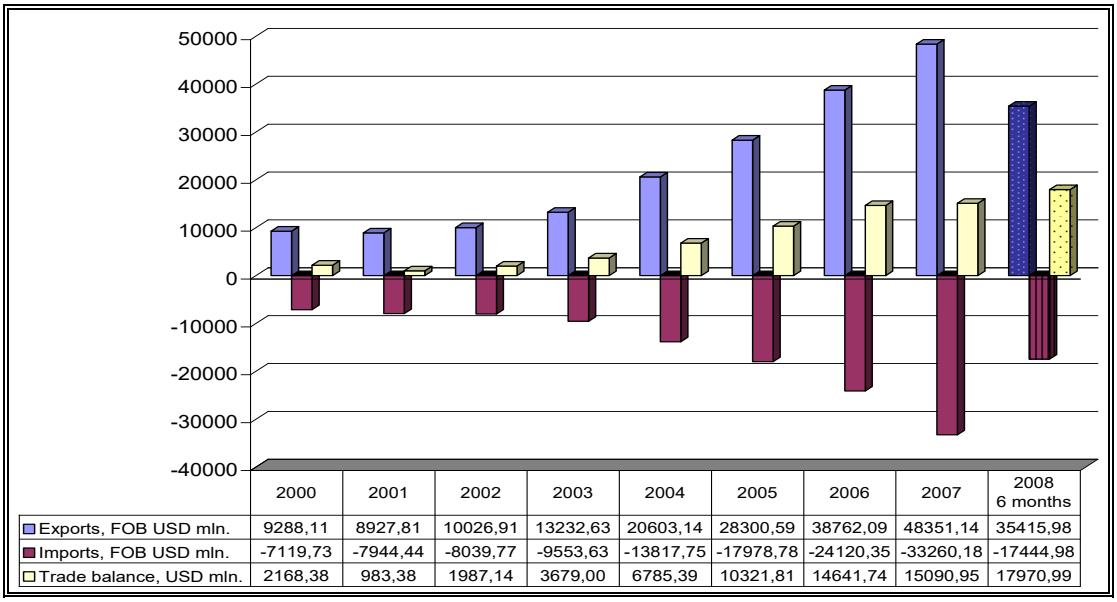

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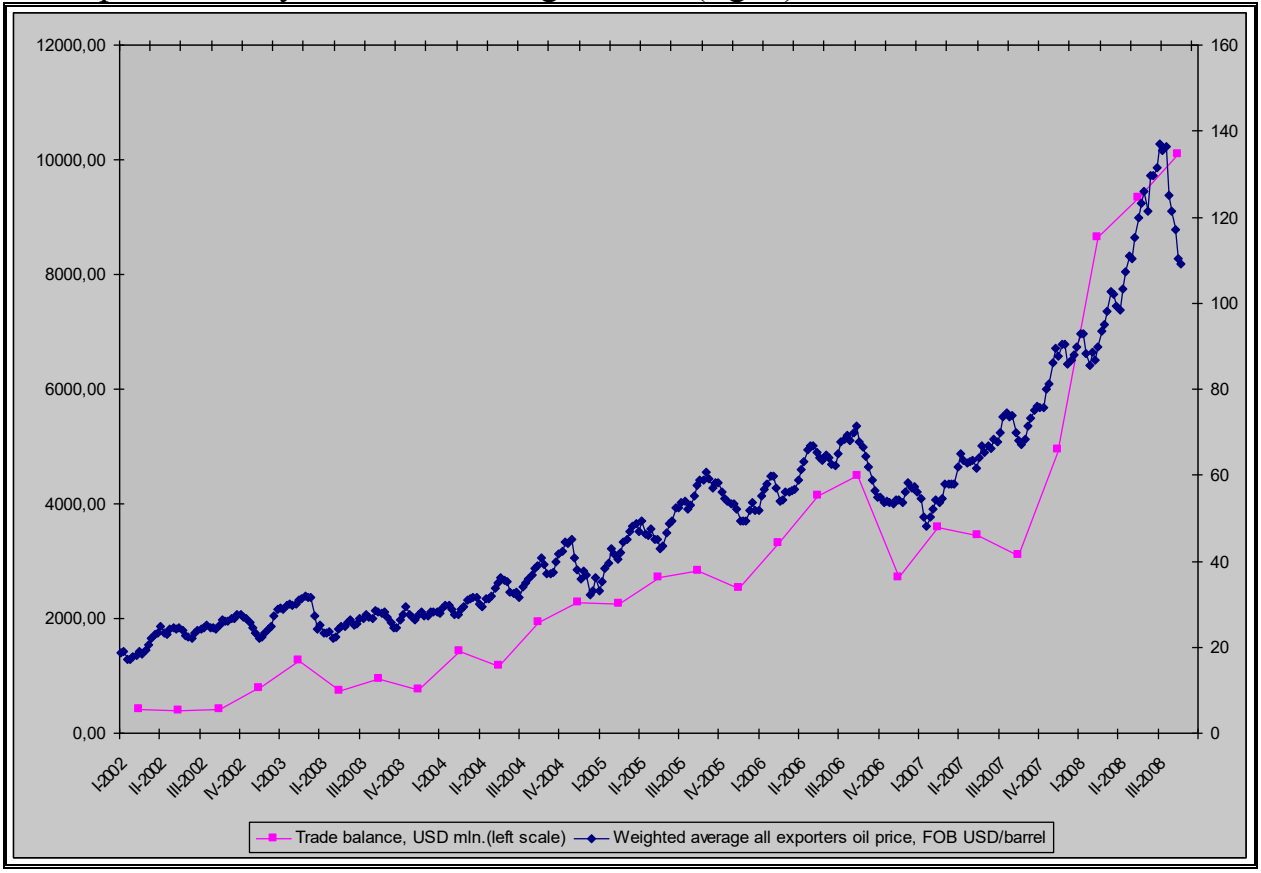

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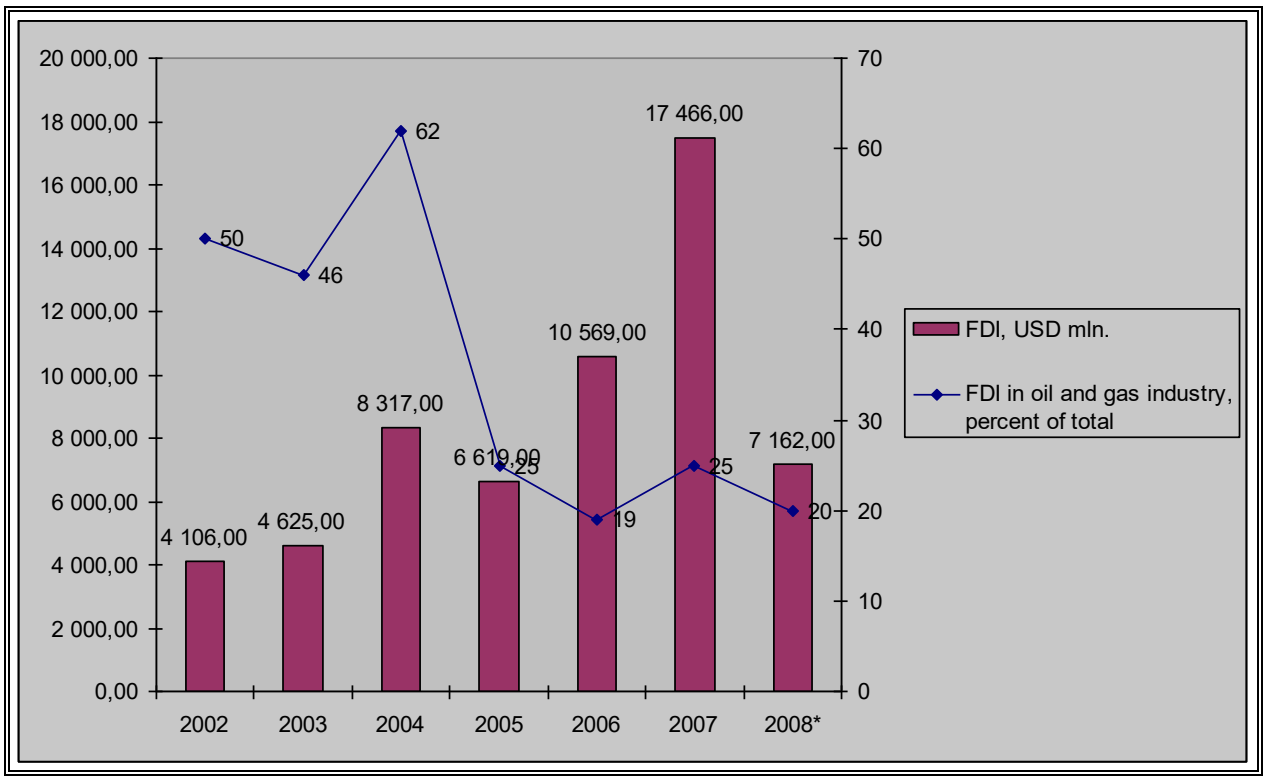

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A Review of the Population Indexes of the ECO Member Countries and Iran's Ranking in the Region, 2006

Taha Noorollahi[1] - Elham Fathi[2]

Foreword

The Economic Cooperation Organization (ECO) is a regional economic organization which was established in 1962. The ECO countries, located in a geopolitically sensitive region and holding high potentials and capabilities in various fields including mining, industry, and agriculture, cover an area of about 7961216 square kilometers.

Iran, Kazakhstan, Pakistan and Turkey are among the vastest countries of the organization. Iran, Pakistan and Turkey were the founders of the organization. After the collapse of the Soviet Union, Afghanistan, Azerbaijan, Kazakhstan, Turkmenistan, Kirgizstan, Uzbekistan and Tajikistan also joined the organization. At present the 10-member organization has a population of about 409 millions.

According to the charter of the organization, ECO endeavors to improve the conditions for sustainable economic development of the member counties and takes action to gradually eliminate the commercial barriers in the region. Another goal of the organization is to prepare a common program for the development of human resources in the member countries. The organization also works to speed up the program of communication and transportation development.

A means of getting to know the ECO member countries is quantitative and qualitative study of the population and investigating the social and population indexes of the region. It is believed that any kind of socio-economic progress and development in any region hinges on the quality and quantity of the population in that region; in other words, the results of demographical studies, mainly based on population statistics, are the foundation of micro and macro planning and policymaking in any given territory. Obviously, planning and policymaking with no attention to population statistics and indexes can cause irreparable harms to the region is natural wealth and resources.

To learn about the demographic conditions of the ECO member countries, a good way is comparing the statistical information[3] and in particular the demographic data and indexes

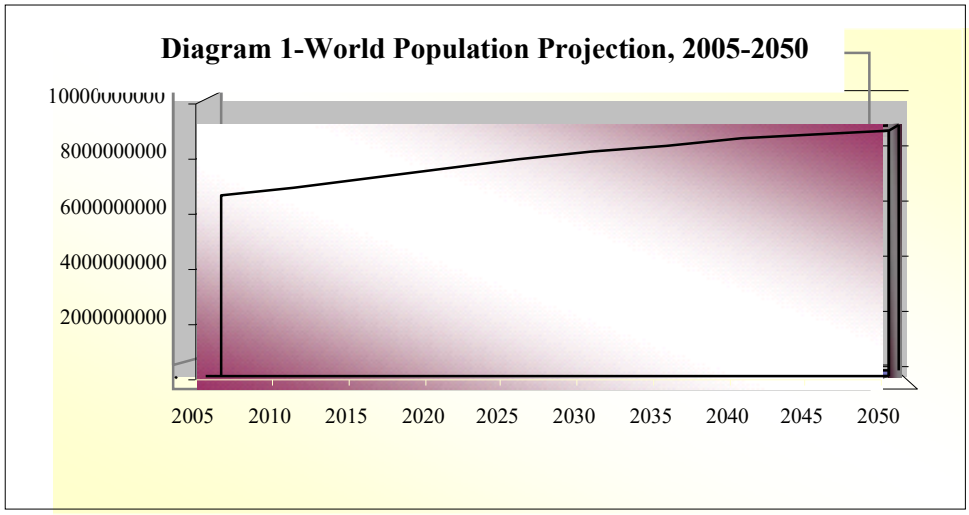
[1] - Statistical Center of Iran, DG, Office of Population and Labour Force Statistics & Census
[2] - Statistical Center of Iran Office of Population and Labour Force Statistics & Census
[3] -Statistics are obtained from censuses, sample surveys and registers.

of the member countries. It will help categorize the state and position of each country by the population variants and related indexes; at same time it is possible to compare them with the international indexes as well as specifying Iran's ranking among the regional countries.

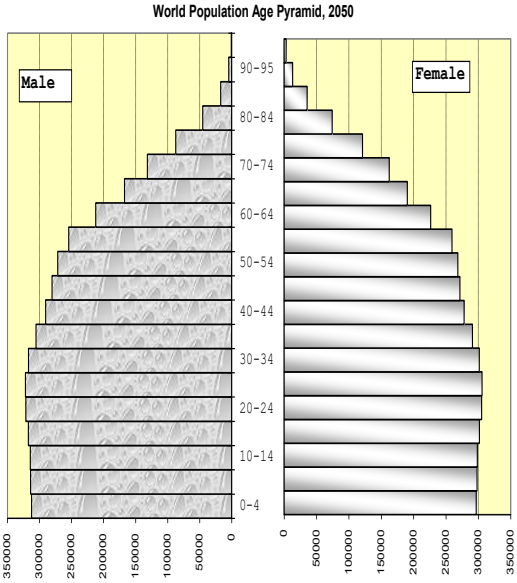
So far, six censuses of population and housing have been taken in Iran by taking advantage of the most recent methods and recommendations by the international statistical organizations. The censuses have been carried out on a regular basis every 10 years since 1956.

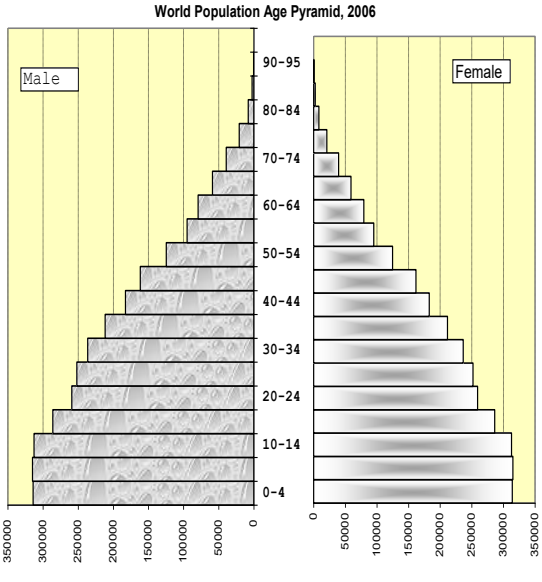
World Population and ECO Members Populations

The quantitative study of the world population shows that in recent decades the world population has been rapidly increasing as it reached to 6.6 billions in 2006 from 2.5 billions in 1950, while it is projected it will hit 9.2 billions in 2050.



By examining different cross sections of the world population one could realize that in the past the child and youngster age group (0-14 years) comprised the highest portion of the world population; however by the increase in age and decrease in birth, the population ratio in this age group is dropping and in future it will go down considerably. World population age pyramids for the years 2006 and 2050 reflect the above shift.





In these pyramids the horizontal axis on the right shows the world female ratio and on the left the male ratio. The vertical axis stands for the age groups from zero to 100 years or more.

Comparison of these two diagrams yields that in the past, the age structure had a pyramid form, but by reduction of youth ratio the diagram has got a cylinder.

Based on the estimation for the year 2006, the population of the ECO member countries was 408.6 millions. That is to say it held 6.8% of the world population (diagram 2).

The following table shows the ten ECO members by population in 2006 (1385).

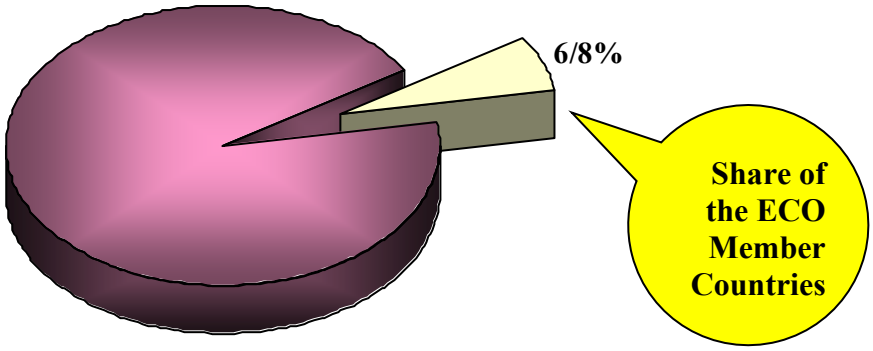
Table.1 ECO Member Countries Population in Order of Size of Population - 2006 Estimation[1]

ECO Members Countries	Population in Million
1. Pakistan	165.6
2. Turkey	73.7
3. Iran[2]	70.5
4. Afghanistan	31.1
5. Uzbekistan	26.2
6. Kazakhstan	15.3
7. Azerbaijan	8.5
8. Tajikistan	7.0
9. Turkmenistan	5.3
10.Kirgizstan	5.2
Total Sum	408.6

[1] -Based on the Census of Population and Housing, 2006

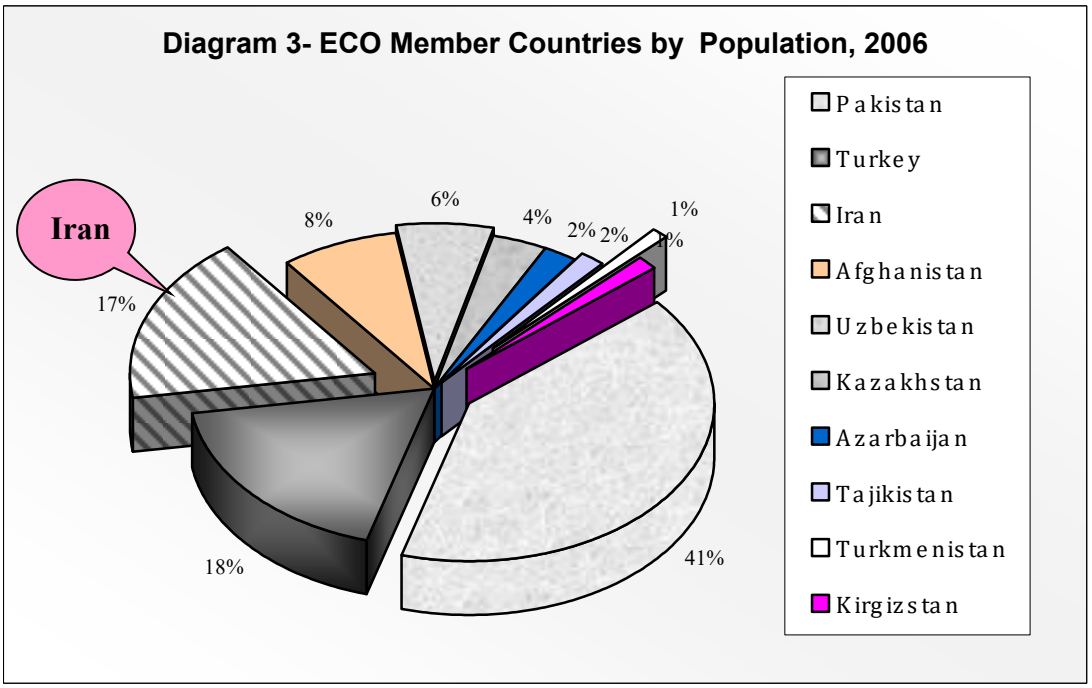
[2] -Based on the Census of Population and Housing , 2006

Diagram 2-ECO's shard of the World Population, 2006



The largest population of the region belongs to Pakistan with 165.6 millions followed by, Turkey with 73.7 and Iran with 70.5 millions. In other words, % 76 of the total population of the region concentrates in these three countries (diagram 3).

Diagram 3- ECO Member Countries by Population, 2006



Accordingly Iran ranks third among the ECO nations by population and makes up to 17% of the region's population. Kirgizstan with 5.2 millions and Turkmenistan with 5.3 millions are the less populated ECO nations.[1]

[1] .US Census Bureau, International Data Base

Based on the statistics published by ECO between 2000 and 2004, the inflation rate of the developing countries dropped by 0.9% to 6%, whereas the ECO member countries had been able to reduce the inflation rate by about 15% to 9.5% from 23.9%. Tajikistan, Turkmenistan, Uzbekistan and Iran are members with the highest inflation rates.

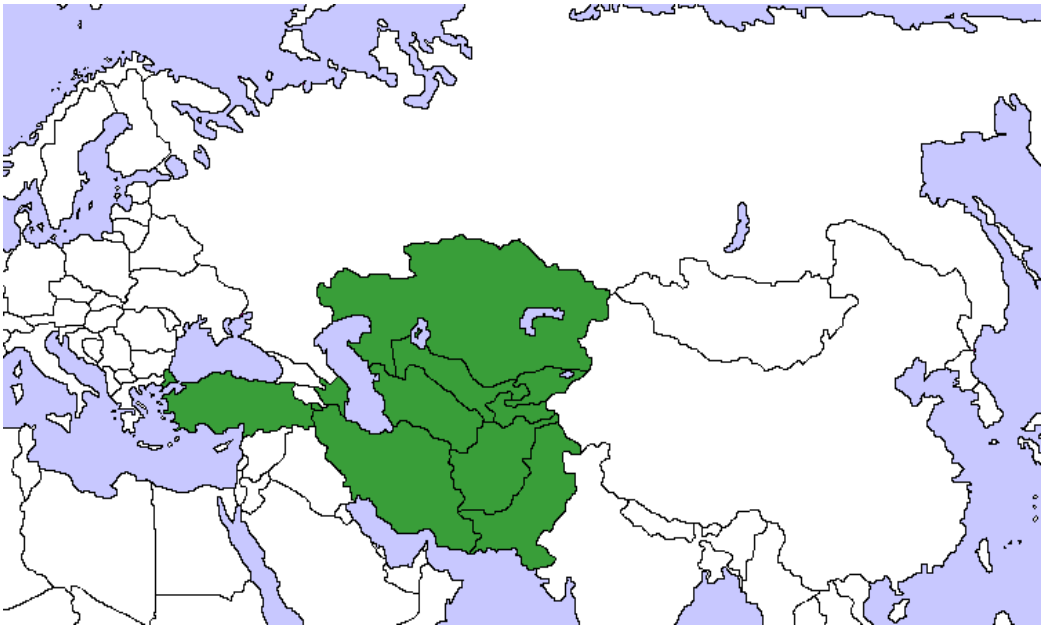
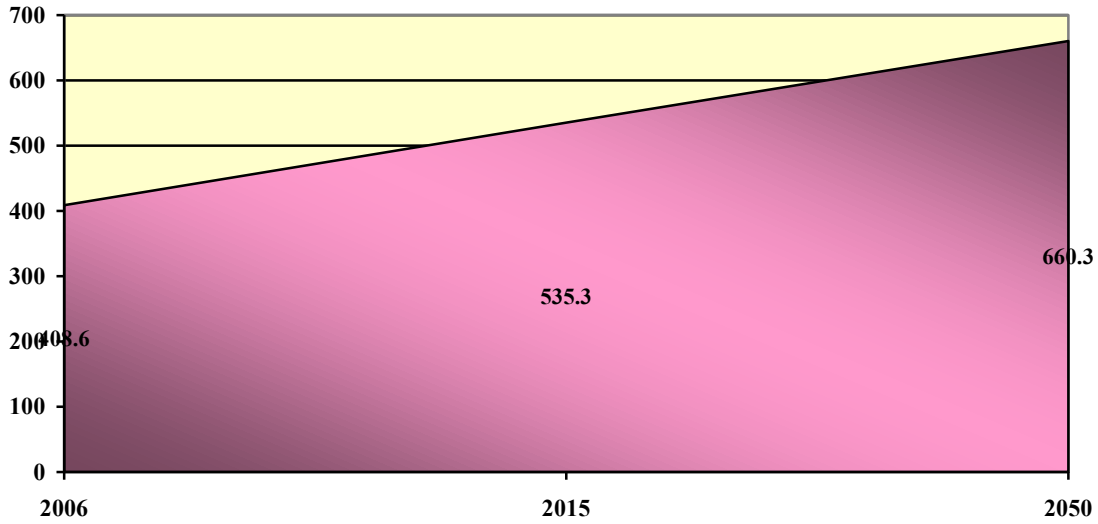


Diagram 4- ECO Member Countries Population Projection for the 2050, in Million



Population Ratio in Wide Age Groups

Nowadays, the age structure of population, quantitatively and qualitatively, is of high importance and is considered a main preoccupation of executive authorities all around the world.

In demographical studies, to have an overall picture of the population structure, the age structure of the population could be studied in three major age groups: under 15 year-old, 15-64 year-old, and 65 year-old and over.

Following a series of studies in Indonesia and a number of undeveloped and industrial countries, Wertheim, the Dutch sociologist and demographer found out that in most undeveloped countries, ratio of the under 15 year old age group to the total of the population was about 40% or more1. Thereafter this index is known as "Wertheim Test". According to the index, in case 40% or more of the population of a country is under 15 years old, the population is considered young2. Accordingly, Afghanistan with 45% and Pakistan with 41% are the youngest ECO members. Azerbaijan with 24% and Iran with 25%, lie down the range with Iran ranking ninth.

In demographical studies, aging of the population means that the ratio of the elderly people to the total of the population is increasing. More precisely, a population leaning toward aging is a population that 7 to 14 percent of which lie in the 64 years old and more age group. This ratio for an old population is between 14 to 20 percent and in an

[1] -Geozene De Castro, "Hungry Man"

[2] -Youths and youth are among important social issues in modern societies. Youths are an especial group of population which, thru long years of schooling is away from the job market and some of the life responsibilities, and that makes them different from the adults. In fact youth is a period of life which lies between childhood and adulthood. Childhood transition to adulthood is a gradual trend and one cannot specify an exact and precise boundary for that. Many social scholars to elucidate the limits of youths' age and to study it, have considered the 15 - 24 age group as the young population.

aging population is 20 percent or more. That is to say when the mortality rate goes down and the birth rate decreases, the population starts getting older.

Accordingly, Kazakhstan with 8 percent and Azerbaijan with 7 percent of the population lying in the age group of 64 years old and over are among ECO member countries with an aged population. On the opposite side, there is Afghanistan with 2 percent and Tajikistan with 3 percent. As to Iran, the ratio is 5 percent which gives it the forth place in the region.

Table 2. Population ratio in the wide age groups

Rank	ECO Member Countries	Population ratio in the age groups		
		<15	15-65	65+
1	Afghanistan	45	53	2
2	Pakistan	41	55	4
3	Uzbekistan	35	60	5
4	Turkmenistan	34	61	5
5	Kirgizstan	32	62	6
6	Tajikistan	32	65	3
7	Turkey	29	65	6
8	Kazakhstan	27	65	8
9	Iran	25	70	5
10	Azerbaijan	24	69	7
11	World	29	64	7

Iran's Population

What we get out of historical documents is that we do not have accurate information about Iran's population for the years before 1956, when the first general census of population and housing was taken. That is why many researchers have estimated the past population of Iran using the results of 1956 Census and the following ones as well as some other historical documents. A review of these figures shows that in the far past the population growth rate in Iran was very low. An effective factor was the high rate of mortality as a result of absence of health and medical facilities. The following table illustrates the trend of the population fluctuation and the average annual growth as well as the population doubling between the years 1881 and 1906.

Examining the population changes in Iran based on censuses taken during 1956 and 2006 indicates that in the period some 52 millions people were added to the country's population. The population growth between the censuses was not the same, and as the table 3 reveals the population growth till the beginning of the Islamic Revolution had a declining trend while suddenly after it we are witnessing increase, so that during the 1976-1986 decade it experienced a growth of over 3.9% which was unprecedented in our country.

Decrease in population growth in the 1966-1976 decade as compared to its previous decade, which left a great impact on natural growth of population, particularly in urban areas, was due to population control policies enforced as of 1987.

Of course various factors were involved in the increase of population growth in the 1976-1987 decade among which one can refer to the changes made in population control policies after the Islamic Revolution and enforcement of the birth boosting policies. By release of the 1986 Census results and observing high growth of population in the 1976-1986, the government noticed the profundity of the population increase load and got worried about securing their different needs in the coming years and reverted to the population control policies. The government declared the birth control policies in the mid 1988 followed by family planning program. Succeeding in implementation of family planning policies, the fertilization trend slowed down drastically during 1986-1996 and 1996-2006. The birth reduction (together with reduction in mortality and increase in life expectancy) cut the population's annual increase from 3.9% in 1976-1986 to 1.62% in 1996-2006. It should be mentioned that about 0.7% of the population growth in 1976-1986 was mainly due to Afghan and Iraqi immigrants; a phenomenon that has continued with a lesser intensity in recent years.

Table3. Population changes trend and average annual growth and population doubling1 during 1881- 2006

Year	Population	Avarage Annual Growth (%)	Population Doubling Time
1881			
1891			
1901		-	
1911	7654000	.60	-
1921	8124000	.59	116
1926	8613000	.60	117
1931	9143000	.60	116
1936	9707000	1.50	116
1941	10456000	1.36	46
1946	11185000	1.36	51
1951	11964000	1.41	51
Aban 1956	12833000	1.99	49
Aban□196	14159000	2.78	35
6□□□□□	16237000	3.14	25
□□□□□□	18954704	3.13	22
Aban□197	25788722	2.71	22
6□□□□□	33708744	3.91	26
□□□□□□	49445010	2.46	18
Meher□19	55837163		28
86□□□□		21.47	47
□□□□□	60055488		
Meher		31.96	35
1990	70495782	1.62	43

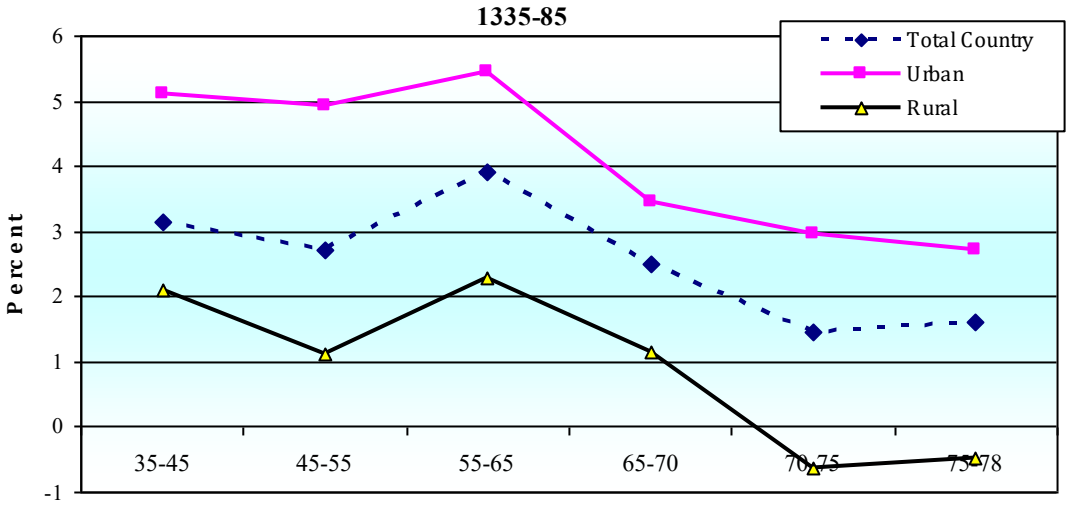
[1] - $P.D.T = \frac{0.69314718}{r}$

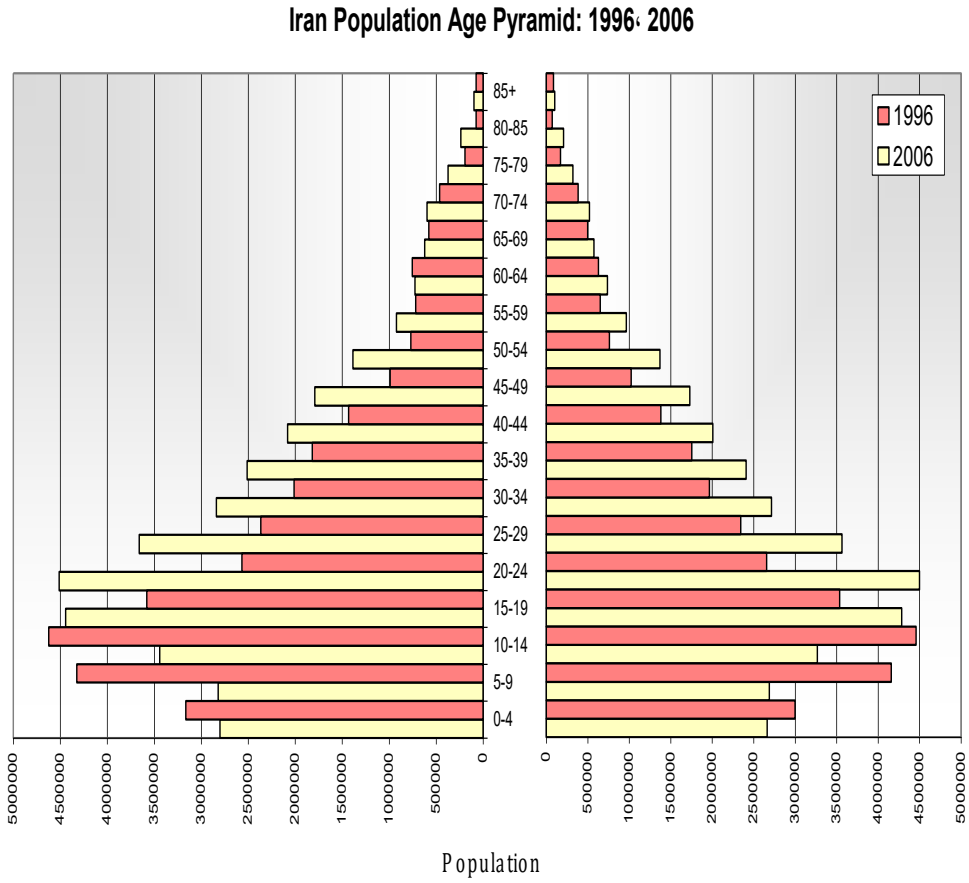
[2] The 1996 average growth has been measured based on the year 1991.

[3] The 1996 average growth has been measured based on the year ۱۹۸۶.

Aban 1995□□□ □□□□ Aban 2006			

Diagram 5- Country's population average growth , urban and rural areas





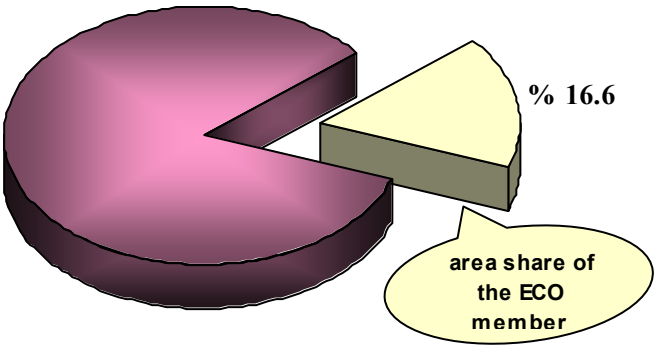
Comparing Iran's population age pyramid in the past two decades illustrates that the structure of Iran's population age pyramid is reversing. It shows that in the coming years the present young population will incline towards aging.

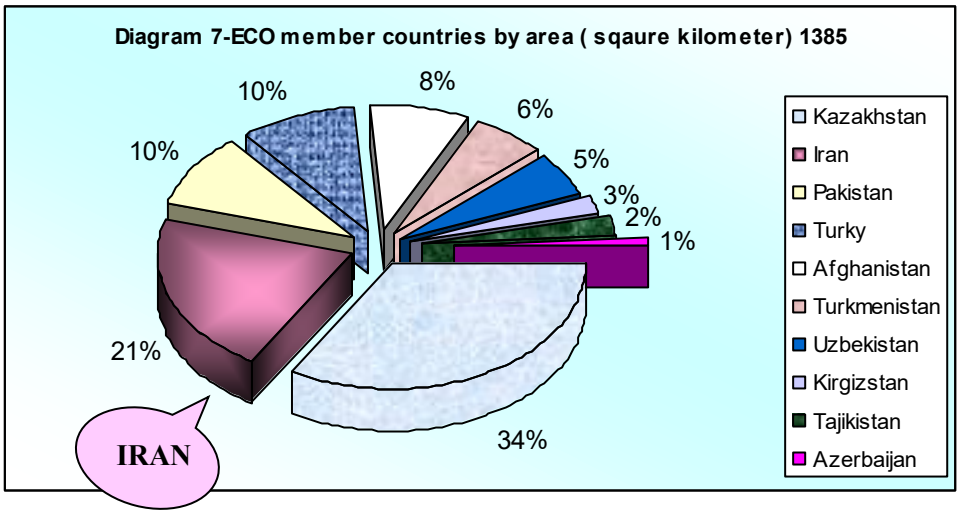
Area

One of the most important factors that can be related to the demographic studies is the vastness of the areas in which the population has been scattered. A vast country can meet more population needs and a small country may need other countries economical facilities such as their mines.

Some believe that in relation to the population, instead of the country's total area, only the arable lands should be accounted. The world total land area is some 148647 million square kilometers and ECO member countries hold an area of 7911523 square kilometers. In the other words, the area of the ECO member countries is about 17% of the world's total area.

Diagram 6- ECO's share from the total world area, 2006





As the diagram shows, Iran is second (with 1636000 square Kilometers area) by the area in the region. The largest country is Kazakhstan with an area of 2669800 square Kilometers and the smallest country is Azerbaijan with an area of 91971 square Kilometers.

Table 4- ECO member countries by area, 2006[1]

Country	Area in square kilometers

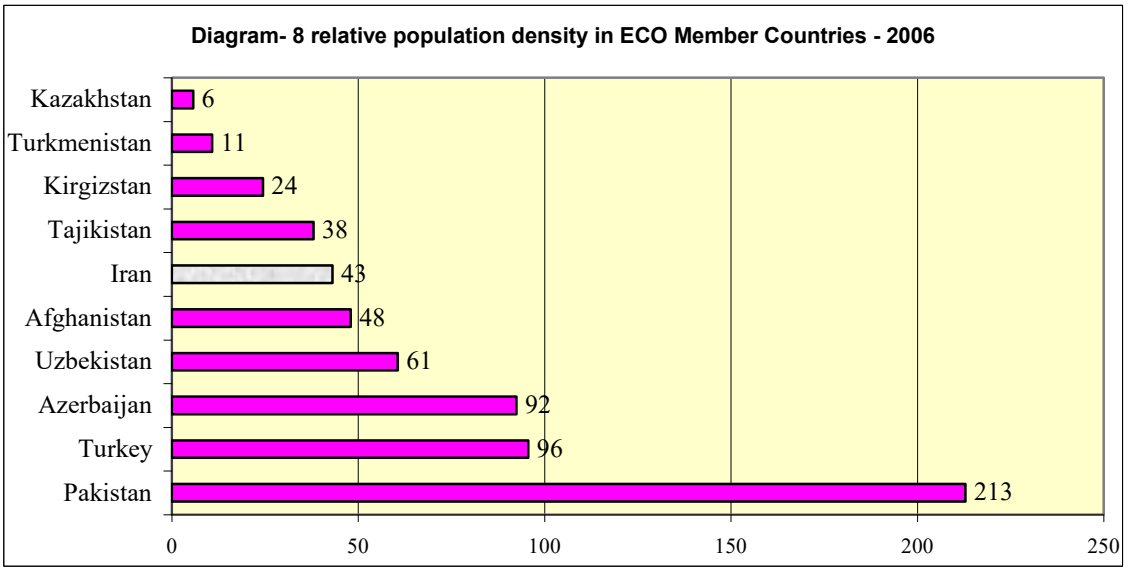
[1] - www.photius.com

1. Kazakhstan	2669800
2. Iran	1636000
3. Pakistan	778720
4. Turkey	770760
5. Afghanistan	647500
6. Turkmenistan	488100
7. Uzbekistan	432162
8. Kirgizstan	212460
9. Tajikistan	184050
10. Azerbaijan	91971
Total sum	7911523
World	51789601

Population Density

The population density is equal to the country's population divided by the area in square kilometers. Sometimes as a more accurate approach, the area of arable land is used instead of the total land, which results in the "biological density". The world population density is 48 per square kilometer. Population density in ECO member countries is 52 per square kilometer.

Member countries have different status as to the population density. Population density could be interpreted as a country's crowdedness. In this sense Pakistan with a population density of 213 is the most crowded country in the region. Kazakhstan and Turkmenistan respectively with 6 and 11 per square kilometer are the least crowded ECO members. Our country with a density of 43 per square kilometer (based on the 1385 Census results) is ranked 6th among the 10 members.



Effective Factors in Population Increase

Countries' populations change mainly by fertility and migration. In order to measure and compare the changes by reproduction , the birth and fertility indexes are used, with the birth index to be more straightforward. The fertility rate is equal to the number of new born babies in a year divided by the population in the middle of the same year multiplied by 1000.

Two effective factors of birth and death depend on biological factors, yet the migration's pace of change is mainly influenced by economic, political, and social factors. Here we are initially referring to the birth rate (crude birth rate)1 and death rate(crude death rate)2.

Births

Based on the 2006 estimation, the birth rate in the world is 20.9 per one thousand. That is to say, there are about 21 births for every 1000 population in the world each year.

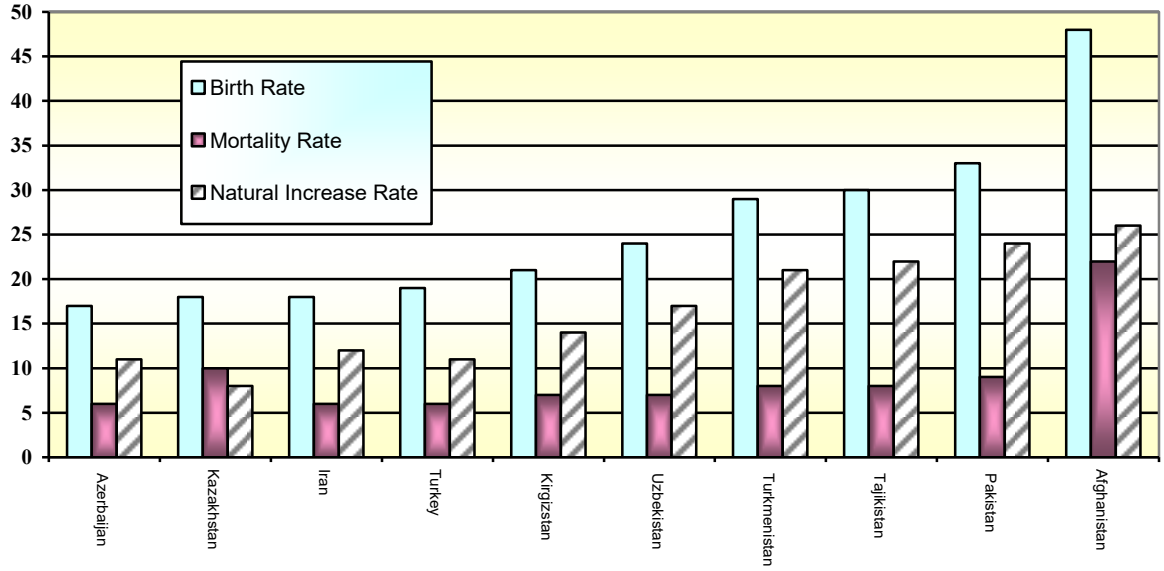
Birth rate, which is directly effective on population increase, is different in various countries. In ECO member countries, the highest birth rate is seen in Afghanistan with 48 births per one thousand and the lowest in Azerbaijan with 17 births per one thousand.

[1] -The Crude Birth Rate (CBR) is equal to: the community's number of live births born in one calendar year/the community's average population on the same year × 1000

[2] - The Crude Death Rate (CDR) is equal to: the community's number of dead in one calendar year/the community's average population on the same year × 1000

Iran with a birth rate of 18 per one thousand ranks second among the ECO members[1].

Diagram -9 Birth, Mortality and Population Natural grounth rate of ECO members (In Thousand)



Mortality

Mortality rate is effective in population reduction. In the past this rate was high in the world, but it was gradually reduced. Northern and Western Europe countries as well as North American countries were pioneer in reducing the mortality rate. In other countries, following improvements in health conditions and public vaccination, the mortality rate is decreasing. Mortality rate is equal to the number of death events in a year divided by the population on the middle of the same year, multiplied by 1000. With this criterion, one can investigate the mortality condition in the world, continents and individual countries.

Based on the collected data, the crude mortality rate in 2006 was as follows:

The world crude mortality rate was 8.6; that is to say in every one thousand about 9 people died in the mentioned year. Afghanistan with 22 per thousand had the highest mortality rate among the ECO member countries. The lowest rate was attached to Iran, Turkey and Azerbaijan with 6 per one thousand2.

Studies indicate that the crude mortality rate is influenced by two main factors:

[1] -2006 world population data sheet, population reference bureau

[2] -2006 world population data sheet, population reference bureau

First, survival issues such as health and treatment, nutrition, security and environmental characteristics. Second, the population age composition. The effect of survival issues on mortality rate is an indirect one; the weaker the public and environmental health, nutrition and treatment conditions, security and survival situation and environmental conditions, the higher the mortality rate. The effect of the population age composition on the mortality rate is something else. The mortality intensity on the early and old ages is by far more than middle and young ages. It is obvious that the major part of the early age mortality could be avoided by the improvements in the nutrition and health conditions, giving rise to the public awareness and medical and treatment innovations, but the old age mortality cannot be eliminated and may only be delayed. Countries with a younger age composition enjoy a much lower mortality rate, in case they have passed the fundamental stages of socio-economic development. In fact in such countries due to the same preliminary measures, the young population which constitute a major part of the population will experience less death; on the other hand the aged population which has a higher mortality, constitutes a small part of the population. Consequently the crude mortality rate, which is a kind of population mortality weighing rate, would be less. But in the developed countries in which the aged population surpasses the young population, the mortality rate is high.

The crude morality rate is appropriate for measuring the population natural increase, but it is not a good indicator of the population health conditions. In case we are to assess the health conditions of the society, we should use other indicators such as the mortality rate of children under five years or the life expectancy at birth.

Population Natural Increase Rate

The population natural increase rate1 is resulted from the difference of the Crude Birth Rate (CBR) and Crude Death Rate (CDR). In case we add the migration factor to the birth and death, the total population increase rate will be resulted. The population increase rate is among crucial factors that should be considered in short, middle, and long term planning. The world population natural increase rate for the year 2006 was estimated around1.23 %.

A review of the natural increase rate in different countries shows that in some countries the natural increase rate is on a negative trend. In these countries the birth rate

[1] -The formula for calculating population natural increase rate is as follows:
Birth rate minus crude death rate = population natural increase rate.

is so low which does not make up for the death rate. In 2006 the population natural increase rate for` Kazakhstan was only 0.8 %.
The highest population increase rate on the same year was for Afghanistan with 2.6 %1.
The population natural increase rate for Iran based on the 18 per thousand CBR and 6 per thousand CDR was 1.2 % (diagram 4) which put Iran in the 8th place among the member countries.

Table 5- Birth Rate, Death Rate and Population Natural Increase Rate of the ECO Member Countries, 2006

Rank	country	Birth rate per 1000	Death rate per 1000	Population Natural Increase Rate(%)
	World	21	9	1.2
	ECO Member Countries			
1	Azerbaijan	17	6	1.1
2	Kazakhstan	18	10	0.8
3	IRAN	18	6	1.2
4	Turkey	19	6	1.3
5	Kirgizstan	21	7	1.4
6	Uzbekistan	23	7	1.6
7	Turkmenistan	25	8	1.6
8	Tajikistan	30	8	2.2
9	Pakistan	33	9	2.4
10	Afghanistan	48	22	2.6

Migration

Migration is a socio-economic and demographic phenomenon. In demography, migration is considered the change of an individual's residence from one place to another. Migrations could be divided into two major groups of internal and international.

Here we only review the rate of net migration. This indicator is a fraction with the difference between in-migration and out-migration in a given location as the numerator and the population of the same place in the mid-year1 as the denominator.

[1] -2006 world population data sheet, population reference bureau

In other words, if in a community the number of out-migrants is more than in-migrants, the net migration rate will be negative and it means that the community is migrant-sending. In case the in-migrants are more than the out-migrants the net migration rate is positive and it means the community is migrant-receiving.
Among the ECO member countries, Kirgizstan with -5 is considered as a migrant-sending country and Kazakhstan with +1 is a migrant-receiving country.

Table 6- The Net Migration Rate of ECO Member Countries- 2006

Rank	Country	Net Migration Rate
	World	
1	Kazakhstan	1
2	Turkey	0
3	Afghanistan	0
4	Turkmenistan	0
5	Azerbaijan	0
6	Pakistan	-1
7	Tajikistan	-1
8	**Iran**	**-2**
9	Uzbekistan	-2
10	Kirgizstan	-5

Total Fertility rate

To investigate another dimension of the population increase trend, in addition to the birth rate, one can employ another indicator, namely the Total Fertility2. The total fertility is the mean of the number of children a woman gives birth to during her fertility period (usually between the ages of 15 to 49).

---

[1] - The formula for the rate of net migration is as follow:

$$Net.M = \frac{(I - E)}{P}$$

In this formula M stands for migration, E for out-migrants and I for in-migrants.

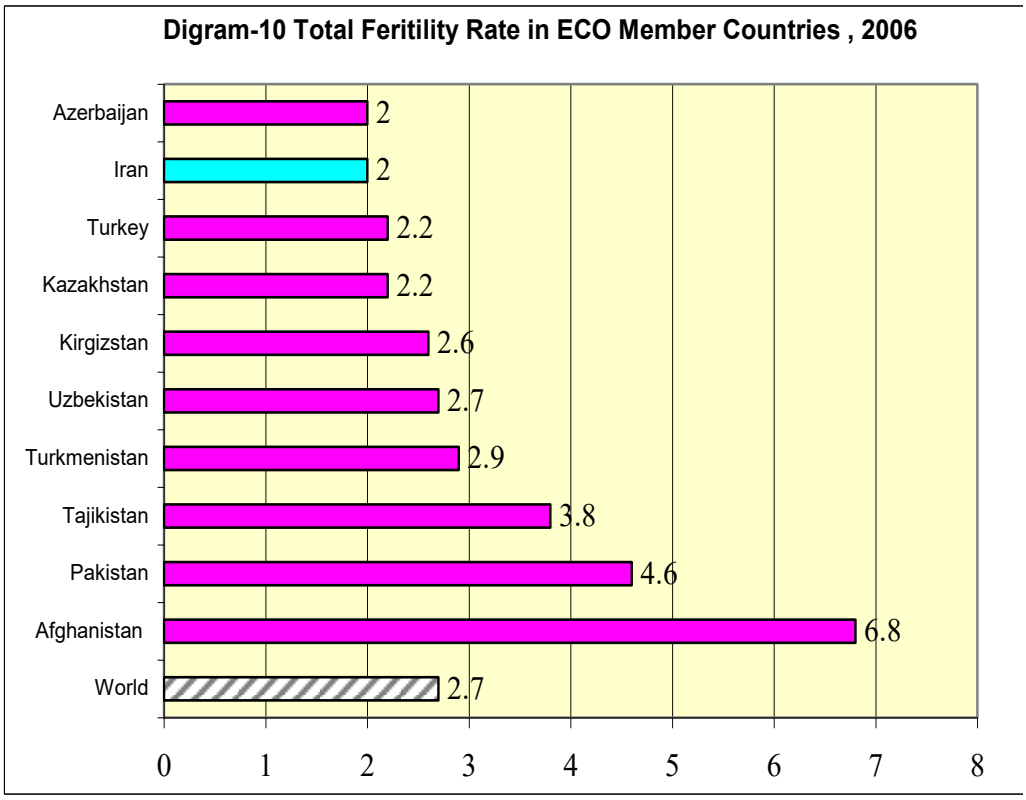
[2] -The formula for total fertility rate is as follows:

$$TFR = 5\sum_{i=1}^{7} ASFR_i$$

ASFR means the fertility rate in each of female age groups during fertility age.

Based on the index an average woman in the world gives 2.7 live births during her fertility period,. Among the continents, Africa with 5.1 children has the maximum rate and Europe with 1.45 children has the minimum rate.

Among the ECO member countries, Afghanistan with 6.8 has the highest total fertility rate, while Iranian and Azerbaijani women give birth to only two children[1].



Life Expectancy at Birth

An important population index used for evaluation of development status of the countries and the region is the life expectancy at birth[2]. Life expectancy at birth is the

[1]-2006 world population data sheet, population reference bureau.

[2] -The life expectancy formula is as follows:

$$e_o = \frac{T_x}{l_x}$$

In which T_x is the number of the past or possible years of the life of an individual in the community from a certain age on , and l_x is the number of the survived ones on the same age.

average number of years a person would live from birth to death under the current mortality conditions.

The mean of the world life expectancy for 2006 is 67.2 years. In the ECO member countries Azerbaijan and Turkey with 72 and 71 years respectively have the highest life expectancy at birth. Afghanistan with 42 years has the lowest reported life expectancy at birth[1].

Life expectancy in Iran for the year 2006 was estimated at 72.08 years. That is to say Iran ranked third among the regional countries.

Table 7- ECO Members Life Expectancy at Birth by Sex – 2006

Rank	country	Life Expectancy at birth (year)		
		Both Sexes	Male	Female
	World	67	65	69
	ECO Member Countries			
1	Azerbaijan	72	70	75
2	Turkey	71	69	74
3	**Iran**	**70**	**69**	**72**
4	Kirgizstan	68	64	72
5	Uzbekistan	67	63	70
6	Kazakhstan	66	61	72
7	Tajikistan	64	61	66
8	Pakistan	62	61	63
9	Turkmenistan	62	58	67
10	Afghanistan	42	41	42

Infant Mortality

One of the indexes that to some extent express the health conditions in a country is the infant mortality rate2. It is defined as the number of deaths among infants below one year of age per one thousand births.

Studies show that in 2006, 52 cases in every one thousand births in the first year of age died.

The maximum number of infant mortality was recorded in Afghanistan with 166 per one thousand and the minimum in Azerbaijan with 9 per one thousand[3].

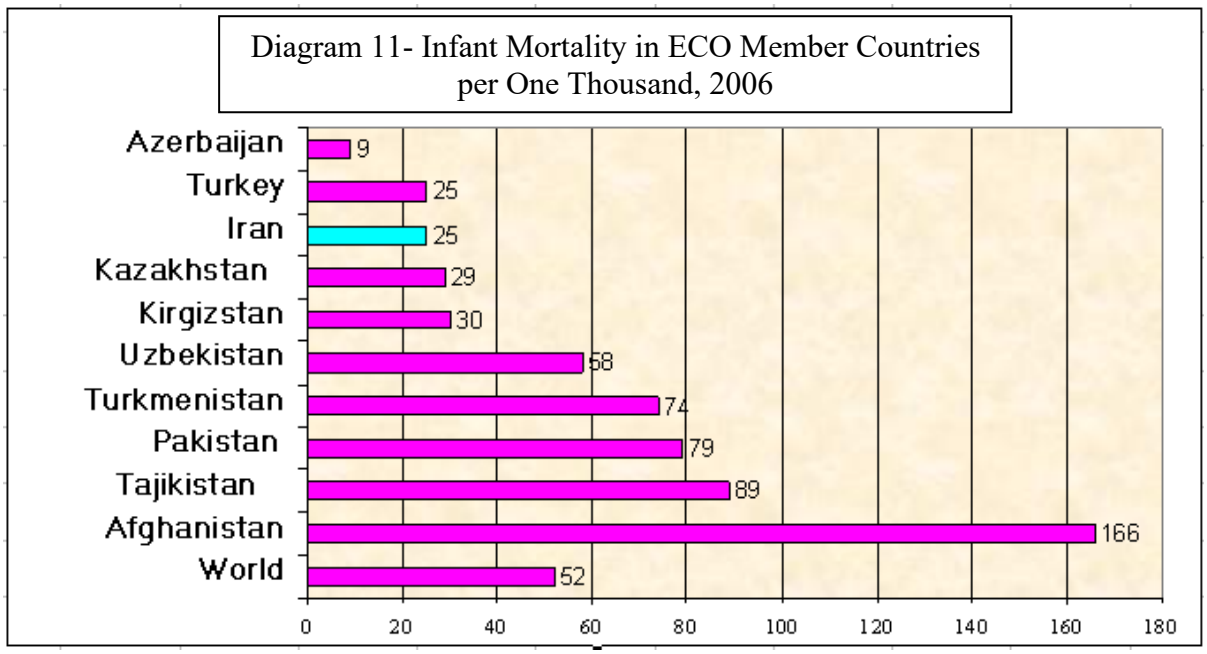
[1] -2006 world population data sheet, population reference bureau.

[2] -It is a major index of development with the following formula:

IMR=(Number of death among infants below 1 year of age in a calendar year / number of live births in the same period) * 1000

[3] -2006 world population data sheet, population reference bureau.

In Iran the rate has been estimated 25 per one thousand for 2006 to put the nation in the second place among regional countries.



Literacy

One of the most significant development indicators is the literacy rate. Expanding education with the goal of training school-age children (6-14 years) to the level of primary and lower secondary education for all, which has increasingly been emphasized nationally and internationally in the recent 50 years, has given new dimensions to the relation between the population and the education. The goal of primary and lower secondary education for all, was put forward at a time when a good proportion of the world countries - Asian, African and Latin American nations - were facing rapid population increase.

Studies show that between the years 2000 and 2004 the literacy rate at the global level for the female 15-24 year old population was 82% while it was 89%1 for the male. Based on the estimation of the UNDP, the world adult literacy rate (age group 15 years and older) in 2004 was reported 81.8%.

The highest adult literacy rate (population 15 years and older) in the region was for Kazakhstan with 100% literate followed by Azerbaijan, Kirgizstan, Turkmenistan and Tajikistan each with 99% literate; and the lowest adult literacy rate was for Afghanistan with 28% literate2. In Iran, according to the 1385 (2006) census of population and

[1] - http://www.prb.org
[2] -The above information is for years 2000 to 2004.

housing, the literacy rate for the population of six years and over was 88.74% for males and 80.34% for females. The rate for urban areas stood at 88.93% and for rural areas at 80.34%. The literacy rate of the adult population (15 years and over) in 1385 (2006) was 87.3% for male and 77.2% for female.

The literacy rate of the 15 year-old population in Iran in 1385 (2006) has been estimated 82% which ranks Iran seventh among ECO member countries.

Table 8- Literacy rate of the 15 year-old and over in ECO member countries- 2006

Rank	Country	Adult Literacy rate (15 years and older)%		
		Total	Male	Female
	World	82	87	77
ECO Member Countries				
1	Kazakhstan	100	100	99
2	Azerbaijan	99	99	98
3	Tajikistan	99	100	99
4	Kirgizstan	99	99	98
5	Turkmenistan	99	99	98
6	Turkey	87	95	94
7	Iran	**82**	**87**	**77**
8	Pakistan	50	63	36
9	Afghanistan	28	43	13
10	Uzbekistan	–	–	–

Urbanism and Ruralism Ratio

Studies show that the urbanism in the world is increasing. The increase in urbanism in recent decades as compared with the past has speeded up. This ratio reached 47.7% in 2005 from 29% in 1950. It is forecast it will reach 59.9% in 2030. Obviously for ruralism the trend is vice versa, as from 71% in 1950 it dropped to 51.3% in 2005. In 2005 the world urbanism ratio was 48.7%.

Table 9- Urbanism and Ruralism Rates in the World from 1950 to 2030 in percentage

Year	Urbanism	Ruralism
1950	29.0	71
1955	30.8	69.2
1960	32.8	67.2
1965	34.7	65.3
1970	35.9	64.1
1975	37.2	62.8
1980	39.1	60.9
1985	41.0	59.0
1990	43.0	57.0
1995	44.8	55.2
2000	46.7	53.3
2005	48.7	51.3
2010	50.8	49.2
2015	52.9	47.1
2020	55.1	44.9
2025	57.5	42.5
2030	59.9	40.1

In ECO member countries the urbanism rate begins with 22% for Afghanistan and ends with 69% for Iran.

Table10- Urbanism Rate in ECO member countries- 2006

Rank	Country	Urbanism Ratio (%)
	World	48
	ECO member Countries	
1	Iran	69
2	Turkey	59
3	Kazakhstan	57
4	Azerbaijan	52
5	Turkmenistan	47
6	Uzbekistan	36
7	Kirgizstan	35
8	Pakistan	34
9	Tajikistan	26
10	Afghanistan	22

It is predicted that during the years 2005 and 2010 the urbanism and ruralism rates at global level will even out – both at 50%. Similar balance happened in Iran 27 years ago.

In 2005, the urbanism rate for Iran was estimated 66.9%1. Based on the 2006 general census of population and housing the urbanism rate was recorded 68.8%. Accordingly Iran ranks first in urbanism in the region.

Table11 and table12 show the country's population changes during the years 1956 and 2006, by urban and rural areas. As table11 shows the urbanism rate in the country during the years 1956 and 2006 was an ascending trend. In the past 50 years the urban areas population has become 8.1 folded, while during the same period the rural areas population got 7.7 folded. The contributing factors were: the accumulation of capital in large cities, lack of job opportunities in rural areas, growth of services activities in urban areas, establishment of industries on the outskirts of the cites, agricultural mechanization, and merge of some suburb urban areas into urban areas or transformation of rural areas into cites.

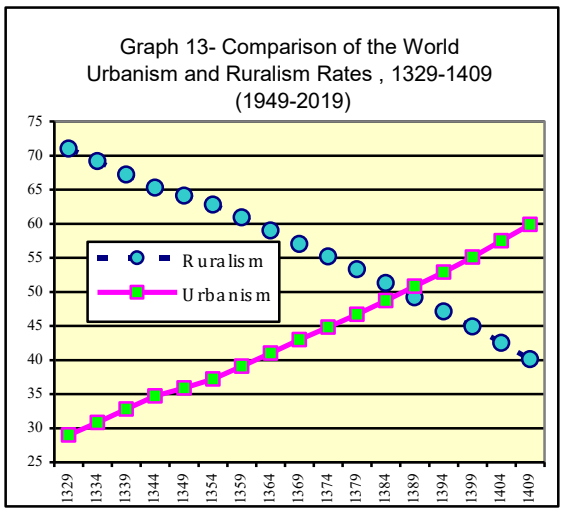
[1] - http://esa.un.org

Table- 11 Country population changes by the urban and rural areas, 1335-85 (1956-2006)

Description	1335	1345	1355	1365	1370	1375	1385
Total Country	18954704	25788722	33708744	49445010	55837163	60055488	70495782
Urban	5953563	9794246	9794246	26844561	31836598	36817789	48259964
Rural	13001141	15994476	15994476	22600449	24000565	23237699	22235818
Urbanism Ratio	31.4	38.0	47.0	54.3	57.0	61.3	68.6

Table 12- Country's Population Average Annual Growth by the Urban and Rural Areas 1335-85 (1956-2006)

Description	35-45	45-55	55-65	65-70	70-75	75-85	Average 50 years period
Total Country	3.13	2/71	3.91	2.50	1.47	1.62	2.66
Urban	5.10	4.93	5.41	4.43	2.95	2.74	4.27
Rural	2.09	1.11	2.27	1.14	-.64	-.44	1.7



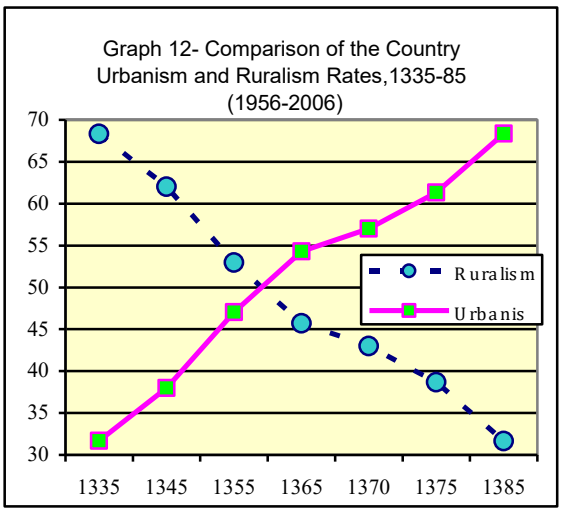


Table 14- A comparison between World and Iranian Demographic Indicators and Iran Ranking in the World and ECO Member Countries, 2006

Description	World	ECO Member Countries	Iran	Iran Ranking in World	Iran Ranking in the ECO Member Countries
Population	6321336000	408500000	70495782	18	3
Area (squer Kilometer)	51789601	7961216	1636000	-	1
Population Density (Person per squer Kilometer)	48	52	43	175	6
Population youthfulness (Warthhom Test)	29		25	-	9
Population Aging	7		5	-	4
Birth Rate (per 1000)	20.9		18	74	2
Mortality Rate (per 1000)	8.6		6	26	1
Population Natural Increase Rate (per 1000)	1.23		1.2	73	8
Total Fertility (Average No. of Child per woman)	2.7		2.0	63	10
Life Expectancy at Birth (Year)	67.2		72.08	68	3
Literacy Rate (%)	85.5		82	-	7
Infant Mortality (per 1000)	52		25	111	2
Urbanism Ratio (%)	48.7		68.8	-	1
Ruralism Ratio (%)	51.3		31.2	-	10

Social and Demographical Indexes of ECO Member Countries ,2006

Index	Country	Population (m)	Area (sq.km)	P0pulation Density (per/km)	Population Projection (m)		Population Ratio in Age Groups		Birth Rate per 1000	Mortality Rate per 1000	Population Natural Increase Rate (%)	Net Migration Rate per 1000	Infant Mortality Rate per 1000	Total Fertility Rate (per woman)	Life Expectancy at Birth (year)			Urban Populatio Ratio (%)	Adult Literacy Ratio15 years and older,%			Youth Literacy Ratio(15-24) (%)		
					Mid year 2025	Mid year 2050	<15	65+							Total	M	F		Total	M	F	Total	M	F
	World	6555	51789601	48	7940	9243	29	7	21	9	1.2	0	52	2.7	67	65	69	48	82	87	77	87	90	84
	ECO Mem	408.5	7911523.0	52	535.3	660.3																		
1	Kazakhsta	15.3	2669800	6	16.0	15.2	27	8	18	10	0.8	1	29	2.2	66	61	72	57	100	100	99	100	100	100
2	**Iran**	70.4	1636000	43	89.0	101.9	25	5	18	6	1.2	-2	25	2	70	69	72	69	82	87	77	97	97	94
3	Pakistan	165.8	778720	213	228.8	295.0	41	4	33	9	2.4	-1	79	4.6	62	61	63	34	50	63	36	65	76	55
4	Turkey	73.7	770760	96	86.0	90.5	29	6	19	6	1.3	0	25	2.2	71	69	74	59	87	95	94	96	98	93
5	Afghanista	31.1	647500	48	50.3	81.9	45	2	48	22	2.6	0	166	6.8	42	41	42	22	28	43	13	34	51	18
6	Tukamanis	5.3	488100	11	6.6	7.4	34	5	25	8	1.6	0	74	2.9	62	58	67	47	99	99	98	100	100	100
7	Uzbakistar	26.2	432162	61	33.0	37.5	35	5	23	7	1.6	-2	58	2.7	67	63	70	36	_	_	_	100	100	100
8	Kerkizasta	5.2	212460	24	6.6	8.2	32	6	21	7	1.4	-5	30	2.6	68	64	72	35	99	99	98	100	100	100
9	Tajikistan	7.0	184050	38	9.3	11.1	32	3	30	8	2.2	-1	89	3.8	64	61	66	26	99	100	99	100	100	100
10	Azarbijan	8.5	91971	92	9.7	11.6	24	7	17	6	1.1	0	9	2	72	70	75	52	99	99	98	100	100	100

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