

# Explaining Income Disparity among the OIC Member Countries



OIC Outlook Series  
February 2012



ORGANISATION OF ISLAMIC COOPERATION  
STATISTICAL, ECONOMIC AND SOCIAL RESEARCH  
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES

OIC Outlook Series

Explaining Income Disparity  
among the OIC Countries

February 2012



---

**SESRIC**

Attar Sokak No: 4, 06700 GOP, Ankara, Turkey  
Tel: +90-312-468 6172 (4 Lines) Fax: +90-312-467 3458  
E-mail: [oicankara@sesric.org](mailto:oicankara@sesric.org) Web: [www.sesric.org](http://www.sesric.org)

---

## Contents

Income Disparity in the World and OIC Countries

Explaining the Disparity among the OIC Countries

Endogenous Factors

Exogenous Factors

Reducing Income Disparity

References

### Income Disparity in the World and OIC Countries

There is a widening income and productivity gap between the rich and poor countries. According to the World Bank statistics, output per worker in the United States was more than 102 times higher than output per worker in Democratic Republic of Congo in 2008. In OIC member countries, output per worker in Qatar was almost 26 times higher than output per worker in Niger. The average worker in the United States produced in just over 3.5 days as much as an average worker in Democratic Republic of Congo produced in an entire year. The value produced by the average worker in Qatar in just 14 days was equal to the value generated by an average worker in Niger in an entire year.

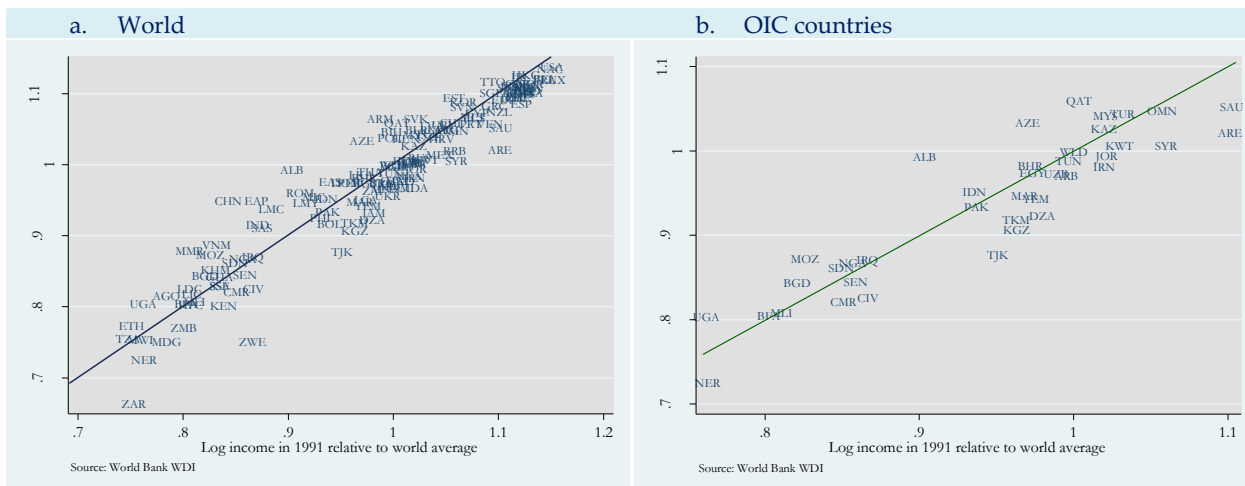
Figure 1 plots output per worker relative to the world average in 2008 against its value in 1991 and draws the 45 degree line for comparison. Countries above the line represent the countries that grew faster than world average. Although some outliers exist including China and Albania as gainers and Zimbabwe and DR Congo as losers, majority of observations are around the 45 degree line, indicating that the world income distribution has been relatively stable and the dispersion of income has not changed much over this period (Figure 1a).

The performance of the OIC countries in narrowing their income gap with the average world income is mixed. Income per worker in Azerbaijan, Kazakhstan, Malaysia and Turkey were already above the world average and these countries further increased their income. In spite of being below the world average, Uganda, Mozambique and Albania are among the countries that shrank the gap with the world average. A significant number of the OIC countries, however, have fallen back in terms of output productivity. Kuwait, Oman, Saudi Arabia, Syria and UAE retain income levels per worker above the world average but during the last two decades their distance with average world income has narrowed down (Figure 1b). Tajikistan, Kyrgyz Republic, Algeria, Iran and Niger are among the other countries that had income below the world average but could not improve their stance over the last two decades.

This preliminary exercise on the world income distribution clarifies that some countries are extremely richer than others and there is not a strong convergence among these countries, at least during the last two decades. This raises the questions of why there are such large differences in income across countries and why they are not converging. Explaining such huge differences in economic activities is

one of the major challenges of economics. Various theoretical models are developed and empirical studies are conducted to understand the factors leading to income divergence. As a result, differences among countries are generally attributed to differences in wide range of factors including human capital, physical capital, and productivity.

**Figure 1: Income Distribution in the World and OIC Countries**



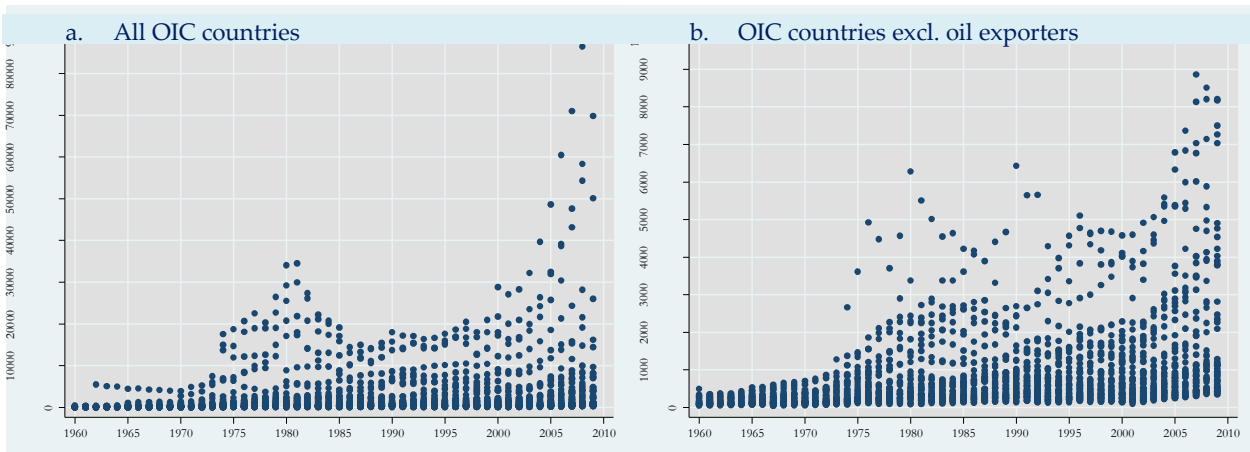
This report focuses on the case of OIC countries and tries to encompass the major determinants of income disparity among the OIC member countries. In so doing, the simple association between income growth and main determinants of growth is investigated. In line with the outcomes of this investigation, some recommendations are listed at the end of the report.

### Explaining the Disparity in OIC Countries

The distribution of income in the OIC member countries between 1960 and 2009 is depicted in Figure 2. It can be clearly observed that the disparity between the OIC member countries has been widening since 1975 (Figure 2a), but the real surge in disparity started after 2000, where some countries got extremely rich compared to others. Some of the increase in wealth can be attributed to increase in commodity prices, especially oil and gas. Dropping the major commodity exporting countries, Figure 2b still reveals that there is a widening of income disparity in the OIC member countries, starting around 1975 and accelerating after 2000. Identifying the exact factors to explain the broadening disparity in income levels among the countries is not an easy work. Factors ranging from good governance to geography, from human capital accumulation to natural resource abundance may have significant impact on the economic growth of countries.

In search of dynamics to explain growth differences among countries, theoretical literature broadly concentrated on several important variables including investment, technology and human capital. Alternative specifications have been used in empirical literature to test the significance of various elements. These variables include initial income, investment, schooling, openness, macroeconomic stability (measured commonly by inflation), financial depth, institutional quality, ethnic diversity, climate, geography, rule of law and some other variables.

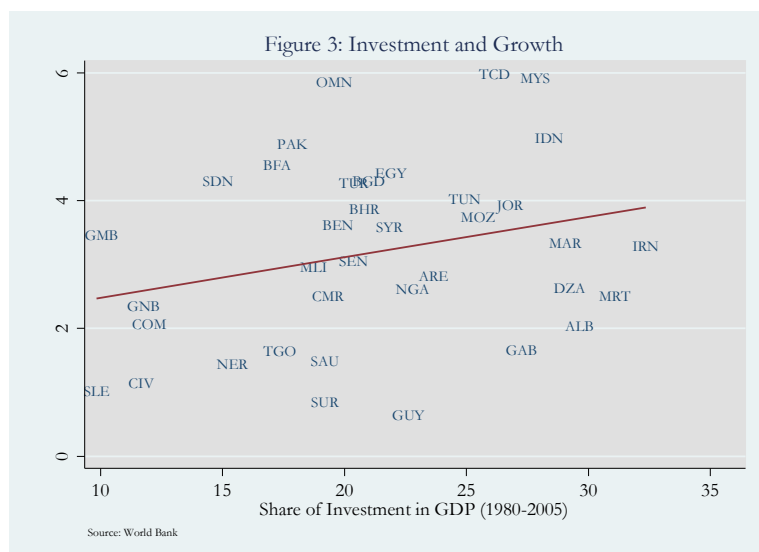
**Figure 2: Income Disparity in the OIC Countries**



In explaining the growth differences among the OIC member countries, the quantitative analyses are avoided to keep the report plain for general readers. Instead, we categorize the major factors that are used in the related literature in explaining the income differences into two groups and then study the relationship between particular variables and income over a certain period of time. These variables fall into groups of endogenous (controllable by policy-makers) and exogenous (uncontrollable) factors. Specifically, we investigate the relationship of income growth with investment, schooling, macroeconomic stability, institutional quality and openness under the category of endogenous factors. There are exogenous factors that cannot be controlled by policy-makers and these factors may have provided certain advantages in development for some countries, but can be a source of misfortune for other countries. Under this category, we consider geography and climate, natural resources, colonization and ethnic diversity.

### Endogenous Factors

**Investment:** Economic theory considers the investment rate as one of the key determinants of economic growth. Countries that grow quickly are the countries that invest a substantial portion of their GDP. Figure 3 proves this proposition in the case of OIC countries. The average investment rates in the OIC countries over the period 1980 to 2005 are commonly high compared to the averages in developed countries and an increase in investment rate is



positively associated with growth in income. Indonesia, Malaysia and Chad are the countries with high investment and growth rates. Low investment rates in Sierra Leone, Cote D'Ivoire and Niger

apparently weakened the growth process in these countries. Despite having rates of investment over 20 per cent, Gabon and Guyana could not grow over 2 per cent during the period under consideration. For these countries, necessary conditions to transform investments into higher productivity appear to be missing.

**Schooling:** Another important determinant of the growth is human capital and development in human capital is generally captured by level of schooling. Importance of schooling comes from its impact on productivity growth. Figure 4 shows the relationship between average years of schooling in 2005 and average productivity growth between 2005 and 2009. A slightly positive relationship can be observed between average years of schooling

and productivity growth. On average, one year increase in average schooling is associated with 0.1% increase in productivity, though this is a relatively poor improvement. It is clear that labour productivity backwardness and low school enrolment rate in higher education is closely correlated. Turkmenistan and Uzbekistan are among the top countries that attained high growth in productivity due to high level of schooling. Cote D'Ivoire and Yemen are among the worst performers with respect to human capital development and productivity growth.

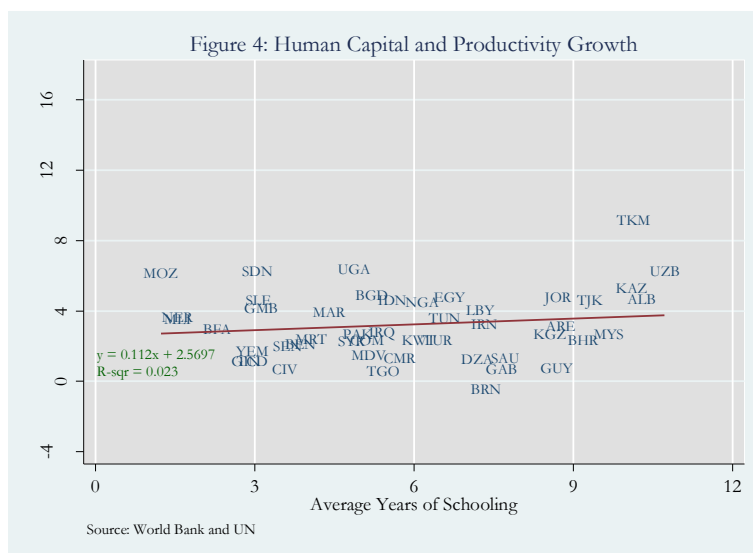
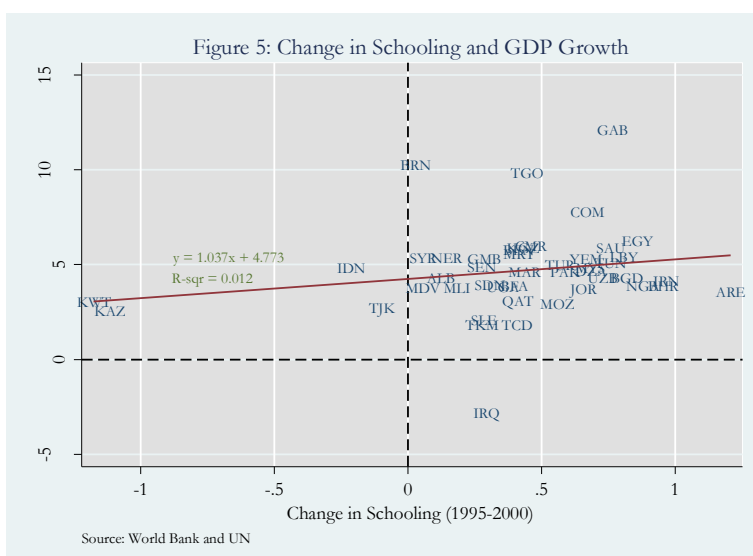


Figure 5 compares the change in schooling between 1995 and 2000 with change in income between 2000 and 2005. Except few countries, increase in schooling is associated with an increase in GDP growth and this impact is particularly strong in low income countries including Gabon, Togo and Comoros. On the other hand, Kazakhstan and Kuwait attained positive growth rates despite the reduction in average schooling over 1 year, which can be explained by resource windfalls in these countries.

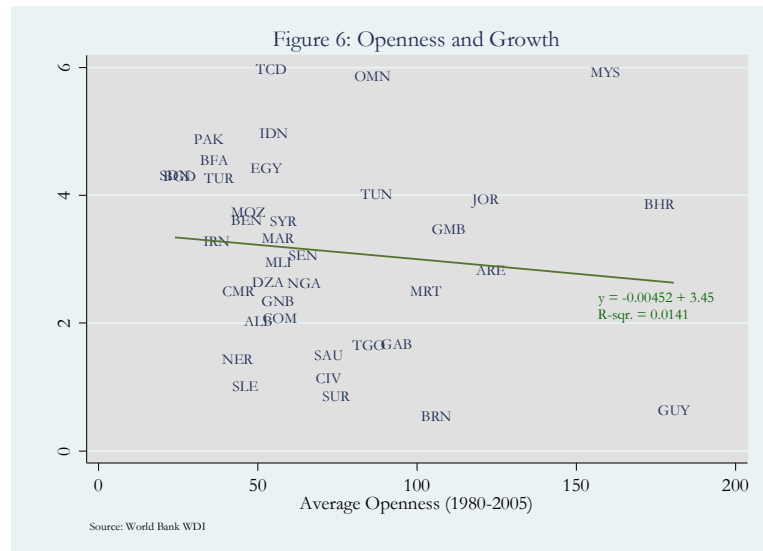
Overall, human capital development is an important component of economic development; therefore, further efforts are needed to promote participation and quality in education systems.

**Openness:** There is hardly any disagreement that trade liberalization is associated with better economic performance. Sachs and Warner (1995) found that open economies experienced annual



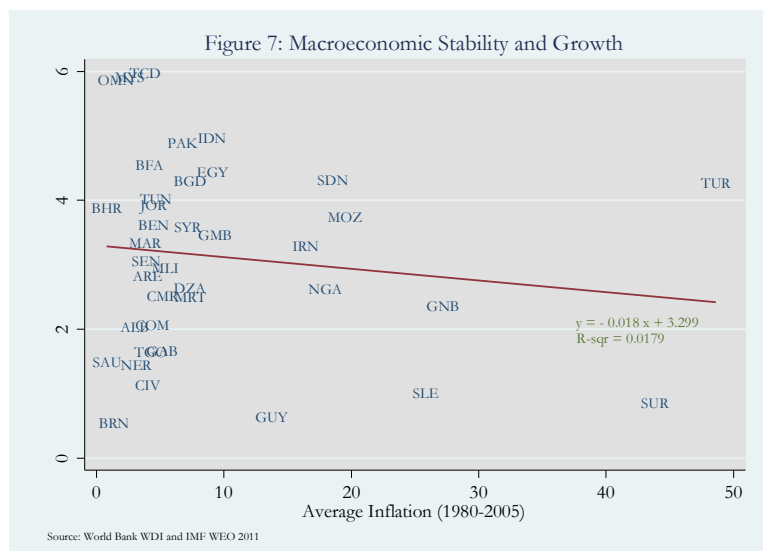
growth rates 2% more than closed economies in the period 1970-1989. Using geographic variables as an instrument for openness, for instance, Frankel and Romer (1999) estimated that a 1% increase in the trade to GDP ratio causes almost a 2% increase in the level of per capita income.

The most basic measure of trade openness is the ratio of exports plus imports to GDP. In OIC member countries, greater openness does not seem to support growth (Figure 6). 100 per cent change in openness is associated with only 0.4 per cent change in growth. Therefore, in explaining income disparity in OIC countries, openness to foreign trade appears to be a relatively insignificant factor. Further analyses with alternative measures of openness may be needed to deepen the discussion on the association of openness and growth.



**Macroeconomic Stability:** A stable macroeconomic framework is necessary but not sufficient for sustainable economic development. The macroeconomic framework can be described as stable when inflation is low and predictable, real interest rates are appropriate, fiscal policy is stable and sustainable, and the balance of payments situation is perceived as viable. Nonetheless, inflation rate is the most commonly used indicator of macroeconomic stability. It is usually found that growth is negatively related with inflation and positively related with good fiscal performance (Fischer, 1993).

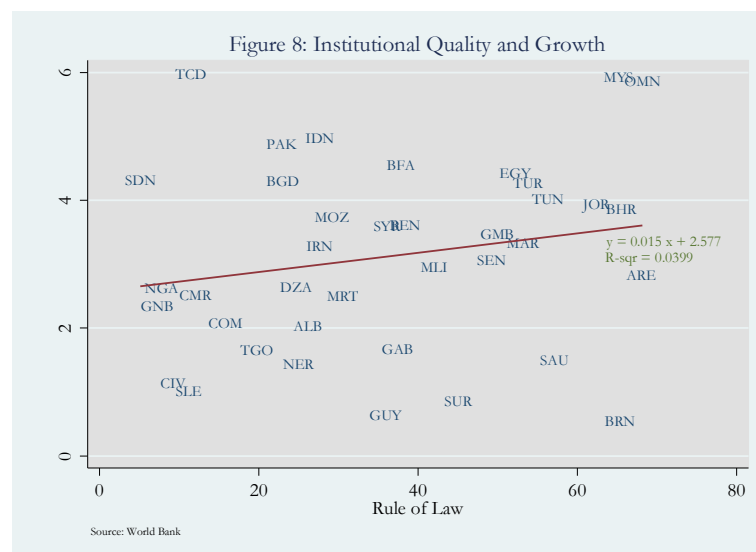
In the case of OIC countries, higher macroeconomic stability measured by inflation is associated with higher growth rates (Figure 7). Turkey emerges as an exception to this rule as it reached to average growth rate over 4 per cent despite an average inflation rate of almost 50 per cent. Some other countries including Benin, Niger, Saudi Arabia and Cote D'Ivoire could grow below 2 per cent despite average inflation rates below 5 per cent. Macroeconomic stability alone is not sufficient to explain growth differences among OIC member countries, but provides important insights on overall income discrepancies.



**Institutional Quality:** In explaining the causes of the large differences in income per capita across countries, differences in institutions and property rights have received considerable attention in

recent years. Countries with better institutions and more secure property rights will invest more in physical and human capital, and will use these factors more efficiently to achieve a greater level of income (Acemoglu et al. 2001).

Figure 8 shows the relationship between average economic growth and rule of law as an indicator of institutional quality and good governance. It is evident that countries with better governance on average have grown faster than other countries. Malaysia and Oman are among the top performers with respect to institutional quality and income generation. Low growth rates in Cote D'Ivoire and Sierra Leone can be explained by poor institutional quality in these countries.

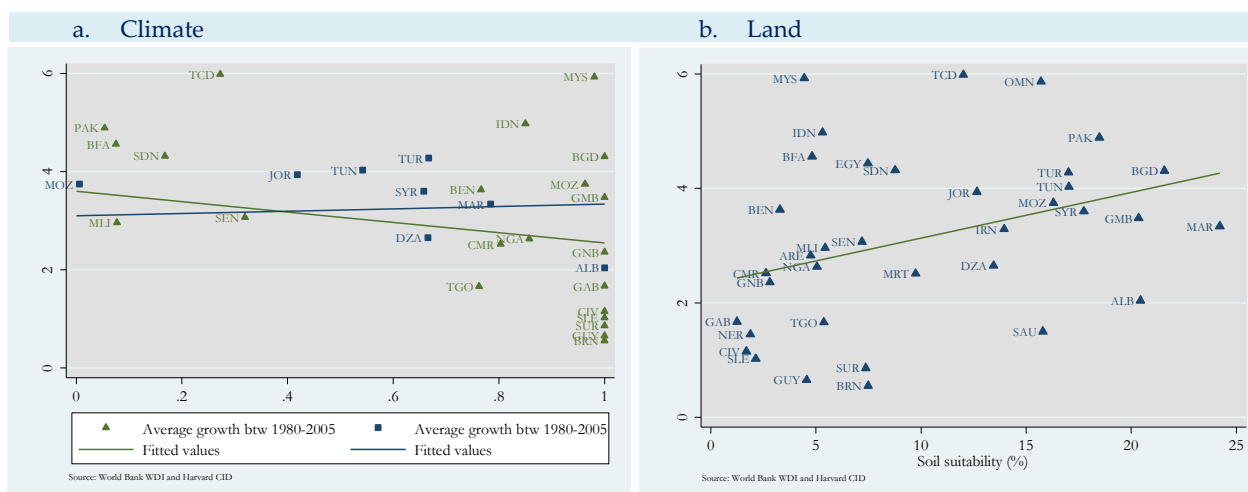


## Exogenous Factors

**Geography:** It is well-established that a country's geography may directly affect economic development through its effect on disease burden, agricultural productivity, and the availability of natural resources. Geography can also indirectly affect economic development through its influence on institutional quality (Rodrik et al., 2004; Gallup et al., 1999) or by determining a country's transport costs (Limao and Venables, 2001) and market access (Bosker and Garretsen, 2009). There is also a strong empirical relationship between ecological zones and per capita income. Economies in tropical ecozones are almost all poor, while those in temperate ecozones are generally rich. Tropical and landlocked regions, such as Chad, Niger, Mali, Burkina Faso, Uganda and some other non-OIC countries including Bolivia, Rwanda, Zimbabwe, Laos are among the very poorest in the world. Sachs (2001) explains the gap in incomes between the temperate and tropical regions by means of the lagged technologies in the critical areas of agriculture and health and the ability to mobilize energy resources in tropical zones. This initial gap was then amplified through economic, demographic and political-military forces.

Being located in tropic and subtropical regions compared to temperate zones has important implications for growth (Figure 9a). Countries with higher share of population living in tropic and subtropical regions (shown with triangle symbol in the Figure) have grown lesser, while countries with higher share of population living in temperate zones (shown with square symbol in the Figure) have grown faster. The suitability of soil is also strongly correlated with growth rates (Figure 9b). Countries with very suitable soil have grown on average faster than other countries. The low income OIC countries including Sierra Leone, Cote D'Ivoire, Niger and Gabon have generally unsuitable soil and this fact potentially explains an important part of the income disparity among the OIC member countries.



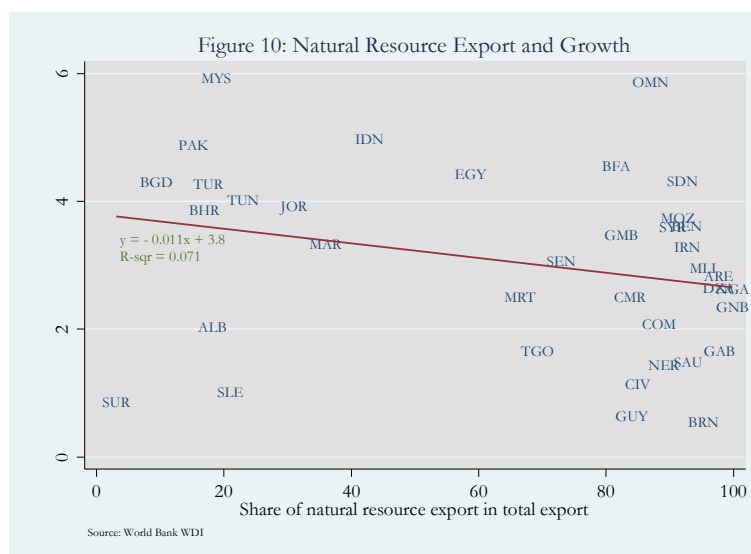
**Figure 9: Impact of Geography on Growth**

**Natural Resources:** Despite the importance of natural resources for development, findings indicate that increasing economic dependence on natural resources can be a hindrance to growth and development in the majority of developing countries. Recent empirical research shows that resource-abundant countries have experienced growth rates that are lower than resource-poor countries during the last four decades. Dutch disease, rent seeking and neglect of education are regarded as main factors hampering economic development in resource-abundant countries. However, weak average performance does not necessarily indicate that all resource-abundant countries failed to foster economic growth. In contrast, resource-abundant countries constitute some of the richest and some of the poorest countries in the world.<sup>1</sup> Instead of cursing natural resources, it is vital to identify the dimensions along which these countries differ.

Role of institutions play once again a major role in managing resource windfalls. As shown by Acemoglu et al. (2001, 2002), the countries with the best quality of institutions were industrialized first. Therefore, these countries had quality institutions in place that prevented the negative growth effects of resources, while those that used their resources at a later stage did not have such institutions in place (Torvik, 2009). Emergence of entities managing resource windfalls before developing strong institutions to regulate them and manage the money they generate paved the way for inefficiency and corruption. In the presence of better protection of property rights and little corruption, more natural resources provide private agents with productive investment opportunities, in turn creating positive externalities for other agents and contribute to growth. On the other hand, with poor protection of property rights and much corruption, more natural resources may hinder growth through stimulating predation, rent-seeking, and other destructive and/or non-productive activities (Mehlum et al., 2006).

<sup>1</sup> Consider Botswana and Sierra Leone, two major diamond exporters. Botswana has managed to use the rent stream from diamond export in a way to generate impressive welfare and maintain sustainable development since its independence. Sierra Leone, on the other hand, has remained stuck in poverty and shrunken into internal conflicts to have control over the diamond trade.

Figure 10 shows the correlation between resource exports as a share of total exports for OIC countries and their average GDP growth between 1980 and 2005. Resource exports are composed by the sum of fuel, mineral ore and metals, food and agricultural shares in total exports and obtained from WDI. The regression line shows that on average there is a negative correlation between resource abundance and economic growth. It is apparent that



countries with abundant natural resources on average tend to perform worse than countries with fewer natural resources in terms of economic growth.

**Colonization:** Civilizations in Mesoamerica, the Andes, India, and Southeast Asia were richer than those located in North America, Australia, New Zealand, or the southern cone of Latin America. The intervention of Europe reversed this pattern (Acemoglu et al. 2002). Colonization has strongly supported the countries that were able to take-off, but the colonized territories were left underdeveloped over centuries. The economic consequences of colonization for the colonized regions were substantial. Paths of economic development in African countries have been remarkably divergent since European colonization.

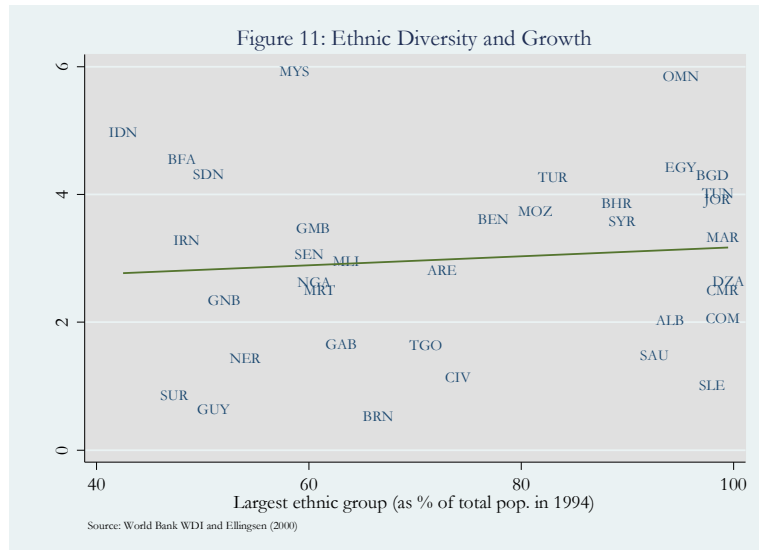
The theories about the colonial origins of economic development emphasize the institutional impacts of settlers. When Europeans encountered natural resources with lucrative international markets and did not find the lands, climate, and disease environment suitable for large-scale settlement, they tended to create authoritarian political institutions to extract and exploit natural resources, such as in Congo, Tanzania and Malawi. On the other hand, when Europeans failed to find extractable minerals and cash crops with large international markets or found lands and endowments, including a tolerable disease environment, suitable for smaller scale agriculture, they tended to settle and formed more democratic political institutions, such as in United States, Australia, and New Zealand (Acemoglu et al. 2001). On average, democratic political institutions were more supportive of long-run economic development than authoritative political regimes.

As depicted in Figures 9a and 9b, colonized members of OIC in Africa have generally unsuitable land and climate. In line with above proposition, settlers have left behind only a poor institutional structure after extracting the resources (Figure 8). While other countries have grown faster, with much of their resources extracted and institutions remained poor, these countries left underdeveloped for centuries. This fact explains some of the growth differences between colonized and non-colonized member countries.

**Ethnic Diversity:** The effects of ethnic heterogeneity on economic development can be substantial. There is a growing body of literature showing that cross country differences in ethnic diversity can explain a substantial part of the cross-country differences in public policies, political instability, and other economic factors associated with long-run growth (Easterly and Levine, 1997) and a high level

of ethno-linguistic diversity implies a lower level of investment (Mauro, 1995). Ethnic diversity may increase polarization and thereby impede agreement about the provision of public goods and create positive incentives for growth-reducing policies that create rents for the groups in power at the expense of society at large.

In order to analyse the impact of ethnic diversity on growth in OIC countries, the share of largest ethnic group in total population<sup>2</sup> is regarded as a measure of ethnic fragmentation. As depicted in Figure 11, the share of largest ethnic group in total population is positively correlated with average growth rates. This implies that low ethnic fragmentation increases the probability to attain high growth rates. The impact of ethnic diversity on average growth is, however, not particularly strong.



This leads to argue that exogenously determined ethnic fragmentation has not severe consequences for economic growth and negative outcomes can be avoided if further supported by public policies and political stability. Malaysia and Indonesia are the two major countries with significant ethnic fragmentation that attained high growth rates.

### Reducing Income Disparity

This report investigates the empirical relationship between economic growth and a wide array of factors using data over 25 years in search of income disparity among the OIC member countries. We consider standard variables such as investment, schooling, macroeconomic stability, openness, quality of institutions, natural resources, geography, colonization, and ethnic diversity. It is found that high investment rates, high school attainment, better institutions and better macroeconomic stability are significantly correlated with higher economic growth. Higher openness does not necessarily related with better economic performance. Apart from endogenous factors, being located in tropical zones, having unsuitable soils, exporting large share of natural resources, being colonized and hosting significant ethnic fragmentation in general deteriorated growth and development in the member countries. All these variables potentially account for bulk of the growth differential between the OIC member countries.

It is evident that the income disparity between the countries has many dimensions. In this respect, policies should be developed to improve the impacts of endogenous factors, such as investment and schooling, and to manage the diverse impacts of exogenous factors, such as geography and climate. Given the above analysis, some of the major recommendations can be listed as below:

<sup>2</sup> Data is obtained from Ellingsen (2000).

- As investment plays a major role in economic development, the share of investment in GDP should remain high and resources for investment must be properly and efficiently distributed between promising sectors and industries.
- Investment in human capital is vital for long-run growth. Accessibility and quality of education must be warranted for all people. Skills and competencies must be developed in a way to ease the absorption and utilization of the knowledge developed elsewhere, especially in the areas where countries have potential comparative advantage.
- Macroeconomic stability promotes investment and growth by increasing predictability and confidence. Macroeconomic policies must be prudently adopted and implemented and excessive fluctuations in prices, exchange rates, interest rates must be avoided.
- Openness to foreign trade appears to be not necessarily growth-inducing. A potential explanation would be the large share of natural resource exports in trade, which is found to be negatively correlated with growth. Importance of openness is well acknowledged in theoretical and empirical studies using larger datasets. It is, therefore, important to strive not only for higher trade but also for better competitiveness and productivity in tradable goods and services.
- Countries with better institutions and governance grow faster. Therefore, special efforts should be made to improve the quality of institutions. Aside from the status of institutions in own-country, the institutional quality in neighbouring countries is also important for a country's economic development (Bosker and Garretsen, 2009). Specifically, low institutional quality in neighbouring countries may increase the chance of armed conflict, political turmoil and refugee flows. It also deters trade not only with these neighbours, but also with other countries. Since majority of OIC member countries have borders with other member countries, it seems important to promote institutional quality at OIC level to stimulate growth and prosperity in the OIC countries.
- Natural resource intensity may under certain conditions dampen incentives to save and invest and thereby reduce economic growth. In order to avoid the curse of natural resource abundance, institutions must be in place to manage resource windfalls efficiently. Weakly performing countries must carefully analyse the dimensions along which they differ from other resource abundant countries with respect to growth and development.
- Ethnic fragmentation may hinder economic growth if public policies extensively support particular groups in favour of others. Although the impact is not severe, higher ethnic diversity in OIC countries is associated with lower economic growth, but to mitigate this impact, policies should be developed to warrant economic and political participation of all groups and political stability must be ensured.

What is more, Hall and Jones (1999) explain the income differences by so-called 'social infrastructure', that is, the institutions and government policies that determine the economic environment within which individuals accumulate skills and firms accumulate capital and produce output. Accordingly, a favourable social infrastructure provides an environment that supports productive activities and encourages capital accumulation, skill acquisition, invention, and technology transfer. Developing a favourable social infrastructure must be a priority to narrow income disparity and foster economic growth and development in OIC countries.

## References

- Acemoglu, D., S. Johnson and J. Robinson (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, Vol. 91, pp. 1369-1401.
- Acemoglu, D., S. Johnson and J. Robinson (2002), "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *The Quarterly Journal of Economics*, Vol. 117, No. 4, pp. 1231-1294
- Bosker, M. and H. Garretsen (2009), "Economic Development and the Geography of Institutions," *Journal of Economic Geography*, Vol. 9, pp. 295-328.
- Easterly, B. and R. Levine (1997), "Africa's Growth Tragedy: Policies and Ethnic Divisions", *Quarterly Journal of Economics* 12 (4), 1203-1250.
- Ellingsen, T. (2000), "Colorful Community or Ethnic Witches' Brew? Multiethnicity and Domestic Conflict during and after the Cold War", *Journal of Conflict Resolution* 44(2): 228-249.
- Fischer, S. (1993), "The Role of Macroeconomic Factors in Growth," *Journal of Monetary Economics*, Vol. 32, pp. 485-512.
- Frankel, J. A. and D. Romer (1999), "Does Trade Cause Growth?" *American Economic Review* 89, 379-399.
- Gallup, J.L., J.D. Sachs and A.D. Mellinger (1999), "Geography and Economic Development," *International Regional Science Review*, Vol. 22, pp.179-232.
- Hall, R. E. and C. I. Jones (1999), "Why do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114, 83-116.
- Limao, N. and A. Venables (2001), "Infrastructure, Geographical Disadvantage, Transport Costs, and Trade," *The World Bank Economic Review*, Vol. 15, pp. 451-479.
- Mauro, P. (1995), "Corruption and Growth", *Quarterly Journal of Economics* CX, 681- 712.
- Mehlum, H., K. Moene and R. Torvik (2006), "Institutions and the Resource Curse", *The Economic Journal*, 116, 1-20.
- Rodrik, D., A. Subramanian and F. Trebbi (2004), "Institutions Rule: The Primacy of Institutions and Integration in Economic Development," *Journal of Economic Growth*, Vol. 9, pp.131-165.
- Sachs, J. D. and A. Warner (1995), "Economic Reform and the Process of Global Integration", *Brookings Papers on Economic Activity* No. 1, 1-118.
- Sachs, J. D. (2001), "Tropical Underdevelopment", *NBER Working Paper* No. 8119.
- Torvik, R. (2009), "Why do Some Resource-Abundant Countries Succeed while Others do not?" *Oxford Review of Economic Policy*, Vol. 25(2), pp.241-256.







---

## SESRIC

Attar Sokak No: 4, 06700 GOP, Ankara, Turkey  
Tel: +90-312-468 6172 (4 Lines) Fax: +90-312-467 3458  
E-mail: [oicankara@sesric.org](mailto:oicankara@sesric.org) Web: [www.sesric.org](http://www.sesric.org)

---