

# *Reviving Growth in the Arab World*

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## **Abstract**

Why has growth in the Arab world been so disappointing? Stagnating since 1985, the little growth that does exist is volatile and unstable, and the region has lagged behind both the gains of other developing countries and the region's own pre-1985 performance. This paper attempts to encourage the revitalization of growth in the Arab world by addressing the following two questions: why has growth been so low, specifically in comparison to the high-performers of East Asia, and why has it been so erratic and unstable. I estimate two growth models of the determinants of long-term growth and the persistence of growth, using global panel data drawn from more than 70 countries. I conclude by describing two strategies and one development constraint important in explaining the growth process specific to the Arab world.

JEL classification:

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*“Employment creating and poverty-reducing growth must be one of the overarching objectives of human development policies in Arab countries.”*

*(Arab Human Development Report 2002: p. 99)*

## 1. Introduction

As the above highly influential report suggests, revitalizing growth in the Arab world<sup>1</sup> is critical for dealing with the economic and social crisis of unemployment, which constitutes the greatest threat facing virtually all the economies of the region<sup>2</sup>. Moreover, the slow growth in the Arab world since the second half of the 1980s has also started to threaten social development gains achieved during the earlier high growth period (World Bank, 2003). In 1985-94 GDP per capita in the median Arab country grew by a meager 1.1 percent per annum. Moreover, despite a hesitant recovery in subsequent years, the region's per capita growth rates are still significantly lower than the stellar growth performance achieved in the previous twenty five years (1960-84) when average growth was close to 2.5% and was only behind East Asia which grew by more than 4%.

During their extended high-growth episode (1960-84) the Arab countries effectively exploited their economic success by achieving considerable gains in the area of human development. The increase in wealth was distributed throughout the society, leading to an increase of 100% in average years of schooling between 1960-84 and 1985-1998. Similarly, life expectancy increased by an impressive 10 years. Average income per capita in 1985 at (5,300 in ppp \$) was almost five times the income level of 1960. An earlier World Bank report on the Middle East and North Africa

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<sup>1</sup> The Arab world is made up of the twenty two Arabic-speaking member countries of the League of the Arab States (LAS). Since its inception in 1945, the LAS has been mainly a political grouping of countries with common cultural and historical heritage, but economic integration has also been high in the agenda, enjoying considerable popular support, despite the failure of the League to develop the region into a viable economic grouping (for an analysis of the problems and prospects of Arab economic integration, see Galal and Hoekman, 2003).

<sup>2</sup> For example, in recognition of the seriousness of this phenomenon in the Middle East and North Africa Region, which includes most of the Arab countries, the World Bank issued a recent report analyzing the role of the labor market in the region's development prospects (World Bank, 2003).

region (MENA<sup>3</sup>) observes that “during 1960-85 the MENA region outperformed all other regions except East Asia in income growth and the equality of income distribution...” (1995: pp. 2-3). The report also credits the region’s governments for effectively reducing poverty, “by 1990 only 5.6% of the population in MENA lived on less than \$1 a day---the global benchmark for absolute poverty--- compared with 14.7% in East Asia and 28.8% in Latin America.”

However, unlike East Asia which managed a remarkably quick recovery from the 1996 financial crisis, growth was not sustained in the Arab world following 1985 the year in which the price of oil, the driving force of the region’s growth, slumped. In fact, in many countries of the region, growth has not only slowed down but has essentially collapsed. Recent evidence from Ali and Elbadawi (2002a) and Fergany (2000) suggests that poverty in the Arab world has actually increased; and in some of the most populous countries like Egypt, Morocco, and especially Algeria and Sudan, the depth and spread of poverty are extensive. Moreover, the collapse of growth prevented the region from exploiting its “demographic gift” of an expanding pool of educated labor. Instead, the region is faced with a serious unemployment crisis, only partially addressed by an expanding informal market which, because of its low productivity, and therefore, low income-generating capacity, is a symptom of a distorted economy, rather than a window of opportunity for addressing poverty and unemployment in the region (Ali and Elbadawi, 2002b).

It is not surprising, therefore, that restoring growth has emerged as the top development agenda for the Arab region (e.g. UNDP, 2002; World Bank, 1995, 2003; Dhonte, Bhattacharya and Yousef, 2000; Makdisi, Fattach and Limam, 2000). However, properly addressing growth in the Arab world requires consideration of the diversity of the region. In fact, despite their common cultural and historical heritage, Arab countries have very diverse characteristics in such key areas as the structures of the economies, level of development, geographic location, and type of governance and institutions. To highlight the economic diversity of the region, we follow ERF (1998) and group its

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<sup>3</sup> The Bank’s definition of the MENA region does not include the four Arab countries of Sudan, Mauritania, Somalia and Comoros.

countries into four broad categories<sup>4</sup>: mixed oil Arab economies (MOAE: Algeria); Oil Arab Economies (OAE), which includes, in addition to Libya, the six countries of the Gulf Cooperation Council of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE; diversified Arab economies (DAE: Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia); and, primary export Arab economies (PEAE: Comoros, Djibouti, Mauritania, Sudan, and Yemen)<sup>5</sup>.

This paper attempts to contribute to the debate about growth in the Arab world by asking two pivotal questions: first, why has growth in the Arab world stagnated, especially relative to the East Asian frontier; and second, aside from the over-dependence on the hydrocarbon sector, what else can explain the collapse of growth in the Arab world in the post 1985 period? I address these questions by analyzing evidence on the determinants of the rate of long-term GDP per capita growth as well as the factors influencing the persistence of growth, in a global sample of countries over 1965-2000. Section two provides preliminary analysis of growth in the Arab world, focusing on growth episodes and potential growth determinants in the Arab world. Section three discusses the estimation results of two empirical growth models, one on the determinants of long-term growth and the other on the persistence of growth before and after 1985. In Section four I use the estimated models to analyze the disappointing performance of the Arab world, in growth levels when compared to the Asian frontier and in terms of persistence of growth before and after 1985. Given the diversity of the Arab world, the empirical models will be simulated for the various groupings within the region. Section five concludes.

## **2. The Story of Growth in the Arab World**

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<sup>4</sup> For lack of adequate data, Iraq, Palestinian territories and Somalia are not considered.

<sup>5</sup> The 1996 distribution of population and GDP over these categories was such that DAE accounted for 48% of the population and 28% of GDP; MOAE's shares in population and GDP were, respectively, 21 and 24%; PEAE's population share was 20% while its share of GDP was only 3% in contrast to that of OAE with a population share of only 11% and a GDP share of 46%. These groupings also differ considerably in terms of the structure of their economies; for example, while agriculture dominates the PEAE (24% of GDP), extractive industry contributes a fairly high share in OAE and MOAE (35 and 27% respectively) while agriculture and manufacturing have a balanced share in DAE (16 and 12% respectively).

The Arab world has experienced three growth episodes during the 40 years since 1960: 1960-84, 1985-94, 1995-2000 (Table 1). In the first period per capita GDP grew at an annual average rate of 2.5% in the median Arab country, including spectacular growth in some oil producing economies. However, following the collapse of oil prices in the early 1980s, per capita growth in the Arab world declined to about 1%. While growth in the Arab world collapsed between the first two periods, the East Asian countries were able to maintain and improve their stellar growth performance throughout, with median growth rates of 4.3 and 5.2% in the first and second periods, respectively. More recently, however, the Arab world appears to be on the verge of a hesitant recovery since the second half of the 1990s, while East Asian growth dropped by 50% as a result of recent regional financial crises.

The 1985-94 period has also been a volatile one for the Arab world, where growth volatility (measured by the ratio of the standard deviation of growth over the absolute value of its mean) reached 3.9%, almost double the average volatility for the first period. Instead, an already very low growth volatility in East Asia declined from 0.6% to 0.3%. However, in the third period, which witnessed the 1996 Asian crisis, Asian growth volatility has risen considerably to more than 2%, comparable to African growth volatility. Instead, growth volatility in the Arab world declined to 1%.

Finally, it is important to note that despite the above broad growth patterns that characterize the Arab world overall, there are some important country differences reflecting the diversity of the region. The depth of the swings between the two periods, both in terms of growth levels and volatility, has varied between groupings (most notably between OAE and others) as well as within each of them.

## ***2.i Traditional Growth Fundamentals:***

Modern growth literature, along with development experiences in the field, suggests that high growth is associated with certain broad fundamentals: effective institutions for protection of property rights, stable macroeconomic environment, adequate human capital, structural policies for promoting more open economies and efficient and lean government. In addition, the “conditional convergence” or “catch-up” hypothesis maintains that, *ceteris paribus*, poor countries should grow faster than richer ones because of the decreasing productivity of capital with higher capital intensity and higher income<sup>6</sup>.

Convergence Effects: consistent with the significant progress at the social and human capital fronts, per capita income in the Arab world has also risen considerably over time (Table 2). This could be directly related to the steady growth achieved by many countries in the region throughout the first period. However, except for the high income oil economies, income in the rest of the Arab world (especially in the diversified and the primary exporting Arab economies) is still much lower than the median income for East Asia.

Human capital: the growth literature suggests that human capital can promote growth through different channels. For example, education determines the rate of technological innovation or absorption as well as exerts a countervailing effect on the diminishing returns to cumulable factors of production, such as capital. Moreover, good health directly raises labor productivity. As Table 2 suggests, the Arab world has made considerable progress between 1960-84 and 1985-2000 most notably with regard to women’s education. Moreover, except for the poor primary exporting Arab countries (PEAE), the human development indicators for the Arab world during the latter period are at par with those of the East Asian countries.

Institutions: The measure of institutional environment used in this paper is the International Country Risk Guide (ICRG), which is a comprehensive index based on political,

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<sup>6</sup> For a recent comprehensive review of the empirical growth literature, see the edited book by Loayza and Soto (2002) and papers therein. Also see a review by Ali (2001b) of evidence on the most robust determinants of cross-country growth and their likely impact on the sustainability of growth in the Arab states.

economic, and financial indicators. According to this index the Arab world has managed to steadily improve the quality of economic institutions since the mid 1990s where it significantly narrowed the gap with East Asia and maintained a significant edge relative to SSA (Figure 1.a). In a scale of 40-85, the ICRG score for the Arab world increased from about 50 in the early 1990s to 70 by 2000, compared to 75 for East Asia in the same year. Consistent with this evidence, Ali (2001a: Table 13) analyzes five ICRG components of risk for 15 Arab countries between 1985 and 1997 and finds that almost all of the Arab countries improved their ratings in the two indicators of risk of “Government Repudiation” and “Expropriation”, yet still remained low with regards to the three remaining indicators of “Corruption”, “Rule of Law”, and “Quality of Bureaucracy”. However, reflecting the diversity that characterizes different groups of Arab economies, the overall improvements in institutions across the Arab world were apparently driven by the countries belonging to the two groups of oil and diversified Arab economies (Figure 1.b). Instead, the quality of institutions remains low in Algeria (mixed oil Arab economy) and especially in the primary export Arab economies. In fact, in the 1995-2000 period both groups continue to lag behind all other comparators, including Sub-Saharan Africa.

**Structural Macroeconomic Policies:** Like institutions, policies that influence the structure of the economy, such as the degree of openness of the economy and government burden, affect long term growth. For example, policies for opening up economies (as measured by the policy-oriented components of the trade/GDP ratio), are predicted in growth models to promote growth through various channels<sup>7</sup>. The evidence suggests that controlling for natural openness (oil dependence and geography), policy-oriented openness in the Arab world has significantly lagged behind that of East Asia (Table 3), and, except for the diversified Arab economies, other Arab groups fare even worse than Sub-Saharan Africa in the post-1985 period. This suggests that while natural openness is high

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<sup>7</sup> By opening up foreign markets, international trade liberalization policies lead to a higher degree of specialization, expand economies of scale, and promote diffusion of technology and learning. Hence, such policies, it is argued, tend to

in the oil economies, these countries as well as the rest of the Arab world, could gain from improved policies for opening their economies to international trade.

The other indicator of structural policies is given by the ratio of government consumption to GDP which is taken as a proxy for government burden in the empirical growth literature. Government consumption, which is dominated by expenditure on public sector overhead, is assumed to be of little social returns. A large government consumption to GDP ratio is usually associated with a bloated bureaucracy, exorbitant taxes and, as such, constitutes a drag on private sector activities<sup>8</sup>. The evidence suggests that the government burden in the Arab world is a serious problem (Table 3). The share of government consumption to GDP in the oil Arab economies rose from 17% in 1960-1984 to 26% in 1985-2000. However, even in the cases of diversified and primary exporting Arab economies (DAE and PEAE), where the public sector was significantly downsized between the two periods, governments are much larger than those in East Asia.

Macro Stabilization: macroeconomic stabilization and crises-related variables (e.g. price inflation, parallel market premium on foreign exchange, real exchange rate overvaluation, systemic banking and balance of payment crises) affect both cyclical output variability as well as long-term growth. In this paper we control for average price inflation, which is a good indicator of the quality of fiscal and monetary policy and is usually highly correlated with a wide range of sources of macroeconomic instabilities, such as the foreign exchange parallel market premium. Inflation has been consistently low in the Arab oil economies averaging just one percent for the post-1985 period; it has also been kept to single digits in the Arab diversified economies, which managed to experience inflation levels comparable to those of East Asia (Table 3). However, inflation levels have been in

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increase total factor productivity (TFP) and growth. Moreover, trade openness also reduces the incentives of domestic firms for rent seeking.

<sup>8</sup> See for example, Barro (1991), Barro and Sala-I-Martin (1995) and Loayza et al. (2004). However, some expenditure items on education and health and maintenance, grouped under government consumption, should be conducive rather than retarding to growth. Ideally these expenditure items should be netted out, but no consistent data is available on these items across countries.



double digits in the primary exporting economies since the 1960s and rose to 19% in the post-1985 period. Also inflation in Algeria rose from 8 to 11% between the two periods. The literature suggests that double digits inflation is generally harmful to growth (e.g. Fischer, 1993; Barro, 2001; Easterly, Loayza and Montiel, 1997).

## ***2.ii Geography, Demography and Conflicts:***

In addition to the above “traditional” growth fundamentals, modern growth literature also predicts growth to be influenced by factors associated with geography, ecology and endowment, “demographic transition”, and political and criminal violence, at national, regional or international levels. All three sets of factors are likely to be strong determinants of growth in the Arab world.

Geography, ecology and endowment: Sachs and his research associates<sup>9</sup> argue that favorable geography and ecology—in terms of access to long coastal lines or sea-navigable rivers and temperate climate—are robustly associated with superior growth records. This literature suggests several channels through which favorable geography and ecology could promote overall economic growth. A high share of a country’s area around coastal lines or sea-navigable rivers and high economic density along the coast are important determinants of competitiveness, especially for transaction-intensive exports, such as manufactures. Moreover, a high share of non-tropical (especially temperate) regions in a country is associated with less prevalence of vector-borne diseases and high agricultural productivity<sup>10</sup>.

Figure 2 suggests that compared to Algeria and Sub-Saharan Africa, East Asia, oil Arab economies and, to a lesser extent, diversified and primary exporting Arab economies are endowed

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<sup>9</sup> Sachs and Warner (1997), Bloom and Sachs (1998), Gallup and Sachs (1998). See also Elbadawi (1999b).

<sup>10</sup> However, another strand of this literature finds that geography and endowment affect growth only indirectly through their influences on institutions and that they do not seem to have robust direct association with growth in models that control for latter (e.g. Easterly and Levine, 2003).

with long coastal lines<sup>11</sup>. However, East Asia has a much more significantly dense economic activity along the coast, with population density within 100 km around the coast at more than 1,200 people per square km, compared to nearly 200 people for Algeria, oil and diversified Arab economies. The much smaller coastal regions in primary exporting Arab economies and Sub-Saharan Africa are even more substantially underutilized, with their population densities at the coastal areas at less than 100 people per square km. With regard to climate, except for the diversified Arab group, all other countries in the Arab world as well as East Asia and Africa are dominated by non-temperate zones (more than 95%).

The key endowment variable that affects the whole Arab region is oil which, if efficiently managed, could be a major resource for financing development. However, the macroeconomic literature suggests that oil-dependent economies are likely to be associated with the Dutch disease phenomenon that tends to undermine the competitiveness of the non-resource tradable sectors and, hence, impede economic diversification and growth (e.g. Neary and van Wijnbergen, 1985; van Wijnbergen, 1984; Sachs and Warner, 1995, 1999, 2001). Moreover, another strand of the literature argues that oil dependence may generate corrosive effects on governance and accountability and hence undermine the institutional foundation of growth (e.g. Eifert, Gelb and Tallroth, 2002).

**Demographic Transition:** The demography-oriented strand of the growth literature argues that when countries enter a period in their demographic transitions during which the working age population is increasing relative to the rest of the population, a “demographic window of opportunity” or a “demographic gift” is opened up for them. Under this type of demographic transition, this literature suggests, the high shares of the working age population fosters accelerated and sustained economic growth by increasing labor participation and savings (e.g. Yousef, 1997; Williamson and Yousef, 2002). Should growth levels continue to stagnate, however, this potential

opportunity could instead become a social crisis of rising unemployment. The impact of demographic transition on growth is provided by the extent to which the rate of growth of the economically active population (EAP) exceeds the rate of growth of the overall population (OP). Many countries in the region, most notably Egypt, have entered their period of demographic transition during which the working age population is increasing relative to the rest of the population. However, for the Arab world in general, while the EAP population grew impressively at an annual rate of 2.74 during 1960-2000, the size of the overall population has also grown significantly, resulting in a much smaller net rate of growth than was the case in East Asia (Figure 3).

Conflicts: growth is also affected by conflicts (both civil and regional), of which the region has plenty (Table 4). First, there is the ongoing Arab Israeli conflict, which affects the region as a whole, especially Lebanon and the Palestinian territories. Second, there were the two major Gulf wars (1980-1988, 1991), which have had devastating regional implications, especially for Iraq. Third, several civil wars have erupted in many countries in the region, the most devastating of which is the Sudanese civil war, which has so far accounted for 34 years of the country's 45 years of existence as an independent state. The Lebanese civil war, which has direct links to the Arab-Israeli conflict, has also been costly<sup>12</sup>. While regional and international wars are likely to greatly impact short run development because they usually inflict substantial damage on physical capital, civil wars can be even more devastating to growth in the longer run due to their greater destruction of "social" capital<sup>13</sup> (Collier, 1999). Although it is argued that regional and international wars may actually

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<sup>11</sup> Though Algeria is endowed with a long coastal line, the area around the coast is relatively small compared to its land mass area. Sudan would provide an even more extreme case since it is endowed with a shorter coastline and a larger land mass area.

<sup>12</sup> For analysis of the economic cost of the Sudanese civil war, see Elbadawi (1999c); for a similar analysis for Lebanon, see Makdisi (2001).

<sup>13</sup> The concept of "social capital" used in this analysis follows Putnam (1993), who defines it as, "the features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions."

foster social capital,<sup>14</sup> in the case of the Arab world the two Gulf wars and the Arab-Israeli conflict have reduced foreign investments, distorted expenditures, and possibly fostered bad governance, none of which has helped the region's development.

### 3. The Growth Process in and outside the Arab World

Guided by the above endogenous growth framework, I now estimate two growth models in this section. The first is a long-term endogenous growth model using global panel data drawn from 70 countries, including most of the Arab countries. Definitions, summary statistics and correlations of the variables used in the regressions are contained in appendix Tables A.1, A.2, and A.3. The second model addresses the persistence of growth by looking at the dynamics of growth between two periods before and after 1985, the year marking the end of significant positive per capita growth in the Arab world.

#### 3.i Long-term Growth:

The more recent tradition in the empirical growth literature attempts to exploit dynamic panel regressions to account for potential endogeneity of lagged income and other explanatory variables as well as control for country-invariant period-specific effects and unobservable country-specific heterogeneity. Moreover, the models estimated in this literature also permit the latter to be correlated with lagged income and other endogenous explanatory variables<sup>15</sup>. Following this recent empirical tradition, I estimate the following endogenous growth model for a panel of 69 countries over seven period-averages: 1965-69, 1970-74, 1975-79, 1980-84, 1985-89, 1990-94, 1995-2000:

$$(1) \quad y_{it} - y_{i,t-1} = \alpha_0 y_{i,t-1} + \alpha_c (y_{i,t-1} - y_{i,t-1}^T) + \beta' X_{it} + \mu_t + \eta_i + \varepsilon_{it} ,$$

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<sup>14</sup> Military conflicts of certain characteristics may drive development; the intense military and ideological threats from the former Soviet Union and China may have been a decisive factor in the successful development of the Republic of Korea and the Province of Taiwan.

<sup>15</sup> See for example, Loayza and Soto (2002) and Loayza, Fajnzylber and Calderon (2004).

where,  $y_{it}$  is the log of output per capita for country  $i$  at period  $t$ ;  $X$  is a set of growth determinants;  $y_{it}^T$  represents the trend component of output per capita, obtained by using the band-pass filter developed by Baxter and King (1999)<sup>16</sup>;  $(y_{it} - y_{it}^T)$  is the output gap at the start of the period;  $\mu_t$  is country-invariant period-specific effects, which controls for international economic shocks that change over time and affect the growth performance of all countries in the sample;  $\eta_i$  represents unobserved country-specific effects; and,  $\varepsilon_{it}$  is a disturbance term. Due to the fact that we use five-years period averages to create the panel, cyclical effects are likely to be important at such frequencies. The output gap at the start of the period is included in the model to account for these cyclical effects. Moreover, by controlling for the output gap, we should also avoid overestimating the coefficient of lagged output per capita, which determines the speed of transitional convergence or the “catch-up” effect.

Assuming, for simplicity, that the country-invariant period-specific effects could be represented by period-specific dummies, the above model can be rewritten with the output gap and  $\mu_t$  subsumed as a component of the set of the growth fundamentals  $X$ :

$$(2) \quad y_{it} - y_{i,t-1} = \alpha_0 y_{i,t-1} + \beta' X_{it} + \eta_i + \varepsilon_{it},$$

and by differencing the country-specific term could be eliminated:

$$(3) \quad (y_{it} - y_{i,t-1}) - (y_{i,t-1} - y_{i,t-2}) = \alpha_0 (y_{i,t-1} - y_{i,t-2}) + \beta' (X_{it} - X_{i,t-1}) + (\varepsilon_{it} - \varepsilon_{i,t-1})$$

In the estimation of model 2 above we would, therefore, need to control for the potential endogeneity of lagged output per capita and other explanatory variables that may be jointly determined with growth and the unobservable country-specific effects,  $\eta_i$ . Under the assumptions that (i) the disturbance term,  $\varepsilon_{it}$ , is not serially correlated; and (ii) the explanatory variables  $X$  are

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<sup>16</sup> See Loayza et al (2004) for an application to the income per capita data.

weakly exogenous (i.e. the explanatory variables are assumed to be uncorrelated with future realizations of the disturbance term), the above model can be estimated with the GMM dynamic panel estimator. Specifically we estimate a system GMM (developed in Arellano and Bover, 1995 and Blundell and Bond, 1997), which combines regressions in differences (model 3) with the regressions in levels (model 2)<sup>17</sup>. Under the assumed moment conditions, the system GMM accounts for the combined problems of endogeneity and unobservable country effects. For comparison and diagnostic purposes we also estimate a level GMM, which accounts for endogeneity but ignores country effects, a within OLS (based on model 3), which addresses country heterogeneity but ignores endogeneity, and, a pooled OLS model, which ignores both problems.

The regressions results are contained in Table 5. The diagnostic approach for discriminating between the four models of Table 5 is provided by tests for first and second order serial correlation of the regression residuals. For the Pooled OLS or the Levels-IV GMM failure to accept the joint null hypothesis of “no first order serial correlation” and “no second order serial correlation” would suggest that the model is misspecified. On the other hand, for the Within OLS or System-IV GMM, failure to accept the null hypothesis of “no second-order serial correlation” only will suggest model misspecification<sup>18</sup>. Finally, for the two GMM-IV regressions, the Sargan test assesses the appropriateness of the instruments, where a failure to accept the null suggests that the chosen instruments are not appropriate. The serial correlation tests (bottom of Table 5) suggest that the IV-System GMM is superior to both of the Pooled-OLS and the Levels-IV GMM models, which,

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<sup>17</sup> The system GMM is based on four moment conditions:

$E[(y_{i,t-1} - y_{i,t-2}).(\eta_i + \varepsilon_{i,t})] = 0$ ,  $E[(X_{i,t-1} - X_{i,t-2}).(\eta_i + \varepsilon_{i,t})] = 0$ , which identify the levels regression of model 2; and  $E[y_{i,t-s}.(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0$ ,  $E[X_{i,t-s}.(\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0$ , for  $s \geq 2$ ;  $t=3, \dots, T$ , which identify the differenced regression of model 3. To avoid generating redundant moment conditions, for the first set of instruments (in differences) only the most recent differences are used as instruments in the levels specification because higher order lagged levels are used as instruments in the differences specification (see Arellano and Bover, 1995).

<sup>18</sup> Both of the Pooled-OLS and Levels -IV GMM are based on model 2 (without country effects), which assumes that the disturbance term,  $\varepsilon_{it}$ , is not serially correlated. However, the Within-OLS and System-IV GMM are both based on model 3, for which the disturbance term,  $(\varepsilon_{it} - \varepsilon_{i,t-1})$ , is, by construction, first-order serially correlated.

according to the tests, are misspecified. Moreover, while the serial correlation tests do not find the Within-OLS model to be misspecified, the fact that it does not account for endogeneity would still mean that it should be inferior to the System-IV GMM model. Finally, the Sargan tests for the appropriateness of the instruments suggests that the instruments used in the GMM regressions are valid.

Based on the above tests, we will confine our analysis to the results of the System-IV GMM regression of Table 5. The results corroborate the version of the endogenous growth model we discussed in Section 2 where all variables are significantly<sup>19</sup> associated with long-term growth and their effects are consistent with theory. Starting with the catch-up and cyclical variables, which are highly significant and persistent across all four regressions, the estimate of the System-GMM regression for the catch-up effect implies a speed of convergence of 0.8% per year, with a corresponding half life of about 87 years (i.e. the time it takes for half the income difference between two growing countries to disappear solely due to the convergence effect)<sup>20</sup>. The negative and highly significant coefficient of the initial cyclical output gap suggests that these effects are indeed present in the growth data, which implies that a cyclical boom (recession) at the start of a period will be followed by lower (higher) growth. The point estimate suggests that the cyclical trend-reversion effect is quite high, where if initial output is, say, 5% below potential output, the economy is expected to grow at almost 1.5% point more in the following period.

With regard to other standard growth fundamentals, the set of structural policies and human capital variables are all highly significant. As predicted by the literature, policies that raise the rates

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<sup>19</sup> The p-values for the moderately significant variables are 0.06 for conflicts while all other variables have had highly significant effects with p-values less than 0.05.

<sup>20</sup> Linearizing the neoclassical growth model around the steady state, the annual speed of convergence is given by the formula,  $(-1/T) * \ln(1 + T\alpha)$ , where T represents the length of each time period (that is five years in our sample) and  $\alpha$  is the absolute value of the coefficient of the initial output per capita. The half life in years is given by  $\ln(2)/\text{annual speed of convergence}$ . The implied speed of convergence is close to the one estimated by Loayza et al. (2004), and both estimates are smaller than the earlier panel data estimates that used shorter time periods but did not correct for the bias due to cyclical reversion to the trend (e.g. Knight, Loayza, and Villanueva, 1993; and, Caselli, Esquivel, and Lefort, 1996).

of secondary school enrollment and promote the openness of the economy spur growth, while policies that lead to large and bloated government bureaucracy reduce growth. The regressions results of Table 5 uses the rate of gross secondary school enrollment as a measure of the stock of human capital. This flow measure captures more closely the effects of current policies on schooling and human capital than do stock measures, such as the educational attainment of adult population or life expectancy at birth<sup>21</sup>. Moreover, secondary school enrollment is more appropriate than the other two variables for reflecting the role of human capital conceived in theoretical growth models (e.g. Lucas, 1988)<sup>22</sup>.

The evidence also suggests that an unstable macroeconomic environment is harmful to growth, where average inflation was found to be negative and highly significantly associated with growth. Finally, the overall institutional environment (ICRG)—which accounts for a wide range of economic, social and political institutional variables—was found to be robustly and positively associated with growth.

In addition, there are three more sets of non-traditional growth determinants that might be particularly important for explaining long-term growth in the Arab world. The “demographic gift”, has, as expected, a positive and significant effect on long-term economic growth, though the estimated coefficient was lower for the System-GMM. This may be due to the fact that the latter model does not only correct for the potential endogeneity of the demographic variable<sup>23</sup> but also for its potential co-variation with the unobserved country-specific heterogeneity.

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<sup>21</sup> This view is corroborated by the empirical evidence of this paper, as the regressions of Table 4 are by far superior to the corresponding regressions (not reported) using the other two indicators of human capital. Perhaps due to multicollinearity any combination of the three variables did not work when entered in the same regressions. Moreover, no significant effect was found for female school enrollment when entered in the regression along with total school enrollment.

<sup>22</sup> In these models human capital promotes growth by being a determinant of the rate of technological innovation in countries that produce technology or by facilitating absorption of technology in countries that adapt technology.

<sup>23</sup> It can be argued that the growth rate of the economically active population is not likely to be determined by economic growth, having been determined by fertility and mortality patterns prior to the period covered by the sample (e.g. Williamson and Yousef, 2002). However, with regard to the overall population growth, the literature has argued that



The second set of non-traditional growth determinants are international and regional conflicts, which were found to be negatively and moderately significantly associated with growth. Civil wars, however, were found to be consistently insignificant and were subsequently dropped from the regressions. Unlike international and regional wars, which could be assumed exogenous, civil wars are endogenous to lagged growth and lagged determinants of growth, especially education and institutions (e.g. Elbadawi and Sambanis, 2001). Therefore, it is plausible that the effect of civil wars on current growth could not be disentangled from the effects due to initial growth and initial growth fundamentals.

The third category of non-traditional growth determinants are the geography and endowment variables. The evidence suggests that high economic density along the coast or sea-navigable rivers tends to spur growth. A more compelling evidence obtains with regard to the positive effect on growth when a high share of a country's land area is covered by temperate climate. Finally, and as predicted by the literature, there is also evidence suggesting that countries that are large producers of oil tend to experience slower long-term growth.

### ***3.ii Persistence of Growth:***

As discussed above (Table 1), compared with the 1960s and especially the 1970s, growth in the Arab world has significantly decelerated since 1985, which earmarked an extended episode of negative oil price shocks reversing its significant rise throughout most of the 1970s. Instability of growth following external shocks appears to be a typical phenomenon in many countries in the developing world. In attempting to explain this phenomenon, Rodrik (1998a) advances the following thesis to which I subscribe to in this paper; the effect of external shocks on growth and economic performance in general is not just the outcome of the failure of adjustment policies in the technical sense, but it also reflects the interactions of these shocks with “latent” social conflicts in

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fertility and mortality rates respond to changes in income (Shultz, 1981). Therefore, whatever the source of endogeneity, the demographic gift variable was regarded as endogenous.

society on one hand and with institutions for conflict management on the other. In societies with deep social conflicts and weak social or political institutions for conflict management, Rodrik argues, the economic costs of external shocks are magnified by the growth-retarding distributional conflicts that are triggered<sup>24</sup>. To formalize this idea, Rodrik develops a model of social conflict arising from coordination failure, with two social groups acting independently and facing a shrinking pie as a result of an external shock. Depending on its prior about how its rival group is likely to be “cooperative”, each group must decide what share of the pie they will claim. In a conflictive society, each group will attach a high probability to an opportunistic grab of resources by its rival. Therefore, *ceteris paribus*, this game will result in higher claims than available resources, leading to a distributional conflict, which would, in turn, generate a deadweight and the size of the pie shrinks further. On the other hand, the strength of conflict management institutions tends to moderate the potential inequities arising from asymmetric claims by the rules that govern the *ex post* distribution of resources. Therefore, this model suggests that the *ex post* distribution of resources is partly determined by the *ex ante* claims (social conflicts) and the pre-existing rules that govern basic rights and equitable entitlements across groups (social and political institutions).

Based on his theoretical model, Rodrik posited the following simple empirical framework:

$$(4) \quad \Delta \text{ growth} = -\beta \text{ external shocks} \times \frac{\text{latent social conflict}}{\text{institutions of conflict management}}$$

To analyze the change in the rate of per capita growth between 1985-1994 and 1975-84, I estimated a version of the above model for a sample of 82 countries, including 13 from the Arab world, where the variable “Conflict” is used as a shorthand for the right-hand side multiplicative terms of equation 4 (Table 6). The external shocks term is measured by the standard deviation of the first log-difference of the terms of trade multiplied by the average share of total trade in GDP in the initial

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<sup>24</sup> He argues that the social conflicts could affect the response to external shocks in many ways: by delaying adjustment in fiscal policy and in key relative prices, most notably the real exchange rate; by generating increased uncertainty in the economic environment; and, by diverting resources from productive to distributive activities.

period<sup>25</sup>; and the ratio of “latent” social conflict to institutions of conflict management is proxied by a measure of economic or social cleavages (ethnic fractionalization<sup>26</sup>) multiplied by an index of “lack of democracy”. Ethnic fractionalization measures the degree of fractionalization in a society along ethnic lines; “lack of democracy” is given by  $(10 - \text{Polity})/2$ , where Polity is a global index on the standard of democratic institutions (for a more precise definition of this and other variables, see Table A.1). The use of this proxy assumes that little or no democracy would suggest that there are no effective modalities for inter-social group bargaining and that pre-existing rules for guaranteeing basic rights and equitable distribution among social and economic groups are either non-existent or cannot be systematically applied.

The regressions of Table 6 emphasize the role of the “Conflict” variable (Shock x ethnic fractionalization x lack of democracy) as well as its individual components. The regressions also control for per capita income and growth at the initial period (1965-84) to capture convergence effects, as well as the rule of law component of the ICRG index. The evidence suggests that the Conflict variable was highly significant and was negatively associated with the change in growth rates between the two periods. Moreover, the size of the estimated coefficient is remarkably stable (around  $-0.003$  in five regressions). Among the individual components of the Conflict variable the ethnic fractionalization coefficient was found to be significantly and negatively associated with the change in the rate of growth. In two out of three regressions the coefficient of the Shock variables was also significant at the ten percent significance level. Finally, the quality of economic institutions, average growth at the initial period and lagged income were all found to be significant and with the

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<sup>25</sup> This measure captures the unexpected component of the volatility of the streams of income associated with foreign trade. Assuming that the terms of trade follow a random walk (possibly with a drift) Rodrik (1998b) shows that this measure is the theoretically appropriate measure of external volatility. Moreover, Rodrik argues that the fact that this measure treats positive terms-of-trade shocks identically as negative shocks is justified, since positive income shocks could also trigger the same kind of distributional conflicts that result from negative shocks.

<sup>26</sup> The index of ethnic fractionalization for a country  $j$  is given by:  $1 - \sum_{i=1}^N s_{ij}^2$ , where  $s_{ij}$  is the share of group  $i$  ( $i=1, \dots, N$ ) in country  $j$ . This index gives the probability that two randomly selected individuals from a population belonged to two different ethnic groups.

expected signs. Specifically, past growth values are negatively associated with lower growth capturing cyclical and catch-up effects. In addition, lagged income is negatively associated with the change in the rates of growth between the two periods suggesting that, *ceteris paribus*, countries with lower levels of income per capita should grow faster in the future. The positive sign on the rule of law variable confirms that better institutions are more conducive to growth.

## 4. The Failure of Growth in the Arab World

Taking the East Asian economic performance as the development frontier for the region, this paper addresses the following two questions. First, why has growth been so low in the region? And second, why has the existing growth essentially collapsed since 1985? Using the growth regressions of the previous section, we are now able to examine these questions within the context of a partial equilibrium framework.

### 4.i Why has Growth Been So Low?

Based on the System IV GMM regression of Table 5, we simulate the sources of the growth differential between East Asia and each of the three middle and high income Arab groups (MOAE, OAE and DAE) for the period 1985-1994. In addition, we also simulate the growth differential between DAE and PEAE (Table 7)<sup>27</sup>. The results suggest that relative to EA, only DAE have a potential for growth through the net catch-up and cyclical effects. MOAE have an advantage over EA stemming from their catch-up effect, but the latter disappears in the presence of cyclical factors. OAE are already richer than EA and thus have no potential contribution to growth from catch-up and cyclical effects. The potential for increased growth is very large for the poorer Arab countries (PEAE) relative to the richer DAE, and the catch-up effect is further reinforced by the cyclical

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<sup>27</sup> The formula for calculating country-specific effects in Table 7 is:  $\hat{\eta}_i \equiv \frac{\sum_{t=1}^{T_i} (y_{i,t} - y_{i,t-5}) - (\hat{\alpha} y_{i,t-5} + \hat{\beta} X_{i,t} + \hat{\mu}_t)}{T_i}$ .

For further details see Loayza et al. (2004).

effects resulting in 1.6% higher growth in favor of the former group. Clearly, such potential could materialize in a context of a deeper economic integration in the Arab region.

In the area of human capital, the DAE lag behind EA, and the PEAE countries lag even more significantly behind the DAE. In the case of PEAE structural factors account for the most important difference in growth performance followed by the macro-institutional environment. The combined effects of the two structural policy factors translates into a small growth advantage of around 0.2% for EA over each of MOAE and DAE, while the latter has a huge growth advantage relative to PEAE of about 2.7%. A related set of variables to the former are the policy and institutional environment, on which EA dominates the middle-high income Arab world where its superior performance accounts for more than 2.5% higher growth relative to MOAE, DAE, and OAE. On the other hand, poorer institutional and policy environment in the PEAE (relative to DAE) is estimated to have accounted for 2.3% of the positive DAE-PEAE growth differential. Of the three indicators making up the macro-institutional environment, the quality of institutions measured by ICRG and excessive government burden seem to be the most important factors explaining the difference in growth with EA and DEA.

EA's and the DAE's better growth performance relative to its comparator groups is in part explained by the fact that these benchmark groups have hosted an increase in their growth-contributing working populations without a large increase in their total populations. The demographic gift effect has allowed, other things equal, EA to grow by more than 0.6% compared to MOAE, by more than 0.7% compared to OAE and by almost 0.6% compared to DAE. DEA, in turn, grew by 1.4% more than PEAE because of its demographic gift. The major failure of the Arab countries (MOAE, OAE, DAE and PEAE) to generate sufficient job opportunities to absorb the rising demand for labor, associated with their demographic transitions, is at the heart of the failure of these countries to achieve high growth, or to prevent massive unemployment, especially among educated youth.

The higher East Asian growth due to geographic effects amounted to 0.4% relative to OAE and 0.1% relative to DAE. However, for MOAE, the positive effect of geographic factors in creating growth differentials is made even larger when one considers climatic effects such as the percentage of each country experiencing a temperate climate. In the case of DAE temperate climate serves as a mitigating factor to the lack of population density around the coast. The effect of the geography factors would contribute to perpetuating the poverty of the low income PEAE relative to the middle income DAE. The combined effects of climate and coastal economic density translated into more than 0.4% of per capita growth in favor of the DAE group. The above results seem to corroborate the belief that for the case of MOAE and OAE, the presence of oil has had a negative impact on growth (by 0.6% relative to EA) while it has been irrelevant for DAE and PEAE.

Finally, in general the effect of international and regional wars appears to be relatively marginal in explaining growth differentials between the groups. The two exceptions are the case of EA-OAE and EA-DAE, where civil wars accounted for 0.05%, respectively, of the growth differentials. For once the PEAE actually perform better than the DEA. Clearly, however, the indirect effects of civil wars through institutions and other channels could be much higher.

#### ***4.ii Why has Growth Collapsed in the Arab World?***

A simulation of the model in Table 6 for the performance of growth in the Arab world and East Asia (relative to the sample median) suggests that three factors account for the two very different experiences of the Arab world and East Asia (Table 8). These factors are catch-up effects associated with initial income and lagged growth in the previous period (1975-84); the quality of institutions (measured by the rule of law); and, the capacity of a society to manage the impact of exogenous shocks, represented by the variable "Conflict".

Compared to the sample median, both regions appear to have grown much faster or have had higher initial incomes, which explains the negative catch-up influence on the change in growth

for both regions (-1% for East Asia and -0.9% for the Arab world). However, superior institutions in East Asia in the initial period led to growth acceleration by 0.2%, while weaker institutions in the Arab world caused growth to decelerate by 0.3% in the second period. Finally, the better capacity of East Asian societies (relative to the sample median) to manage conflicts allowed growth to accelerate by 0.3%, while poorer conflict management capacity in the Arab world slowed down growth in this region by 0.4%. Unlike East Asia where the model does not perform well in accounting for the change of growth, the three factors essentially fully account for the observed growth collapse in the Arab world between the two periods.

## 5. Conclusions

This paper analyzes the overall economic growth performance in the Arab world since the mid 1960s, in an attempt to better understand the growth process in the Arab region. The growth record of the region has been rather disappointing. First, unlike the experience in East Asia, growth has not been high enough to facilitate a deep structural transformation in the region's economies. Second, growth has not been sustained in the post-1985 era, when it was most needed to expand employment opportunities to a rising share of working age- population. As a result, the region has not benefited from its potential "demographic gift". Instead, massive unemployment, especially among educated, first-time job seekers, has become the major source of poverty, already rolling back the region's earlier impressive social development achievements. Revitalizing growth in the Arab world would, therefore, suggest two questions: why has growth in the Arab world lagged behind the successes of the East Asian countries?; and secondly, why has the growth in the Arab world been characterized by such instability and volatility?

To address these issues, the paper estimates two models of long-run endogenous growth and growth persistence, using global data over the 1965-2000 period. The long-run growth model accounts for both the traditional growth fundamentals of initial level of development, overall institutional and policy environment, and human capital, as well as for other factors particular to the

Arab region. The significance of this latter set of growth determinants is supported by evidence that, even with good progress on the traditional growth fundamentals, growth usually does not happen without deliberate development strategies tailored to country or region-specific characteristics. We argue that there are at least three sets of such factors of particular relevance to the growth process in the Arab world. The first set focuses on the advantages of location and ecology, which are associated with export competitiveness, attractiveness to foreign direct investment, the productivity of agriculture or the health challenges faced by the society. Secondly, the “demographic gift” results from the demographic transition to a lower age dependency. The third set of factors is defined by the incidence of regional and civil conflicts with their multiple direct and indirect negative consequences for development.

The second model used in this analysis is the persistence of growth model, which estimates determinants of the change in growth between the periods before and after 1985. This year, as our analysis suggests, marked the end of the era of positive and relatively high growth in the Arab world. The key variable in this regression is “Conflict”, a covariate variable reflecting the extent of external shocks combined with the degree of latent social conflicts in a society (as measured by ethnic fractionalization, for example), and the institutional capacity for managing conflicts. This variable therefore suggests that the combination of deep social conflicts and weak social and political institutions lead to growth-retarding policies, which magnify the damage caused by external shocks.

These two models for addressing the characteristics of growth in the Arab world were corroborated by the data. The following summary of the analytical conclusions imply policy prescriptions that might be critical for reviving growth in the region.

First, in order to attain the Asian frontier, Arab countries of all income levels need to continue to improve the overall enabling environment for economic growth. Of particular importance is enhancing institutional quality, increasing accumulation of human capital, and maintaining macroeconomic stability. As our results suggest, Arab countries could then benefit



from the catch-up potential indicated by their lower standard of living compared to that of East Asia.

Second, our results suggest that East Asia has benefited greatly from its ability to exploit the demographic gift and by the high economic density along its coastal lines. The diversified economies of the Arab region, however, have yet to exploit the growth-potential of a high share of land area dominated by temperate climate, much higher than that of East Asia. Significantly, these findings corroborate the recent thinking in economic growth literature in that an overall enabling environment for growth is necessary, but not sufficient, for growth to occur. The implication is, therefore, that growth requires deliberate, strategic, country-specific interventions by the state.

Third, more recently, endogenous growth literature emphasizing the role of geography has well developed the link of location and climate ecology to economic growth. High economic density at coastal lines and along the banks of sea-navigable rivers, for example, is a major determinant of competitiveness of labor-intensive manufacturing exports. Extending this result to its obvious conclusion, a deliberate and carefully planned strategy for intensifying economic activity along the vast coastal lines of the Arab world should provide an important source of long-term growth. Minimal requirements of such a strategy include the provision of infrastructure, regulatory environment and other services. In addition, any viable strategy for enhancing competitiveness of the Arab economies should include an explicit agenda for acquisition of technical know-how. This acquisition is especially important given the widening technological gap between the Arab world and the frontier (Ali, 2001).

Fourth, the failure of the Arab region to exploit the “demographic gift” relates to the plethora of structural and policy problems afflicting Arab economies, resulting in dysfunctional labor and credit markets (Yousef, 2000). The bloated and inefficient public sector and the stifling regulatory environment leaves little space for the private sector to respond to the ever increasing demand for employment generated by the nascent demographic transition that has begun in the

region. While the demographic transition currently presents a serious development challenge for the region, with appropriate strategies it could instead be an opportunity for generating high and sustained per capita growth. An insightful proposition in this regard was put forward by Dhonte, Bhattacharya, and Yousef (2000) who argue that massive construction in the housing sector could provide an answer to the challenge of the demographic transition. They argue that both housing finance and investment are driven by the growth of the working age population, saying that “the dynamics of the housing sector are closely related to the demographic transition”. They describe the process where,

“as the working age population expands there is a strong acceleration in housing investment while indigenous financing trails, creating a possible constraint on investment. As the process matures, however, housing investments levels off, while the housing stock continues to grow, so that housing-related savings catch up and eventually exceed the flow of investments. The catch is in the take off stage, when the availability of financing is a constraint on investment; the operation of housing saving schemes and the development of mortgage markets, not the provision of public housing, is the answer.”(pp 14)

Such a strategy requires an effective public sector, which must define and enforce property rights and land titling, and reduce the traditional preference of development policy for investment in manufacturing.

Fifth, conflicts are not only key sources of political instability; they significantly constrain growth. As shown by the data, wars have impeded the growth of the oil economies and diversified oil economies relative to East Asia. The estimated effects, however, are likely to substantially underestimate the true effects of wars, which also damage institutions and related growth-influencing factors. Resolving the problem of the high risks of regional and international wars would require a *just* and *comprehensive* resolution of the Arab-Israeli conflict which has been the core of the region’s political crisis. Additionally, enhancing the Arab League’s capacity for promoting

cooperation between its member states is needed for the resolution of other regional conflicts. The League should similarly promote cooperation between its member and nonmember neighbors.

Finally, the central role of “social cohesion” in the ability of an economy to sustain growth, especially following external shocks is a profoundly important finding. Social cohesion could be high when a society is relatively homogenous, whether due to religious or ethnic homogeneity or because of very low income or wealth inequalities. On the other hand, in socially diverse societies, strong institutions are required for mediating conflictive, even if not necessarily violent, interests among social groups. According to our analysis, social cohesion in the Arab world is impaired by low standards of political rights throughout the region and high social diversity in a few others. Improving political rights as a means for enhancing social cohesion in the Arab world, I would argue, is perhaps the area of both public policy and popular activism that would yield the highest return for economic and political development. First, with globalization destabilizing shocks are likely to increase rather than decrease, leading to more frequent episodes of growth collapse in countries with low social cohesion. Second, where civil war can be considered an extreme case of failed social cohesion, it is clear that improving the levels of political rights, would support the maintenance of territorial integrity and sustainability of peace in the countries of the Arab world.

Table 1: Growth Performance in the Arab World, 1960-2000

	1960-1984		1985-1994		1995-2000	
	Growth	Growth Volatility	Growth	Growth Volatility	Growth	Growth Volatility
<b>Mixed Oil Economies</b>	<b>1.9%</b>	<b>5.4%</b>	<b>-2.1%</b>	<b>1.0%</b>	<b>1.6%</b>	<b>0.9%</b>
Algeria	1.9%	5.4%	-2.1%	1.0%	1.6%	0.9%
<b>Oil Economies</b>	<b>5.5%</b>	<b>2.1%</b>	<b>1.0%</b>	<b>4.0%</b>	<b>0.8%</b>	<b>1.3%</b>
Bahrain	5.5%	2.8%	1.5%	4.0%	1.6%	1.3%
Kuwait	-6.6%	1.5%	4.5%	9.8%	-3.2%	1.2%
Libya	13.0%	1.4%	1.4%	6.8%	13.6%	0.5%
Oman	8.3%	2.0%	1.0%	4.0%	0.8%	2.2%
Qatar	12.4%	2.4%	0.6%	19.3%	21.6%	0.4%
Saudi Arabia	3.2%	2.1%	-1.3%	3.8%	-1.0%	1.8%
United Arab Emirates	-4.3%	2.3%	-4.4%	2.1%	-1.4%	5.1%
<b>Diversified Economies</b>	<b>3.1%</b>	<b>2.0%</b>	<b>1.4%</b>	<b>3.3%</b>	<b>0.8%</b>	<b>3.4%</b>
Egypt, Arab Rep.	3.6%	0.9%	1.6%	1.0%	3.1%	0.2%
Jordan	2.5%	3.0%	-2.0%	3.9%	0.3%	5.1%
Lebanon	-	-	1.3%	24.2%	1.3%	1.7%
Morocco	2.0%	2.0%	1.9%	2.7%	0.1%	69.7%
Syrian Arab Republic	3.1%	3.0%	1.4%	4.9%	0.3%	13.3%
Tunisia	3.6%	1.1%	1.4%	2.2%	3.6%	0.4%
<b>Primary Exports Economies</b>	<b>0.4%</b>	<b>18.0%</b>	<b>-1.3%</b>	<b>4.4%</b>	<b>1.2%</b>	<b>0.8%</b>

Comoros	0.4%	18.0%	-1.3%	3.0%	-1.1%	1.7%
Djibouti	-	-	-7.0%	0.3%	-2.2%	0.8%
Mauritania	1.7%	4.3%	0.4%	5.4%	1.2%	0.8%
Sudan	-0.17%	34.4%	1.2%	5.5%	3.8%	0.1%
Yemen, Rep.	-	-	-1.5%	4.4%	3.4%	0.7%
<b>Arab World</b>	<b>2.5%</b>	<b>2.3%</b>	<b>1.1%</b>	<b>3.9%</b>	<b>1.2%</b>	<b>1.0%</b>
<b>East Asia</b>	<b>4.3%</b>	<b>0.6%</b>	<b>5.2%</b>	<b>0.3%</b>	<b>2.9%</b>	<b>2.2%</b>
<b>Sub-Saharan Africa</b>	<b>1.1%</b>	<b>3.5%</b>	<b>-1.1%</b>	<b>1.8%</b>	<b>0.3%</b>	<b>2.3%</b>

*Sources:*

World Development Indicators 2003 and Summers & Heston 6.1

*Notes:*

1. Country-specific growth rates are the period averages of GDP per capita growth.
2. Regional/Type growth rates are the median of average country growth rates.
3. Country-specific growth volatilities are measured as the ratio of standard deviation over the absolute value of the mean.
4. Regional/Type volatilities are the median of country volatilities.
5. The countries representing East Asia are Indonesia, Malaysia, Singapore, South Korea, Thailand.
6. The countries representing Sub-Saharan Africa are Burkina Faso, Botswana, Cote d'Ivoire, Republic of Congo, Ghana, Gambia, Kenya, Madagascar, Malawi, Niger, Nigeria, Senegal, Sierra Leone, Togo, South Africa, Democratic Republic of Congo, Zambia, Zimbabwe

**Table 2: Human Development, Income, and Demography in and Outside the Arab World, 1960-2000**

	Arab World		Mixed Oil Arab Economies		Oil Arab Economies		Diversified Arab Economies		Primary Export Arab Economies		East Asia		Sub Saharan Africa	
	60-84	85-00	60-84	85-00	60-84	85-00	60-84	85-00	60-84	85-00	60-84	85-00	60-84	85-00
<b>Primary School Enrolment (%)</b>														
<i>total</i>	84	81	88	103	95	95	85	100	38	70	99	100	73	90
<i>female</i>	73	81	71	99	87	92	75	94	27	45	97	100	63	85
<b>Secondary School Enrolment (%)</b>														
<i>total</i>	30	59	21	63	50	73	41	59	10	21	41	59	12	25
<i>female</i>	22	55	15	60	36	77	28	57	7	15	34	58	7	17
<b>Life Expectancy at Birth</b>	54	68	54	68	61	72	56	68	43	53	60	70	45	50
<b>GDP per Capita (1995 US\$)</b>	596	1872	1139	1814	696	7911	696	1173	294	445	720	1958	366	351
<b>Young Age Dependency (%) (0-14)</b>	44	41	47	40	43	40	45	38	44	45	40	29	45	45

<b>Old Age Dependency</b> (%) (>64)	3	3	4	4	2	2	4	4	3	3	4	5	3	3
<b>Working Age</b> <b>Population (%)</b> (15-64)	53	55	50	56	55	65	52	58	53	52	57	66	52	52
<b>Labor Force (%)</b>	33	36	27	30	32	39	31	34	41	42	39	49	46	44

*Sources:*

World Development Indicators 2003 and Summers & Heston 6.1

*Notes:*

All values are obtained by taking the median of each country's average performance.

**Table 3: Institutional and Macroeconomic Environment in the Arab World**

	Government		Openness		Inflation (%)	
	Consumption/GDP (%)					
	1960-84	1985-00	1965-84	1985-00	1960-84	1985-00
<b>Mixed Arab Economies</b>	16	17	30	24	8	11
<b>Oil Arab Economies</b>	17	26	36	26	6	1
<b>Diversified Arab Economies</b>	18	16	25	30	7	6
<b>Primary Export Arab Economies</b>	21	19	25	26	13	19
<b>East Asia</b>	11	10	19	46	5	4
<b>Sub-Saharan Africa</b>	14	15	27	31	9	11

*Sources:*

World Development Indicators, 2003 and Summers and Heston 6.1

*Notes:*

1. All values are obtained by taking the median of each country's average performance.
2. The measure of openness is the volume of trade over GDP adjusted for the size of the country (area and population), for whether it is an oil exporter, and for the percentage of the country's population living within 100 km of coast/navigable rivers. The actual values used in the regressions are reported here in the form of an index ranging from 0 to 100.

Table 4: Civil and International Conflicts in the Arab World

		Civil Wars		
		High Intensity	Intermediate Intensity	Low Intensity
Years of War		Years	Years	Years
<i>Mixed Oil Arab Economies</i>				
Algeria	1962, 1992, 1993-2001	9	1	1
Iraq	1961-70, 1973-96	10	24	0
<i>Oil Arab Economies</i>				
United Arab Emirates		0	0	0
Bahrain		0	0	0
Kuwait		0	0	0
Libya		0	0	0
Oman	1972-75	0	0	4
Qatar		0	0	0
Saudi Arabia		0	0	0
<i>Diversified Arab Economies</i>				
Egypt		0	0	0
Jordan	1970-71	1	1	0
Lebanon	1969-73, 1975-90	6	9	6

Morocco	1971, 1975-89	6	9	1
Syria	1963, 1966, 1979-81, 1982	1	0	5
Tunisia	1980	0	0	1
<b><i>Primary Export Arab Economies</i></b>				
Djibouti	1991-94	0	0	4
Mauritania		0	0	0
Sudan	1963-72, 1976, 1983-2001	27	2	1
Yemen	1962-70, 1972, 1978-1982, 1986	6	4	6
<b><i>Arab World</i></b>		3.3	2.5	1.45
<b><i>East Asia</i></b>		3.2	5.067	0.867
<b><i>Latin America</i></b>		2.522	1.522	1.913
<b><i>Sub-Saharan Africa</i></b>		8.733	6.933	2.067
<b><i>OECD</i></b>		na	na	na
<b><i>World</i></b>		1.973	1.508	1.572

**Table 4: Civil and International Conflicts in the Arab World (Continued)**

		Interstate Wars		
		High Intensity	Intermediate Intensity	Low Intensity
Years of War		Years	Years	Years
<b><i>Mixed Oil Arab Economies</i></b>				
Algeria	1963	0	0	1
Iraq	1974, 1980-88	9	0	1
<b><i>Oil Arab Economies</i></b>				
United Arab Emirates	1991	0	0	1
Bahrain	1991	0	0	1
Kuwait	1990-1991	1	0	1
Libya	1978-79, 1987	1	2	0
Oman	1991	0	0	1
Qatar	1991	0	0	1
Saudi Arabia	1973, 1991	0	1	1
<b><i>Diversified Arab Economies</i></b>				
Egypt	1967, 1969-70, 1973, 1991	2	1	2
Jordan	1967, 1973	2	0	0
Lebanon	1968, 1978, 1982	0	0	3
Morocco	1960, 1963-64, 1967, 1975-79, 1991	7	1	2
Syria	1967, 1970, 1973, 1990, 1991	3	0	2



Tunisia	1961	1	0	0
<b><i>Primary Export Arab Economies</i></b>				
Djibouti		0	0	0
Mauritania	1975-79, 1989-90,	5	2	0
Sudan		0	0	0
Yemen	1964-67	0	0	4
<b><i>Arab World</i></b>		1.55	0.35	1.05
<b><i>East Asia</i></b>		2.467	1.067	1.133
<b><i>Latin America</i></b>		0.043	0	0.087
<b><i>Sub-Saharan Africa</i></b>		2.067	2.267	1.867
<b><i>OECD</i></b>		2.033	0.833	2.2
<b><i>World</i></b>		0.957	0.578	0.936

Sources:

Correlates of War Database and Armed Conflicts Database

**Table 5: Determinants of Economic Growth, 1965-00**

Dependent Variable: Growth Rate of GDP per capita

	[I] Pooled OLS	[II] Within OLS	[III] Levels-IV GMM	[IV] System-IV GMM
<i>Catch-up Effects:</i>				
Initial GDP per capita	-0.01 (0.000)	-0.039 (0.000)	-0.011 (0.000)	-0.008 (0.000)
Initial/Cyclical Output Gap	-0.234 (0.000)	-0.167 (0.000)	-0.275 (0.000)	-0.279 (0.000)
<i>Demographic Gift:</i>				
Growth EAP/POP (avg. 65-00)	2.984 (0.000)	-	3.253 (0.000)	2.151 (0.000)
<i>Structural Factors:</i>				
Sec. Schooling Enrollment	0.057 (0.000)	0.021 (0.367)	0.064 (0.000)	0.072 (0.000)
Openness	0.007 (0.053)	0.025 (0.000)	0.003 (0.456)	0.016 (0.000)
<i>Conflict:</i>				
International Wars*	0.000 (0.735)	-0.001 (0.217)	-0.001 (0.473)	0.000 (0.060)
<i>Macro-Institutional Environment:</i>				
Inflation	-0.003 (0.014)	-0.006 (0.000)	-0.004 (0.001)	-0.004 (0.000)
ICRG	0.079 (0.000)	0.056 (0.016)	0.054 (0.001)	0.071 (0.000)
Government Consumption	-0.010 (0.053)	-0.015 (0.176)	-0.006 (0.206)	-0.026 (0.000)
<i>Geography and Endowment:</i>				
Population Density at Coast*	0.002 (0.641)	-	0.000 (0.898)	0.006 (0.007)

Temperate Climate*	0.021	-	0.026	0.017
	(0.001)		(0.000)	(0.001)
Oil Dummy*	-0.004	-	-0.003	-0.006
	(0.492)		(0.595)	(0.024)
<i>External Shocks:</i>				
	1975-1979			-0.013
				0.000
	1980-1984	-0.016	-0.006	-0.014
		(0.000)	(0.065)	(0.000)
	1985-1989	-0.012	-0.016	-0.012
		(0.002)	(0.000)	(0.001)
	1990-1994	-0.016	-0.011	-0.014
		(0.000)	(0.000)	(0.000)
	1995-2000	-0.021	-0.011	-0.018
		(0.000)	(0.002)	(0.000)
Intercept		-0.316	0.015	-0.358
		(0.000)	(0.002)	(0.000)
No. countries/observations	70/318	70/318	70/318	70/318
<b>Sargan Test:</b>			0.420	0.604
<b>Serial Correlation:</b>				
	First-order	0.001	0.000	0.001
	Second-order	0.212	0.341	0.325
				0.218

*Notes:*

1. P-Values in parentheses
2. An asterisk indicates exogenous explanatory variables which are time invariant except for international wars. All other variables are assumed to be endogenous including the time-invariant average demographic gift.
3. Period 1975-79 was controlled for the pooled OLS, within OLS, and levels-IV GMM in order to fix the sample size for all regressions.

**Table 6: Growth and Fractionalization**

Dependent Variable: Change in Mean Growth of GDP per Capita, 1985-1994 vs. 1965-1984

	[I]	[II]	[III]	[IV]	[V]
Growth (1965-1984)	-0.789 (0.00)	-0.785 (0.00)	-0.788 (0.00)	-0.795 (0.00)	-0.802 (0.00)
Income (1984)	-0.004 (0.15)	-0.006 (0.02)	-0.006 (0.02)	-0.005 (0.03)	-0.004 (0.10)
Rule of Law	0.006 (0.04)	0.005 (0.04)	0.005 (0.02)	0.005 (0.03)	0.005 (0.03)
Lack of Democracy	-0.008 (0.41)	-0.004 (0.70)			
Shock	-0.117 (0.18)	0.161 (0.09)	0.154 (0.09)		
Ethnic Fractionalization		-0.002 (0.06)	-0.002 (0.06)	-0.002 (0.08)	
Conflict (Ethnic)		-0.035 (0.00)	-0.036 (0.00)	-0.027 (0.00)	-0.033 (0.00)
Intercept	0.009 (0.64)	0.036 (0.08)	0.031 (0.06)	0.031 (0.06)	0.013 (0.29)
Observations	87	82	82	82	82
Adjusted R2	0.40	0.40	0.41	0.40	0.38
F	12.37	8.80	10.36	11.58	13.34

Notes:

P-values in Parentheses

Shock = SD Ln(terms of trade 80-89) x openness (70-84)

Ethnic Fractionalization - Easterly et al. measure (Standardized 1 to 10)

Lack of Democracy - (10-Polity)/2 (Standardized 1 to 10)

Rule of Law - subcomponent of ICRG

Conflict = Shock \* Ethnic Fractionalization \* Lack of Democracy

**Table 7: Growth Performance in the Arab World and East Asia, 1985-94**

	Coefficient	EA-MOAE	EA-OAE	EA-DAE	DE-PEAE
<b>Catch-up and Cyclical Effects:</b>		<b>0.3091%</b>	<b>1.5074%</b>	<b>-0.2037%</b>	<b>-1.5677%</b>
Initial GDP per capita	-0.0080	-0.3830%	1.1614%	-0.6777%	-0.7639%
Initial/Cyclical Output Gap	-0.2790	0.6921%	0.3460%	0.4740%	-0.8038%
<b>Demographic Gift:</b>		<b>0.5954%</b>	<b>0.7124%</b>	<b>0.5732%</b>	<b>1.4091%</b>
Growth EAP/POP (avg. 65-00)	2.1510	0.5954%	0.7124%	0.5732%	1.4091%
<b>Structural Factors:</b>		<b>0.1687%</b>	<b>-0.7524%</b>	<b>0.2025%</b>	<b>2.6543%</b>
Sec. Schooling Enrollment	0.0720	-0.0661%	-0.7160%	0.2925%	1.6658%
Openness	0.0160	0.2347%	-0.0363%	-0.0900%	0.9885%
<b>Military Conflict:</b>					
International Wars	-0.0003	0.0000%	0.0450%	0.0450%	-0.0450%
<b>Macro-Institutional Environment:</b>		<b>3.0044%</b>	<b>2.7236%</b>	<b>2.6594%</b>	<b>2.2907%</b>
Inflation	-0.0040	0.5366%	-0.2337%	0.2413%	0.5104%
ICRG	0.0710	1.1428%	0.6346%	1.2094%	1.0384%
Government Consumption	-0.0260	1.3250%	2.3228%	1.2087%	0.7419%
<b>Geography and Endowment:</b>		<b>0.3771%</b>	<b>0.9526%</b>	<b>0.1256%</b>	<b>0.3799%</b>
Population Density at coast	0.0060	-0.1160%	0.3526%	0.1273%	0.3782%
Temperate Climate	0.0170	-0.1069%	0.0000%	-0.0017%	0.0017%
Oil Share	-0.0060	0.6000%	0.6000%	0.0000%	0.0000%
<b>Country-specific Characteristics:</b>					
Country Effects		6.0917%	9.7447%	3.2314%	0.3453%
<b>Explained Difference</b>		<b>10.5463%</b>	<b>14.9334%</b>	<b>6.6333%</b>	<b>5.4666%</b>
<b>Actual Difference</b>		<b>7.5319%</b>	<b>7.7588%</b>	<b>4.7276%</b>	<b>1.5920%</b>

Notes:

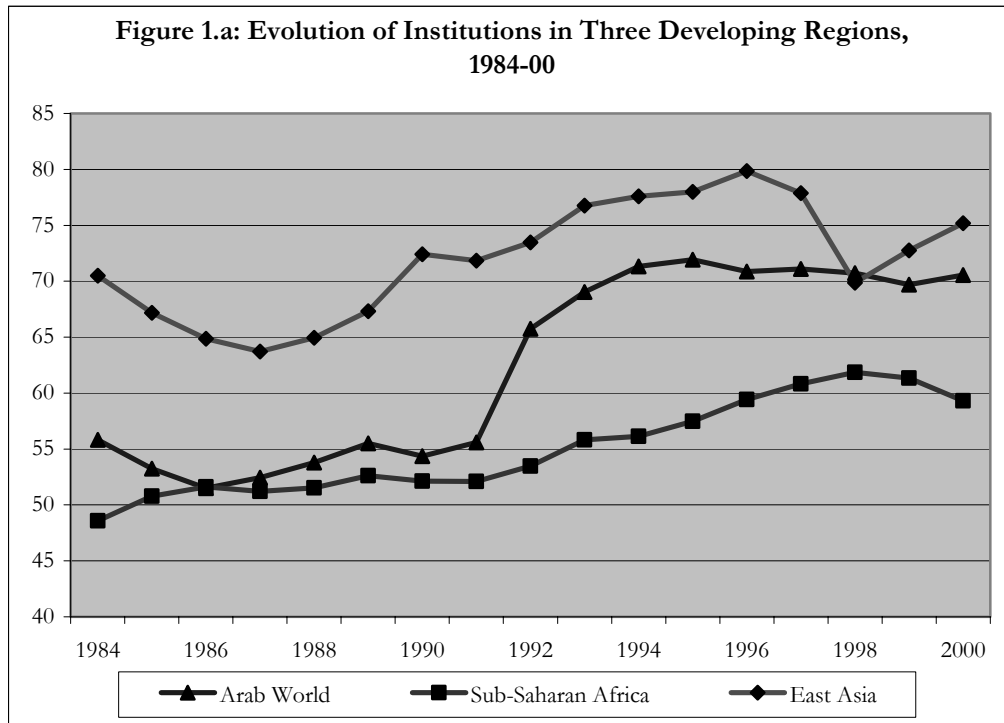
The coefficients are taken from regression IV (System-IV GMM) of Table 5.

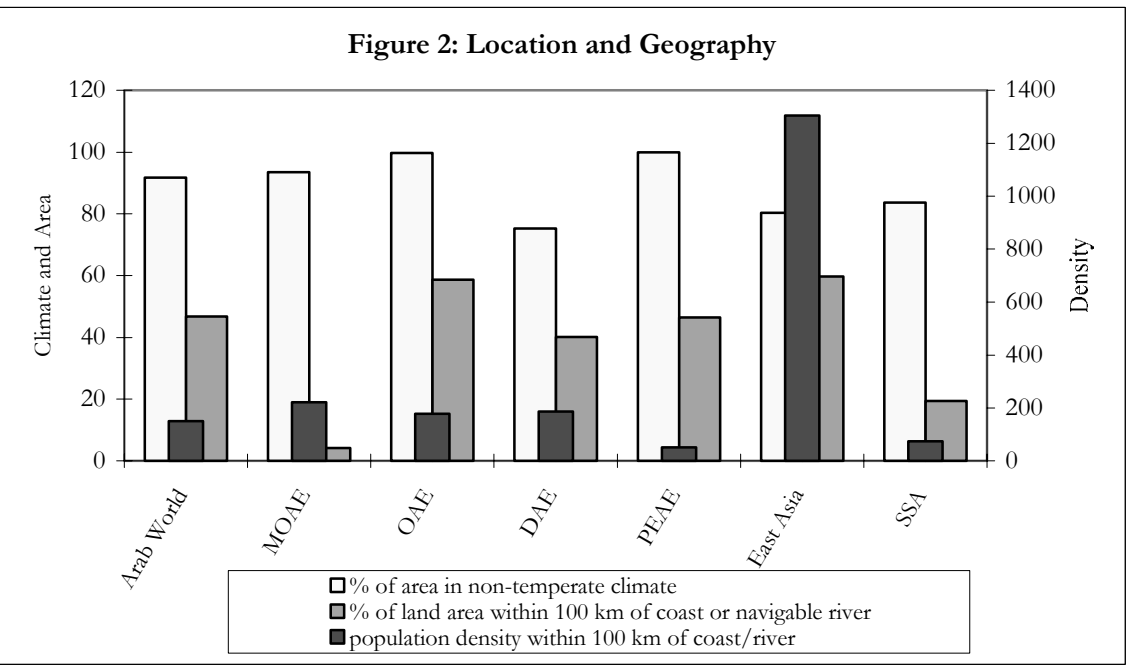
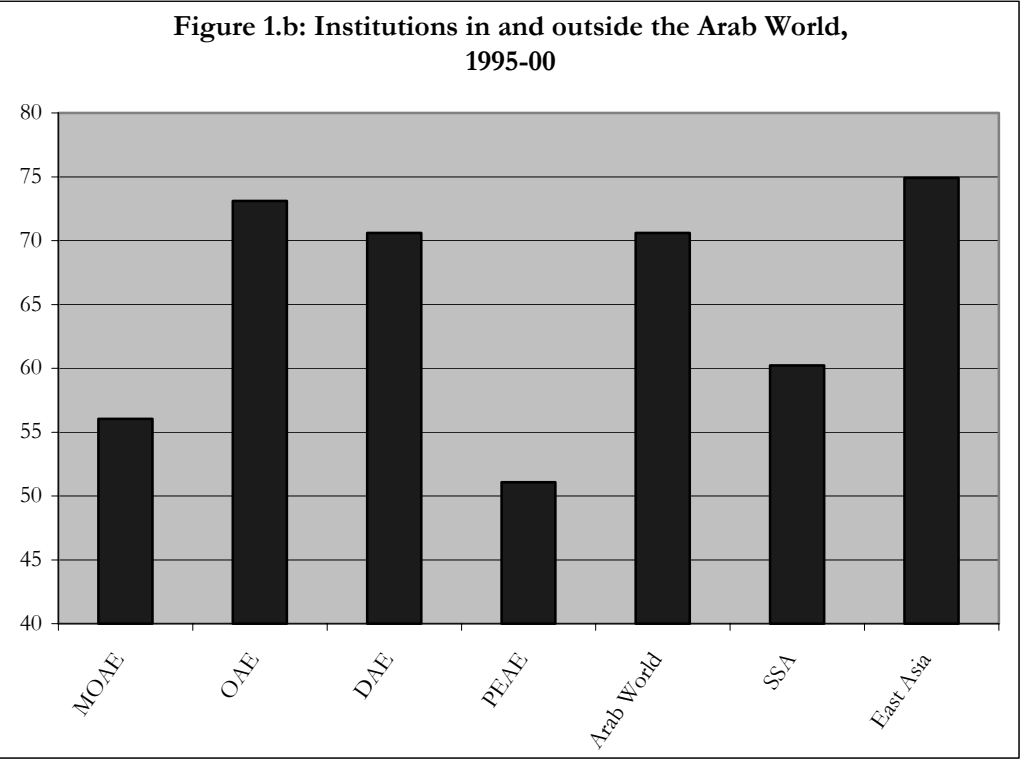
**Table 8: The Collapse of Growth in the Arab World (1985-94 vs. 1975-84)**

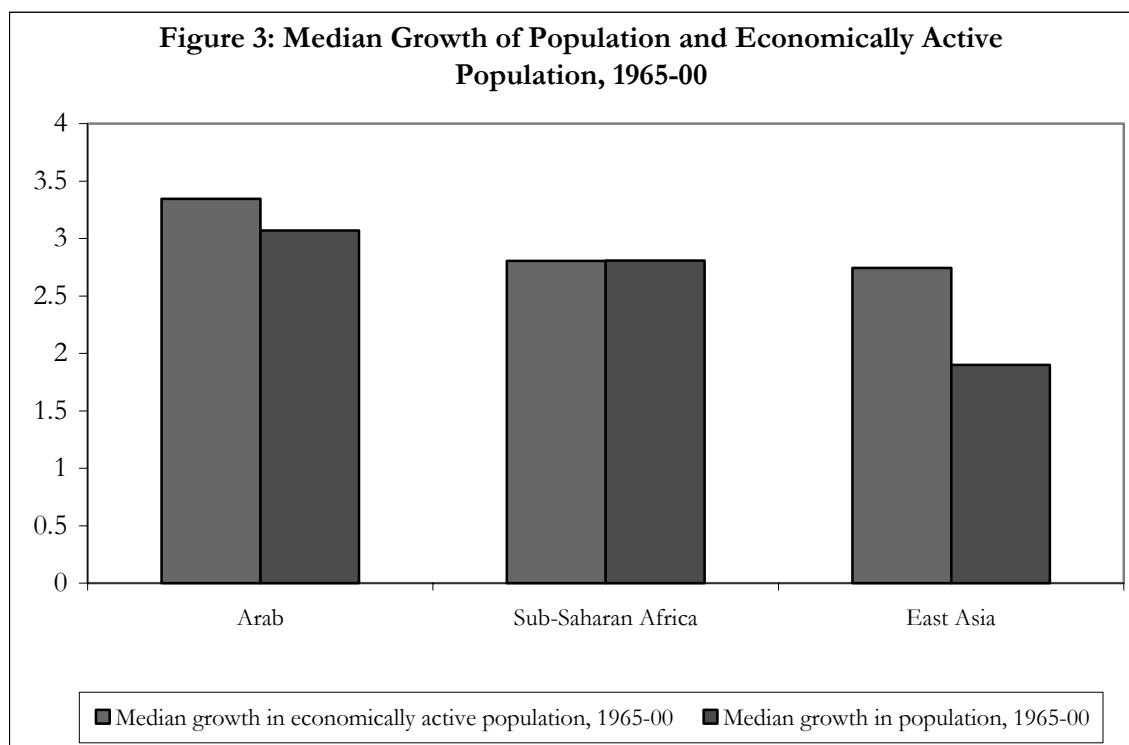
<b>Region:</b>	<b>Difference from World Mean Change in Growth (1)</b>	<b>Change in Growth Attributed to Differences from World Mean in:</b>			<b>Predicted Change in Growth (2+3+4)</b>
		<b>Catch-up Effects (Sum of Previous Period Growth and Initial Income Effects) (2)</b>	<b>Institutions (Rule of Law) (3)</b>	<b>Ethnic Conflict (4)</b>	
Arab	-1.717%	-0.874%	-0.280%	-0.405%	-1.559%
East Asia	1.582%	-1.047%	0.242%	0.331%	-0.474%

*Notes:*

1. Coefficients are taken from equation 5 of table 6.
2. The World mean of each variable, including Mean Change in Growth, is subtracted from each Regional variable.







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**Table A.1: Definitions and Sources of Variables**

Variable	Definition	Source
GDP growth	Log difference of per capita GDP (1995 US\$).	WDI (2003), Summers & Heston 6.1.
Initial GDP gap	Difference between the log of actual GDP and the log of potential GDP around the start of the period. In order to decompose the log of GDP, the Baxter-King filter was used.	Author's calculations.
EAP/POP (1965-00)	Average growth of the ratio of economically active population (16-64 years of age) over total population.	WDI (2003).
Gross secondary school enrollment	Ratio of total secondary enrollment, regardless of age, to the population of the age group that officially corresponds to that group. Beginning of period values are used here.	WDI (2003).

Gross primary school enrollment	Ratio of total primary enrollment, regardless of age, to the population of the age group that officially corresponds to that group.	WDI (2003).
Life Expectancy	Number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	WDI (2003).
Government Consumption	Ratio of government consumption to GDP.	WDI (2003).
Inflation	Measured by the consumer price index: annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services.	WDI (2003).
Openness	The volume of trade over GDP adjusted for the size of the country (area and population), for whether it is an oil exporter, and for the percentage of the country's population living within 100 km of coast.	WDI (2003) and author's calculations.
Population density	Population density around 100 km from the coast.	Geographic Information System (1998).
Temperate climate	Percentage of country's land in temperate climate.	Geographic Information System (1998).
Oil share	Takes the value of 1 for countries that are members of OPEC, including Ecuador which left the organization in 1992; takes the value of 0 otherwise.	OPEC www.opec.org

**Table A.1: Definitions and Sources of Variables (Continued)**

Polity	Annual indicators of regime and authority characteristics. It is obtained by subtracting the AUTOC score from the DEMOC score. AUTOC is created by rating the following components: competitiveness of executive recruitment, openness of executive recruitment, constraint on chief executive, regulation of participation. DEMOC is created by rating the following components: competitiveness of executive recruitment, openness of executive recruitment, constraint on chief executive, competitiveness of political participation. Ranges between -10 and 10 where higher values stand for better performance.	Political Regime Characteristics and Transitions 1800-2002, IV. <a href="http://www.cidcm.umd.edu/inscr/polity">www.cidcm.umd.edu/inscr/polity</a>
ICRG	Comprehensive index based on political, financial, and economic components.	Political Risk Services Group. <a href="http://www.prsgroup.com">www.prsgroup.com</a>

Fractionalization	Measure of a country's social fractionalization in the areas of ethnicity, religion, and language. Ranges from 0 to 1 where the higher the value the greater the fractionalization in a country.	Alesina et al., 2003.
Shock	Standard deviation of the first log-difference of the terms of trade x average share of total trade over GDP.	WDI (2003) and Handbook of International Trade (2001).
International Wars	Years of international wars fought by a country multiplied by war intensity. War intensity varies from 1 (low) to 3 (high).	Correlates of War, Armed Conflict Database, and author's calculations.

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**Table A.2: Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Growth	0.013	0.026	-0.073	0.084
Initial GDP per capita (logs)	7.963	1.545	5.326	10.708
Initial Output Gap	-0.001	0.026	-0.098	0.085
Average (EAP/POP) 65-00	0.003	0.002	-0.002	0.008
Secondary School Enrollment (logs)	5.048	0.193	4.681	5.470
Openness	0.074	0.359	-1.468	1.172
International War Years	0.374	1.472	0.000	15.000
Inflation (logs)	2.418	1.335	-1.464	8.119
ICRG (rescaled between 0 and 1)	0.640	0.158	0.280	0.954
Government Consumption (logs)	2.675	0.383	1.472	3.704
Temperate Climate [ $\ln(100+x)$ ]	4.849	0.280	4.605	5.298
Density [ $\ln(100+x)$ ]	5.359	0.506	4.605	6.860
Oil Share [ $\ln(100+x)$ ]	0.091	0.288	0.000	1.000

**Table A.3: Correlation Matrix**

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Growth	Initial Output	Initial Output Gap	Average Growth of (EAP/POP) 65-00	Secondary School Enrollment	Openness	Int'l War	Inflation	ICRG	Temperate Climate	Gov. Consumption	Pop. Density	Oil Share
1												
0.20	1											
-0.24	0.04	1										
0.28	-0.13	-0.06	1									
0.31	0.86	0.05	-0.04	1								
0.22	0.06	0.05	0.21	0.12	1							
-0.05	-0.02	-0.04	0.00	0.02	-0.12	1						
-0.30	-0.30	-0.14	0.05	-0.30	-0.21	-0.02	1					
0.39	0.79	0.04	-0.11	0.73	0.26	-0.06	-0.55	1				
0.24	0.65	0.04	-0.27	0.60	-0.08	0.03	-0.16	0.52	1			
-0.04	0.48	0.08	-0.29	0.41	0.23	0.04	-0.25	0.39	0.31	1		
0.13	-0.15	0.06	0.08	-0.01	-0.06	0.05	-0.13	-0.09	0.13	0.02	1	
-0.13	-0.18	0.02	0.16	-0.18	-0.03	0.14	0.11	-0.19	-0.27	0.13	0.02	1

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