Why economic growth has been weak in Arab countries: The role of exogenous shocks, economic policy failure and institutional deficiencies

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Why Economic Growth Has Been Weak in Arab Countries: The Role of Exogenous Shocks, Economic Policy Failure and Institutional Deficiencies

by Peter Nunnenkamp

Contents

- The gap between the per capita income of most Arab countries and that of advanced industrial countries has widened since the early 1990s. The economic growth performance of the Arab world has been weak by developing country standards, too. Yet, the diversity of growth patterns within this group defies easy generalizations on the reasons underlying the disappointing performance.

- In some cases, country-specific shocks played a role, notably for relatively high growth in Sudan (discovery of oil) and the poor performance of Jordan (embargo on neighboring Iraq). On the whole, however, influences beyond the immediate control of Arab policymakers contribute surprisingly little to the explanation of growth patterns. The relation between terms-of-trade developments and economic growth turns out to be extremely weak. Moreover, the IMF and the World Bank are hardly to blame for imposing ineffective policy conditionality on Arab countries, if only because the leverage of international financial institutions has remained limited in the region.

- Economic policy failure in Arab countries appears to be a more important reason for poor growth. Even though the region has partly fallen into line with the Washington Consensus, various Arab countries lag behind other developing countries when it comes to trimming the interventionist role of the state and integrating themselves into the global division of labor through trade and foreign direct investment (FDI).

- Nevertheless, the relation between macroeconomic conditions, factor accumulation as well as trade and FDI liberalization on the one hand and economic growth on the other hand remains elusive. This may be because reforms have not gone far enough and have remained fragmentary even in Arab countries with a relatively favorable growth performance. It can neither be ruled out, however, that some elements of the Washington Consensus have been less effective than widely expected in promoting growth. For example, the enclave character of FDI in some Arab countries is rather unlikely to spur per capita income growth. This implies that country-specific conditions deserve close attention when designing economic policy reforms. In Arab countries with low per capita income, domestic resource mobilization appears to be more important than attracting FDI. Even in more advanced countries such as Egypt and Tunisia, continued efforts towards human capital formation are key to sustainable growth.

- Furthermore, policy-related variables and economic growth depend on more deeply rooted institutional deficiencies. Institutions in many Arab countries are less advanced than their income level would suggest. The experience of several oil exporters in the region supports the proposition that the abundance of oil encourages rent-seeking and exerts a negative impact on economic growth via its deleterious impact on institutional development.

- As a consequence, economic policy reforms along the lines of the Washington Consensus are not sufficient to improve the growth prospects of Arab countries. The call for institutional reforms mainly applies to resource-rich countries such as Algeria, Saudi Arabia and Sudan, notwithstanding their different growth performance in the past. It may prove difficult for these countries to overcome the natural resource curse, but the successful transformation of a country like Mexico from an oil-dependent to a highly diversified economy with more advanced institutions may show Arab countries the way.
## Contents

1  Introduction 3

2  Relative Growth Performance 3

3  How Relevant Are Exogenous Factors? 5

4  Insufficient Policy Reforms? 8

5  Institutional Deficiencies? 13

6  Summary and Conclusions 16

Annex 18

References 19
1 Introduction

Most developing countries have failed to catch up economically to advanced industrial countries in the process of globalization (Nunnenkamp 2003a). Arab countries are no exception in this regard. Rather, recent reports suggest that Arab countries have even underperformed when compared with other developing countries. According to the World Bank (2003b: 22), “the results on the ground, and especially growth, remained disappointing.” Abed (2003: 11) notes that growth of per capita income has faltered in the Middle East and North Africa (MENA), compared with the rest of the developing world. Furthermore, according to various experts, the major responsibility for the poor economic growth performance rests with the Arab countries themselves. Frequently mentioned domestic policy failures include the strong and interventionist role of the state, poor integration into international trade and insufficient attractiveness to foreign direct investment (FDI).

We assess the empirical relevance of these claims in the following. In addition, we raise some propositions that have received less attention in the literature. Apart from economic policy failure, we check whether exogenous factors and institutional deficiencies prevented higher economic growth of Arab countries. The subsequent analysis covers 18 Arab countries, namely the 15 members of the Arab Planning Institute (API) plus Algeria, Morocco and Saudi Arabia.1 Throughout the paper, a large group of other developing countries in Africa, Asia and Latin America serves as the point of reference, in order to assess the relative position of Arab countries.

The paper is structured as follows. Section 2 portrays the economic growth performance of Arab countries since 1992. In Section 3, we discuss the relevance of exogenous factors, including the geographical distance from world economic centers, terms-of-trade developments, and IMF conditionality. We turn to an evaluation of economic policy failures in Section 4, and assess institutional deficiencies in Section 5. Section 6 summarizes and offers some conclusions.

2 Relative Growth Performance

The evidence presented in this section supports the view that the economic performance of most Arab countries has been “disappointing” (Hoekman and Messerlin 2002: 1). Economic growth is measured by relating the per capita income (in PPP terms) of sample countries to the per capita income of the United States (representing the group of advanced industrial countries) and by comparing this relative income measure between the years 2001 and 1992:

\[
GNIUS_i = \frac{GNI10i}{GNI10US} : \frac{GNI92i}{GNI92US}
\]

with \(i = \) sample countries.

Accordingly, \(GNIUS = 1\) represents the dividing line between developing countries which caught up to the United States \((GNIUS > 1)\) and those which fell further back \((GNIUS < 1)\).

We assess the growth performance of Arab countries for the relatively short period of 1992–2001, in order to avoid biased results due to exceptional factors in the 1980s and at the beginning of the 1990s. We refrain from considering the 1980s in order to exclude the peak and subsequent drop of oil prices.2 Furthermore, countries such as Jordan and Lebanon suffered political and economic instability in the late 1980s, resulting in exchange-rate volatility and sharply declining per capita incomes. Distortions may also result from the first Gulf War in 1991.

Yet, the choice of the observation period hardly affects the overall picture of the growth performance of Arab countries. In an earlier paper, we found that the income gap to the United States widened for almost all Arab countries in 1980–2000, with Egypt, Tunisia and Sudan

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1 Due to data constraints, however, the number of observations varies in the different steps of our analysis. API members are: Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Oman, Qatar, Sudan, Syria, Tunisia, United Arab Emirates and Yemen.

having performed best (Nunnenkamp 2003b). Figure 1 portrays a similar pattern for 1992–2001. Only 4 out of 15 Arab countries succeeded to narrow, at least somewhat, the income gap to the United States (the three aforementioned countries plus Yemen). For the majority of Arab countries, the growth performance proved to be weak not only relative to the United States, but also relative to the control group of other developing countries.

Four oil-rich Arab countries figure at the bottom of Figure 1, revealing a particularly poor growth performance. Nevertheless, the growth patterns of Arab countries defy easy generalizations. Resource-poor Jordan ranks next to oil-rich Oman. Egypt clearly outperformed Syria, even though both countries started from a similar initial income of 10 percent of US income in 1992. Bahrain fared considerably better than most other oil-dependent countries. Likewise, economic growth differed remarkably between neighboring countries such as Tunisia and Algeria, or Lebanon and Syria. Hence, the subsequent sections address various propositions that may account for (i) the generally poor growth performance of Arab countries, and (ii) the considerable diversity of growth patterns within this group.

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3 The relevant data are missing for Iraq, Libya and Qatar.

4 According to the MENA Development Report, per capita income has increased considerably in the United Arab Emirates since 1989 (World Bank 2003b: 24). The data reported there are in stark contrast to the data we draw from the World Development Indicators (World Bank 2003a).
3 How Relevant Are Exogenous Factors?

Before turning to what appears to be the predominant view in the literature, namely that Arab countries themselves are to blame for poor growth, we discuss some factors which may be considered exogenous in the sense that they escape the immediate control of Arab policymakers. Possible candidates are: geographical distance from world economic centers, terms-of-trade shocks, and forced compliance with policy conditionality, along the lines of the so-called Washington Consensus, attached to IMF and World Bank loans.

The hypothesis that distance from economic centers hinders growth at the periphery is firmly rooted in development economics. While earlier critics of the international economic system portrayed center-periphery relations in terms of intentional exploitation, more conventional economic analyses regard distance as a structural impediment to economic development at the periphery. According to so-called gravity models, it is more difficult for remote economies to benefit from international trade and FDI. This is because economic transactions between the center and remote economies involve higher costs related to information, communication, monitoring and transportation (e.g., Fujita et al. 1999).

With few exceptions, however, Arab countries are not handicapped by large distance to world economic centers. Figure 2 shows the average distance in kilometers between the capitals of Arab countries on the one hand and the capitals of Germany (as a proxy for the EU), Japan, and the United States on the other hand. By this measure, Arab countries are located closer to world economic centers (average distance: 7,540 kilometers) than all developing countries taken together (8,810 kilometers). Moreover, the growth differences between Arab countries are in some conflict with the notion of distance-related barriers to economic development. Sudan and Yemen are shown in Figure 1 to have narrowed the income gap to advanced industrial countries, even though they are located furthest away from world economic centers. Economic catching up of Tunisia might have been helped by its relatively favorable location, but the same advantage did not prevent Algeria from falling back considerably. Across all Arab countries, the correlation between our measure of distance and per-capita income growth in 1992–2001 turned out to be totally insignificant.

Likewise, terms-of-trade shocks do not provide a convincing explanation of the disappointing growth performance of Arab countries. This is not to ignore that several empirical studies support the view that declining (net barter) terms of trade are still an issue for developing countries. For example, the findings of Sapsford and Chen (1999) as well as Lutz (1999), in one way or another, point to the continuous relevance of the famous Prebisch/Singer hypothesis, according to which the terms of trade of developing countries, whose exports traditionally consisted mainly of primary commodities characterized by low income elasticity, are bound to deteriorate in the longer run.

The terms of trade of various Arab countries obviously depend on the development of oil prices in the first place. Figure 3 reveals the strong correlation between oil prices and the terms of trade if Arab countries are considered as a group. It is also shown that Arab countries have been subject to much more volatile terms of trade since the early 1990s than other developing countries. Terms-of-trade volatility is considered by Sala-i-Martin and Subramanian (2003) to be one of the mechanisms through which economic growth of oil-rich countries may be impaired. In the cross-country regressions of these authors, higher volatility tends to be correlated negatively

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5 For a more detailed account of exogenous factors, see Nunnenkamp (2004a).

6 Sala-i-Martin and Subramanian (2003) do not find that natural resources such as oil have any direct impact on economic growth. Two other indirect mechanisms are discussed by these authors, namely the impact through overvalued real exchange rates (Dutch disease) and institutional deficiencies. Overvaluation turns out to be never significant in the cross-country regressions. However, resource abundance in oil (and minerals) is shown to have a negative effect on growth by impairing institutional quality (see also Section 5 below).
Figure 2:
Distance from World Economic Centers*: Arab Countries Compared to All Developing Countries

*Average distance to Germany (representing the EU), Japan and the United States in kilometers.  
Source: http://www.macalester.edu/research/economics/page/haveman/trade.resources/data/gravity/dist.txt;  

Figure 3:
Terms of Trade: Arab Countries Compared to All Developing Countries*, 1992–2000

*1992=100; group averages of net barter terms of trade.  — bAPI members plus Algeria, Morocco and Saudi Arabia.  
with growth, but the coefficient is not consistently significant. In any case, for analytical as well as empirical reasons, the terms of trade do not provide an exogenous reason for the weak growth of Arab countries reported above. The typical assumption that small countries are price-takers in international markets, which implies that the terms of trade are beyond their control, does not hold for oil-exporting countries. Several Arab countries are members of OPEC whose output decisions, at least occasionally, affect oil prices significantly.

In empirical terms, all Arab countries taken together suffered terms-of-trade losses in 1993–1995 and in 1998. Subsequently, however, rising oil prices have resulted in terms-of-trade gains. Comparing 2000 (the latest year for which World Bank data are available) and 1992, Figure 4 indicates terms-of-trade gains for 12 out of 16 Arab countries. More surprisingly perhaps, 2 of the 4 exceptions, namely Egypt and Tunisia, have performed relatively well in terms of growth (Figure 1). As a result, the change in the terms of trade, according to Figure 4, is negatively, though not significantly, correlated with the growth performance in 1992–2001 across Arab countries. It is only for Jordan and, to a lesser extent, Mauritania that terms-of-trade losses offer a reasonable explanation for falling further back economically.

In contrast to the more traditional arguments related to distance and terms of trade, another factor beyond the control of developing countries has received much attention only recently. Globalization critics attribute widening income gaps between advanced industrial countries and developing economies to counterproductive policy recipes of the so-called Washington Consensus. Prominent economists such as Easterly (2001) and Stiglitz (2002) have highlighted the flaws of policy conditionality that developing countries had to accept in the context of conventional stabilization and structural adjustment programs, designed and funded by Washington-based institutions, notably the IMF. By contrast, inter-

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*Figure 4: Terms of Trade of Arab Countries: 2000 compared to 1992*  

<table>
<thead>
<tr>
<th>Country</th>
<th>1992</th>
<th>2000</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwait</td>
<td>1.91</td>
<td>1.87</td>
<td>-0.04</td>
</tr>
<tr>
<td>Syria</td>
<td>0.90</td>
<td>0.97</td>
<td>0.07</td>
</tr>
<tr>
<td>Libya</td>
<td>0.97</td>
<td>1.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Qatar</td>
<td>0.99</td>
<td>1.08</td>
<td>0.09</td>
</tr>
<tr>
<td>UAE</td>
<td>1.52</td>
<td>1.58</td>
<td>0.06</td>
</tr>
<tr>
<td>Iraq</td>
<td>1.47</td>
<td>1.52</td>
<td>0.05</td>
</tr>
<tr>
<td>Algeria</td>
<td>1.40</td>
<td>1.43</td>
<td>0.03</td>
</tr>
<tr>
<td>Oman</td>
<td>1.39</td>
<td>1.40</td>
<td>0.01</td>
</tr>
<tr>
<td>Saudi Ar.</td>
<td>1.32</td>
<td>1.39</td>
<td>0.07</td>
</tr>
<tr>
<td>Sudan</td>
<td>1.08</td>
<td>1.12</td>
<td>0.04</td>
</tr>
<tr>
<td>Morocco</td>
<td>1.02</td>
<td>1.09</td>
<td>0.07</td>
</tr>
<tr>
<td>Lebanon</td>
<td>0.99</td>
<td>1.06</td>
<td>0.07</td>
</tr>
<tr>
<td>Tunisia</td>
<td>0.97</td>
<td>1.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Mauritania</td>
<td>0.90</td>
<td>0.97</td>
<td>0.07</td>
</tr>
<tr>
<td>Jordan</td>
<td>0.81</td>
<td>0.89</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Source: World Bank (2003a).*

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7 For a summary, see Williamson (1990), who also coined this term.
national financial institutions maintain that economic policy prescriptions were essentially correct and effective, and tend to blame the loan recipients for not having followed external advice or having implemented policy reforms at best partially.

It has been argued elsewhere that both claims obscure the multifaceted experience of developing countries (Nunnenkamp 2003a, 2003b). Major elements of the Washington Consensus, including macroeconomic stabilization efforts as well as liberalization measures, have proved less effective in promoting economic growth than hoped for by international financial institutions, but none of the correlations between policy-related variables and the growth performance of developing countries supports the view that conventional policy prescriptions were detrimental to growth. At the same time, various developing countries may have refrained from fully implementing the Washington Consensus, but most of them have clearly moved into this direction, by stabilizing their economies, liberalizing foreign trade and opening up to FDI.

Arab countries resemble other developing countries in that they have partly fallen into line with the Washington Consensus. The subsequent section will provide a detailed account of how Arab countries have adjusted their policies to the conventional wisdom of external advisers. In the present context, it is important to note that international financial institutions are hardly to blame for imposing ineffective, or even counterproductive, policy conditionality on Arab countries. The leverage of the IMF and the World Bank has remained fairly limited in most of these countries. Few Arab countries have drawn extensively on IMF and World Bank financing and have thus been subject to strict conditionality:

– Just 4 of the 18 countries have received IMF financing since 1993 (Algeria, Jordan, Mauritania, and Yemen) (IMF 2002: 18–27). IMF loans outstanding to Arab countries in mid-2002 accounted for 15 percent of the combined IMF quota of the 18 Arab countries, compared to 81 percent for all developing countries.8

– Some more Arab countries have received financing from the World Bank Group.9 Besides the four countries listed above, Egypt, Morocco, Sudan, and Tunisia reported considerable World Bank loans outstanding in 2001 (World Bank 2003a). Yet, all Arab countries taken together accounted for only 5.5 percent of outstanding World Bank loans extended to all developing countries.10

Apart from few Arab countries having fallen under the sway of international financial institutions, countries that did rely on IMF and World Bank financing do not appear to have suffered from conditionality. To the contrary, all five top growth performers in Figure 1 belong to the clients of international financial institutions, measured by their outstanding debt to the IMF and the World Bank in 2001/02. On the other hand, 3 of the 5 Arab countries which have fallen back most significantly have not drawn on IMF and World Bank financing (Algeria and Jordan representing the exceptions).

In summary, it appears that exogenous factors contribute surprisingly little to the explanation of the weak growth performance of Arab countries. This is not to ignore that the previous analysis does not capture country-specific exogenous shocks such as the negative impact of the Iraq embargo on neighboring Jordan. On the whole, however, domestic factors, to which we turn next, seem to be more important for the region’s growth performance.

4 Insufficient Policy Reforms?

We consider policy-related variables in this section in order to check what Arab countries have already achieved in terms of policy reforms and where important impediments to growth remain. Table 1 lists several variables reflecting the request of international financial institutions for

8 Excluding the high quota of Saudi Arabia, the percentage for Arab countries rises to 27 percent.

9 Comprising the International Bank for Reconstruction and Development and the International Development Association (IDA).

10 Their share in GDP of all developing countries was about twice as high.
Table 1: Policy-Related Variables: A Median for Arab Countries, Compared to Other Developing Countries

<table>
<thead>
<tr>
<th></th>
<th>Arab countriesb</th>
<th>Other DCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>8.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Government consumption</td>
<td>17.8</td>
<td>17.3</td>
</tr>
<tr>
<td>Gross fixed capital formation</td>
<td>26.3</td>
<td>22.0</td>
</tr>
<tr>
<td>Years of schoolingd</td>
<td>2.9</td>
<td>5.5</td>
</tr>
<tr>
<td>Imports</td>
<td>41.5</td>
<td>33.0</td>
</tr>
<tr>
<td>Import tariff revenues</td>
<td>13.6</td>
<td>9.7e</td>
</tr>
<tr>
<td>Exports</td>
<td>38.8</td>
<td>36.6</td>
</tr>
<tr>
<td>FDI inflows</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Inward FDI stocksf</td>
<td>1.0</td>
<td>12.9</td>
</tr>
</tbody>
</table>

aFor definition of variables and statistical sources, see Annex. — bDue to data constraints, the number of observations varies from 8 in the case of import tariff revenues to 18 in the case of FDI stocks. The average number of observations is 11. — cAnnual averages if not stated otherwise. — d1980 and 2000, respectively. — e1997–2000. — f1980 and 2002, respectively.


Macroeconomic stabilization, factor accumulation, trade liberalization and openness to FDI. 11 Macroeconomic stabilization efforts are captured by two variables: (i) annual average rates of inflation and (ii) government consumption expenditure in percent of GDP. Investment in physical and human capital is proxied by gross fixed capital formation in percent of GDP and average years of schooling, respectively. Trade-policy-related variables include the share of imports and exports in GDP as well as import tariff revenues in percent of import value. 12 Finally, openness to FDI is measured by FDI inflows and inward FDI stocks, both related to the host country’s GDP.

The first question we are interested in is how these variables have developed over time. If most countries had refused to implement the Washington Consensus, economic stability indicators would have deteriorated, investment in physical and human capital would have declined, and countries would not have opened up to trade and FDI. However, the evidence suggests that the economic policies pursued by Arab countries have been in accordance with the Washington Consensus at least in some respects:

- Compared to the median for other developing countries, inflation in Arab countries was already fairly low in the early 1980s. Inflation has been further reduced to a very low median in recent years. 13
- By contrast, government consumption, as a share of GDP, has been higher in Arab countries than in other developing countries. Moreover, Arab countries have curtailed government consumption only slightly. This tends to support the critique of Hoekman and Messerlin (2002: 1) that “most of the governments in the Middle East and North Africa have made scant headway in reducing the interventionist role of the state in the economy.” 14
- The evidence on factor accumulation is mixed. The share of gross fixed capital formation in GDP has declined considerably in Arab countries. On the other hand, human capital formation, proxied by average years of schooling, has improved more pronouncedly for Arab

11 For detailed definitions of variables and statistical sources, see the Annex.
12 In Table 1, we consider import tariff revenues, rather than average tariff rates, as the World Development Indicators of the World Bank present comprehensive time series data only for the former variable.
13 Significant improvements in macroeconomic policies in the MENA region are stressed by Hoekman and Messerlin (2002: 6).
14 For similar statements, see World Bank (2003b), Abed (2003: 13) and Bennett (2003: 22). Gardner (2003: 20) argues that a large share of government employment has impaired labor productivity growth in several Arab countries.
countries than for other developing countries. Nevertheless, Hoekman and Messerlin (2002: 23) reckon that education in the MENA region lags behind the rest of the world. Eken et al. (2003: 16) point out that education systems in some MENA countries remain ineffective, with high dropout and repetition rates offsetting high enrollment rates, even though government spending on education is relatively high.15

Trade-related indicators are in line with the reasoning of Hoekman and Zarrouk (2000: 2): “Virtually all Arab countries ... have undertaken major steps to implement tariff and fiscal reforms and to dismantle quantitative import restrictions. Notwithstanding these efforts, the pace of integration into the world economy achieved by the region has been slow” (see also Abed 2003: 11). Import tariff revenues have dropped below 10 percent of import value for Arab countries as well as other developing countries. Recent WTO data on average applied import tariffs underscore that tariff barriers are only slightly higher in Arab countries than in other developing countries.16 Nevertheless, Arab countries differ remarkably from other developing countries in that the import share in GDP, and to a lesser extent also the export share, has declined. This can be attributed, at least partly, to high transaction costs associated with international trade, resulting from inefficiencies in customs clearance procedures, administrative red tape, and deficient transportation and telecommunication services in many Arab countries (World Bank 2003b: 95).17

The ratio of inward FDI stocks to GDP has soared in both country groups, which is consistent with the worldwide trend towards the liberalization of FDI regulations reported by UNCTAD (2002: 7). However, the median of this ratio for Arab countries has remained substantially below the median for other developing countries. This is consistent with Nabli and De Kleine (2000), who found FDI flows to Arab countries to be relatively small and concentrated in a limited number of sectors.18

Taken together, the evidence points to partial reforms along the lines of the Washington Consensus in Arab countries. Especially the failure to develop closer links with the global economy through FDI as well as through trade in services and goods other than oil may have prevented a more positive growth impact of reforms (Hoekman and Messerlin 2002: 1). At the same time, the group averages reported so far disguise considerable differences within the group of Arab countries.

Table 2 ranks Arab countries for which the relevant data are available according to macroeconomic conditions, factor accumulation and integration into world markets. The ranking underscores that Arab countries, with few exceptions, lag behind other developing countries in terms of (i) reducing the role of the state, and (ii) integrating themselves into the global division of labor through exports and FDI.19 Furthermore, the country-specific evidence is consistent with the view that policy reforms have remained fragmentary almost everywhere. Even the top growth performers among Arab countries are below the median for other developing countries in some respects in Table 2:

15 See also Gardner (2003: 20) on low returns on MENA countries’ investment in education.
16 The median of import tariffs applied by 16 Arab countries amounts to 12.4 percent, compared to 10.9 percent for other developing countries (WTO 2003: Appendix Table II.B.4). Yet, Hoekman and Messerlin (2002: 8) argue that many countries in the MENA region maintain relatively high trade barriers in the form of tariffs.
17 For recent survey results on barriers to trade and investment in the MENA region, see Zarrouk (2002). According to Abed (2003: 14), “for the MENA region as a whole, overall trade restrictiveness (as measured by an index developed by IMF staff) is double the developing country average.”
18 Likewise, Hoekman and Messerlin (2002: 8) as well as Abed (2003: 12) point to the limited magnitude of FDI flows to the MENA region.
19 In an earlier paper, we argued that insufficient human capital formation is most likely to have hindered economic growth in various Arab countries (Nunnenkamp 2003b). This may still be true, even though average years of schooling have increased considerably in several Arab countries since 1980. This conventional proxy of human capital formation captures neither the quality of schooling nor the importance of vocational training.
### Table 2: Ranking of Arab Countries\(^a\) according to Policy-Related Variables

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<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia (-0.8)</td>
<td>Sudan (5.1)</td>
<td>Tunisia (25.7)</td>
<td>Jordan (6.9)</td>
<td>Kuwait (3.6)</td>
<td>Syria (20.0)</td>
<td>Jordan (4.1)</td>
<td>Bahrain (72.9)</td>
</tr>
<tr>
<td>Bahrain (-0.8)</td>
<td>Egypt (10.5)</td>
<td>Algeria (24.3)</td>
<td>Kuwait (6.2)</td>
<td>Qatar (4.2)</td>
<td>Morocco (10.4)</td>
<td>Sudan (3.7)</td>
<td>Tunisia (66.4)</td>
</tr>
<tr>
<td>Syria (-0.7)</td>
<td>Jordan (24.0)</td>
<td>Bahrain (6.1)</td>
<td>Sudan (5.4)</td>
<td>Tunisia (6.0)</td>
<td>Morocco (2.9)</td>
<td>Tunisia (2.8)</td>
<td></td>
</tr>
<tr>
<td>Morocco (1.5)</td>
<td>Morocco (23.5)</td>
<td>Syria (5.8)</td>
<td>Lebanon (5.4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan (1.5)</td>
<td>Mauritania (23.4)</td>
<td>Egypt (5.5)</td>
<td>Oman (5.7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Kuwait (1.7)</td>
<td>Algeria (5.4)</td>
<td>Bahrain (7.8)</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Qatar (2.0)</td>
<td>Mauritania</td>
<td></td>
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</tr>
<tr>
<td>Algeria (3.0)</td>
<td>Egypt (3.1)</td>
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<tr>
<td></td>
<td>Sudan (16.6)</td>
<td>Tunisia (15.7)</td>
<td>Mauritania (15.7)</td>
<td>Saudi Arabia (19.0)</td>
<td>Iraq (4.0)</td>
<td>Sudan (12.8)</td>
<td>Saudi Arabia (12.0)</td>
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<tr>
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<td>Iraq (4.0)</td>
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<td>Algeria (0.7)</td>
<td>Syria (14.7)</td>
<td>Lebanon (14.2)</td>
</tr>
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<td>Egypt (18.3)</td>
<td>Sudan (2.1)</td>
<td>Jordan (17.0)</td>
<td>Libya (14.7)</td>
<td>Mauritania (3.2)</td>
<td>Egypt (1.1)</td>
<td>Morocco (26.9)</td>
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<tr>
<td>Morocco (18.6)</td>
<td>Bahrain (13.6)</td>
<td>Libya (17.0)</td>
<td>Mauritania (–3.2)</td>
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<td>Qatar (14.7)</td>
<td>Jordan (26.0)</td>
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<tr>
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<td>Sudan (15.0)</td>
<td>Algeria (19.2)</td>
<td>Egypt (14.7)</td>
<td>Mauritania (1.0)</td>
<td>Oman (0.4)</td>
<td>Saudi Arabia (13.4)</td>
<td>Algeria (13.3)</td>
</tr>
<tr>
<td>Libya (23.0)</td>
<td>Kuwait (12.5)</td>
<td>Syria (19.6)</td>
<td>Kuwait (13.3)</td>
<td>Oman (1.0)</td>
<td>Saudi Arabia (13.4)</td>
<td>Kuwait (23.4)</td>
<td>Mauritania (12.6)</td>
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<td>Jordan (24.1)</td>
<td>Libya (11.7)</td>
<td>Egypt (19.9)</td>
<td>Saudi Arabia (22.8)</td>
<td>Kuwait (0.1)</td>
<td>Yemen (23.0)</td>
<td>Yemen (23.0)</td>
<td>Oman (12.6)</td>
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<tr>
<td>Saudi Arabia (26.7)</td>
<td>Libya (33.7)</td>
<td>Morocco (33.7)</td>
<td>Libya (–28.5)</td>
<td>Yemen (–2.6)</td>
<td>Mauritania (11.3)</td>
<td>Algeria (10.5)</td>
<td>Mauritania (11.3)</td>
</tr>
<tr>
<td>Kuwait (27.0)</td>
<td>Tunisia (33.9)</td>
<td>Bahrain (41.6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Algeria (9.6)</td>
</tr>
</tbody>
</table>

\(^a\)For Arab countries not listed, the relevant data are not available. For definition of variables and statistical sources, see Annex. — \(^b\)The dividing line is the median for the sample of all other developing countries. — \(^c\)1997–2000.

*Source:* World Bank (2003a); Barro and Lee (2002); WTO (2003); UNCTAD (2003).
Sudan’s growth performance may have been supported by its favorable ranking in terms of government consumption, import tariffs and FDI inflows. However, considering Sudan’s poor record in other dimensions, notably its weak factor accumulation, it is highly questionable whether the growth path is sustainable once the stimulus of recent oil discoveries fades. In the period under consideration, weak incentives for the accumulation of physical and human capital can be attributed to the long-lasting civil war in Sudan.

Egypt has succeeded to reduce inflation and government spending, and has more than doubled average years of schooling since 1980. On the other hand, the country ranks poorly, even by Arab standards, with regard to import protection and export performance. Furthermore, economic growth in Egypt may prove difficult to sustain, considering that the country’s position with regard to gross fixed capital formation and FDI inflows has deteriorated significantly in recent years (Nunnenkamp 2003b: Table 4).

Tunisia is in a favorable position in several dimensions, but applies the highest import tariffs among Arab countries.20 The particularly poor growth performance of some Arab countries can reasonably be attributed to policy-related bottlenecks. Saudi Arabia represents a case in point; reform efforts began only in 1999, and have progressed slowly (World Bank 2003b: 100). Except as concerns inflation, Saudi Arabia consistently ranks below the median for other developing countries in Table 2. Yet, the relation between policy-related variables and economic growth remains elusive. For example, Jordan and Algeria have suffered similar income losses according to Figure 1, although Jordan is considered an “early, intensive, and steady reformer” by the World Bank (2003b: 97) and performed better than Algeria in almost all dimensions of Table 2. There may be various reasons why policy reforms have turned out to be less effective than hoped for by Arab policymakers (as well as the proponents of the Washington Consensus, in general). As noted before, country-specific shocks, either positive (e.g., oil discoveries in Sudan) or negative (e.g., the embargo against neighboring Iraq in Jordan), have played a role. But the correlation of policy-related variables with economic growth may also be blurred by the fragmentary nature of reforms.

The latter proposition is often referred to by international financial institutions. The World Bank (2003b: 5) argues that “halfhearted attempts at trade reform in the absence of deeper domestic investment climate reforms fail to create much positive impact,” and concludes that the MENA region needs to deepen and accelerate reforms. In a similar vein, Abed (2003: 12) considers reforms that “did not achieve a necessary critical mass or did not go deep enough” to be responsible for the limited growth impact. The problem with this proposition is that it cannot be tested in the context of Arab countries because none has implemented the Washington Consensus fully. This proposition, however, is in some conflict with the fact that the relationship between policy-related variables and economic growth is ambiguous when a large sample of developing countries, including the group of Arab countries, is considered (Nunnenkamp 2003b). For example, domestic factor accumulation was strongly correlated with growth, whereas the relation between FDI and growth turned out to be weak. The latter finding puts into question the current euphoria about FDI as a stimulus to growth.21 Furthermore, the relation between openness to trade and FDI on the one hand and growth on the other hand weakens considerably if the calculation is based on a subsample of developing countries with relatively low per capita income (Nunnenkamp 2003a). Several Arab countries belong to this group, e.g., Mauritania, Sudan and Yemen. Domestic factor accumulation appears to be more important than opening

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20 Tunisia reveals the limitations of our proxy of human capital formation. Average years of schooling are shown in Table 2 to be substantially less in Tunisia than in Jordan. According to survey results presented by the World Economic Forum (2003), however, the quality of public schools and the quality of math and science education are rated to be clearly superior in Tunisia.

21 For a literature review and new findings on the link between FDI and economic growth in developing countries, see Nunnenkamp (2004b).
up to FDI in countries with low per capita income. Even in more advanced countries, certain types of FDI are unlikely to yield significant growth effects. FDI that is aimed at the exploitation of natural resources in oil-exporting Arab countries provides a case in point. This type of FDI often results in foreign-dominated enclaves so that host economies hardly benefit from growth-enhancing spillovers.

All this suggests that the effectiveness of particular economic policy reforms depends on country-specific conditions. This does not invalidate, but qualifies the World Bank’s call for a broader reform agenda and the generalized assertion that much faster growth would be available if Arab countries went “beyond the shallow at-the-border trade policy reforms” and tackled “deep-seated barriers to trade and investment” (World Bank 2003b: 17).

5 Institutional Deficiencies?

Recent research offers another explanation for the ambiguous relation between conventional policy reforms and economic growth. Easterly and Levine (2002: 33) argue that “bad policies are only symptoms of longer-run institutional factors, and correcting the policies without correcting the institutions will bring little long-run benefit.” Likewise, Acemoglu (2003) stresses the role of institutions as a fundamental cause of divergent economic fortunes, whereas policy-related variables such as investments and education are considered only as proximate causes. According to Rodrik and Subramanian (2003: 34), the primacy of institutions implies that “conditionality on policies [as required by the IMF and the World Bank] is often ineffective.”

In order to identify institutional deficiencies that may have hindered economic growth in Arab countries, we refer to the widely used data presented by Kaufmann et al. (2002). This source comprises six indicators, all of which range from −2.5 to 2.5 (with higher values indicating better institutions): voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These factors are supposed to shape the incentive structure of economic agents. Hence, they are likely to affect policymaking, factor accumulation and, eventually, economic growth.

Nunnenkamp (2003b) shows that it would be unreasonable indeed to assume that policy-related variables are truly exogenous. Some of these variables are significantly correlated with institutional factors for a large sample of developing countries. Measuring institutional development by the average of the six indicators listed above, better institutions are associated, for example, with higher investment in physical and human capital as well as more open trade and FDI policies. The rule of law, i.e., the protection of persons and property, the availability of independent judges and effective contract enforcement, appears to be most important for physical capital formation. Average years of schooling are correlated most strongly with effective control of corruption and the rule of law. If corruption is pervasive, opening up to trade and attracting FDI inflows seem less likely. In addition, institutional development turns out to be crucially important for developing countries to catch up economically to advanced industrial countries. The growth performance improves most significantly when developing countries enforce the rule of law. Other institutional factors that are shown to be relevant for growth include the control of corruption and government effectiveness.

At a cursory look, the institutional underpinnings for sustainable economic growth appear to be relatively favorable in Arab countries. Table 3 shows that the median of the overall measure of institutional development is less negative (i.e., more favorable) for Arab countries than for the control group of other developing countries. A similar picture emerges for all individual indicators, except voice and accountability.22 Arab countries compare most favorably with other developing countries with respect to the rule of law, whereas the median of regulatory quality and control of corruption is only slightly above developing country standards. However, the com-

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22 This exception is consistent with the finding in the Arab Human Development Report that the region performs poorly when it comes to civil and political freedoms (UNDP 2002).
Table 3: Institutional Development — Arab Countries and Other Developing Countries

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Arab countries (18)</th>
<th>Other developing countries (median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice and accountability</td>
<td>Median: -0.62</td>
<td>Top 3(^b): J, K, Mo (-0.02)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bottom 3(^b): I, Su, Sy (-1.62)</td>
</tr>
<tr>
<td>Political stability</td>
<td>0.04</td>
<td>Q, U, O (1.16)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Su, I, A (-1.62)</td>
</tr>
<tr>
<td>Government effectiveness</td>
<td>0.05</td>
<td>T, O, Q (0.99)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I, Su, Li (-1.29)</td>
</tr>
<tr>
<td>Regulatory quality</td>
<td>0.01</td>
<td>T, B, J (0.78)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I, Li, A (-1.74)</td>
</tr>
<tr>
<td>Rule of law</td>
<td>0.20</td>
<td>U, K, O (1.09)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I, Y, Su (-1.27)</td>
</tr>
<tr>
<td>Control of corruption</td>
<td>-0.26</td>
<td>T, K, Q (0.67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Su, I, Ma (-1.12)</td>
</tr>
<tr>
<td>Average of six indicators</td>
<td>-0.07</td>
<td>T, Q, O (0.61)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I, Su, Li (-1.35)</td>
</tr>
</tbody>
</table>

\(^a\)Indicator values range from -2.5 to 2.5, with higher values corresponding to better institutional development.  
\(^b\)In descending order; average indicator value in parentheses. Abbreviations as follows: A = Algeria, B = Bahrain; I = Iraq, J = Jordan, K = Kuwait, Li = Libya, Ma = Mauritania, Mo = Morocco, O = Oman, Q = Qatar, Su = Sudan, Sy = Syria, T = Tunisia, U = United Arab Emirates, Y = Yemen.

Source: Kaufmann et al. (2002).

Figure 5: Position of Arab Countries in the Normal Pattern of Institutional Development\(^a\)

\(^a\)Normal pattern identified by regressing institutional development against per capita income for all (131) developing countries.  
\(^b\)Average of six institutional indicators; data for 2000/01.  
\(^c\)Gross national income (GNI) per capita (PPP) in 2000 (UAE:1998).  
Source: Kaufmann et al. (2002); World Bank (2003a).
parison with the control group of other developing countries in Table 3 obscures that (i) institutional development varies tremendously between Arab countries and (ii) institutional development lags behind economic development in most Arab countries.

The large variation of institutional development is reflected in that all indicator values for the three Arab countries which rank most unfavorably (bottom 3 in Table 3) are worse than –1, whereas the indicator values for the three best-rated Arab countries (top 3) are clearly positive, except for voice and accountability. In other words, institutional development in the Arab group ranges over much of the spectrum of the index in Kaufmann et al. (2002). Apart from Iraq being at the bottom of the ranking in almost all institutional dimensions, it is Sudan whose institutional deficiencies are shown to be most severe in Table 3. The composition of the top 3 varies more across institutional dimensions than the composition of the bottom 3. Overall institutional development is reported to be most advanced in Tunisia, Qatar and Oman.23

Tunisia clearly stands out when institutional development is controlled for per capita income. The regression line in Figure 5 represents the normal pattern of institutional development across a large number of developing countries, considering that a higher per capita income is typically associated with better institutions. The observation that institutions in Tunisia are significantly more advanced than the normal pattern would suggest helps explain this country’s favorable growth performance. Though to a lesser extent, a similar argument can be made concerning Egypt. By contrast, institutional development in Sudan is clearly substandard, even when its low per capita income is taken into account.

Figure 5 also reveals that almost all Arab countries whose per capita income, relative to the per capita of the United States, declined by at least 10 percent in 1992–2001 fall below the normal pattern of institutional development. Especially for Algeria, Saudi Arabia and the United Arab Emirates, which have fallen back most severely since 1992, the evidence suggests that economic growth has been hindered by insufficient institutional development. The experience of these three oil-exporting countries is consistent with the finding of Sala-i-Martin and Subramanian (2003) that the so-called natural resource curse is largely because some natural resources, including oil, encourage rent-seeking and exert a negative impact on economic growth via their deleterious impact on institutional development.24 This is not to ignore that relatively advanced institutions have failed to compensate for country-specific exogenous shocks as in Jordan.

Finally, one may get some clues as to the sustainability of growth by plotting institutional development against the growth performance of a large number of developing countries, and identifying the position of Arab countries in this relationship. According to Figure 6, better institutions went along with higher economic growth in 1992–2001 across all developing countries. Against this backdrop, about half of the Arab group has performed worse than their institutional development would have suggested. For the United Arab Emirates and, to a lesser extent, also for Oman, the large deviation from the normal pattern may be because their growth performance had to be based on a shorter period of observation (see Figure 1 above). The unfavorable position of Saudi Arabia is in line with this country’s poor ranking with respect to economic policy-related variables and its characterization as a late reformer in Section 4. Jordan and Morocco, which are more advanced institutionally and belong to the group of early reformers (World Bank 2003b: 96–97), tend to have better growth prospects in the absence of negative exogenous shocks in the future.

23 Note that Tunisia does not belong to the top 3 when the assessment of overall institutional development is based on data for 1997/98, instead of 2000/01. In recent years Tunisia’s institutional progress has been most pronounced with regard to control of corruption and government effectiveness (Kaufmann et al. 2002).

24 Note that almost all oil-exporting Arab countries have considerably less advanced institutions than their per capita income would suggest. See also World Bank (2003b) and Eifert et al. (2003) on oil-related rents and the ensuing re-orientation of economic incentives away from productive activities towards the appropriation of oil revenues.
Figure 6: Institutional Development and Economic Growth\textsuperscript{a}: The Position of Arab Countries among All Developing Countries\textsuperscript{b}

\[ y = 0.1544x + 0.96 \]
\[ R^2 = 0.24 \]

\textsuperscript{a}Economic growth in 1992–2001 as calculated in Section 2; institutional development measured by the average of six institutional indicators. For detailed definition of variables, see Annex. — \textsuperscript{b}Regression based on evidence for a large sample of 129 developing countries, including Arab countries.


The countries above the regression line in Figure 6 have “overperformed” in the light of their institutional development. This adds to concerns about the sustainability of growth in Yemen and, even more so, in Sudan. Among the top growth performers in 1992–2001, it is only Tunisia whose relatively advanced institutions, together with its favorable ranking with regard to various economic policy-related variables, tend to support sustainable growth. Egypt and Lebanon are in an intermediate position.

6 Summary and Conclusions

Few Arab countries have succeeded since the early 1990s to narrow the income gap to advanced industrial countries. The growth performance of most Arab countries has been weak by developing country standards, too. We discuss three factors that may help explain the generally poor, though highly diverse growth record in the region: exogenous shocks, policy failure and institutional deficiencies.

Country-specific shocks have played a role, notably for relatively high growth in Sudan and the poor performance of Jordan. On the whole, however, influences beyond the immediate control of Arab policymakers have contributed surprisingly little to the explanation of Arab growth patterns. Countries in this region are not handicapped by a large distance to world economic centers. The relation between terms-of-trade developments and economic growth is found to be extremely weak. As a matter of fact, Egypt and
Tunisia have belonged to the best growth performers even though they have suffered terms-of-trade losses in contrast to most other Arab countries. Moreover, the IMF and the World Bank are hardly to blame for imposing ineffective, or even counterproductive, policy conditionality on Arab countries, if only because the leverage of international financial institutions has remained limited in the region.

Economic policy failures in Arab countries appear to be a more important reason for poor growth. The region has partly fallen into line with the Washington Consensus. With few exceptions, however, Arab countries have lagged behind other developing countries when it comes to trimming the interventionist role of the state and integrating themselves into the global division of labor through trade and FDI. Delayed and at best partial reforms as in Saudi Arabia help explain why this country ranks last in terms of growth.

Yet, the relation between macroeconomic conditions, factor accumulation as well as trade and FDI liberalization on the one hand and economic growth on the other hand remains elusive. Arguably, this is because reforms have not gone far enough and have remained fragmentary even in Arab countries with a relatively favorable growth performance since the early 1990s. It can neither be ruled out, however, that some elements of the Washington Consensus have been less effective than widely expected in promoting growth. For example, developing country experience suggests that positive growth effects of FDI cannot be taken for granted. The enclave character of FDI in some Arab countries is rather unlikely to spur per capita income growth.

These findings have important implications for economic policymakers in Arab countries. The World Bank (2003b: 2) may be right in arguing that “the region now needs to deepen and accelerate its reforms.” Rather than applying standard recipes to all Arab countries, however, country-specific conditions deserve closer attention when designing economic policy reforms. In Arab countries with low per capita income, domestic resource mobilization appears to be more important than attracting FDI. Even in more advanced countries such as Egypt and Tunisia, continued efforts towards human capital formation seem key to sustainable growth.

Moreover, it has to be taken into account that policy-related variables and economic growth depend on more deeply rooted institutional factors shaping the incentive structure of economic agents. Institutional development varies greatly across Arab countries, but, generally, is less advanced than the level of per capita income would suggest. While the discovery of oil may result in higher growth for some time, as in Sudan, the experience of several oil exporters in the region supports the proposition that the abundance of oil encourages rent-seeking and exerts a negative impact on economic growth via its deleterious impact on institutional development.

The finding that institutional deficiencies hindered growth in the past implies that economic policy reforms along the lines of the Washington Consensus are not sufficient to improve the future growth performance of Arab countries. At present, it is only for Tunisia that relatively advanced institutions, together with its reputation as an “early, intensive and steady reformer” (World Bank 2003b: 96), tend to sustain the process of economic catching up. The call for institutional reforms mainly applies to resource-rich countries such as Algeria, Saudi Arabia and Sudan, notwithstanding their different growth performance in the past. It seems to be exactly here that institutional deficiencies are most difficult to tackle. Yet, the natural resource curse can be overcome. The experience of a country like Mexico, having managed the transformation from an oil-dependent to a highly diversified economy with more advanced institutions, may show Arab countries the way.
## Definition of Variables and Data Sources

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Average distance in kilometers to the capitals of Germany, Japan and the United States; via Internet: <a href="http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/Data/Gravity/dist.txt">http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/Data/Gravity/dist.txt</a>; <a href="http://www.indo.com/distance/index.html">http://www.indo.com/distance/index.html</a></td>
</tr>
<tr>
<td>Economic growth (GNIUS)</td>
<td>Per capita income (PPP) of country $i$ (relative to per capita income of the United States) in 2001, divided by per capita income (PPP) of country $i$ (relative to per capita income of the United States) in 1992; World Bank (2003a)</td>
</tr>
<tr>
<td>Exports</td>
<td>Exports of country $i$ in percent of its GDP, 1998–2001; World Bank (2003a)</td>
</tr>
<tr>
<td>FDI inflows</td>
<td>Inflow of FDI in percent of the host country’s GDP, 1998–2001; World Bank (2003a)</td>
</tr>
<tr>
<td>Government consumption</td>
<td>Government consumption expenditure in percent of the country’s GDP, 1998–2001; World Bank (2003a)</td>
</tr>
<tr>
<td>Gross fixed capital formation</td>
<td>Gross fixed capital formation in percent of the country’s GDP, 1998–2001; World Bank (2003a)</td>
</tr>
<tr>
<td>Imports</td>
<td>Imports of country $i$ in percent of its GDP, 1998–2001; World Bank (2003a)</td>
</tr>
<tr>
<td>Import tariffs</td>
<td>Simple average of MFN statutory applied tariffs for all products, latest year; WTO (2003)</td>
</tr>
<tr>
<td>Import tariff revenues</td>
<td>Import tariff revenues in percent of import value, 1997–2000; World Bank (2003a)</td>
</tr>
<tr>
<td>Inflation</td>
<td>Annual average change in consumer prices in percent, 1998–2001; World Bank (2003a)</td>
</tr>
</tbody>
</table>
| Institutional development     | Average of six indicators on institutional development in 2000/01:  
- voice and accountability,  
- political stability and absence of violence,  
- government effectiveness,  
- regulatory quality,  
- rule of law,  
- control of corruption;  
indicators range from –2.5 to 2.5, with higher values indicating better institutional development; Kaufmann et al. (2002) |
| Inward FDI stocks             | Stock of inward FDI in percent of the host country’s GDP, 2002; UNCTAD (2003)                                                                                                                                 |
| Per capita income             | Gross national income per capita in PPP terms, in current international US$, 1992; World Bank (2003a)                                                                                                         |
| Terms of trade                | Export prices divided by import prices, 1992–2000 (1992 = 100); World Bank (2003a)                                                                                                                                 |
| Years of schooling            | Average years of schooling of the population aged 15 and over; Barro and Lee (2002)                                                                                                                            |
References


For more information on the Institute's publications see http://www.ifw-kiel.de/pub/pub.htm.