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Reform and Elusive
Growth in the
Middle-East —
What Has Happened
in the 1990s?

by

Dipak Dasgupta,
Jennifer Keller,
and T.G. Srinivasan

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**Social and Economic Development Group
Middle East and North Africa Region**

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ملخص

يمثل تحقيق نمو اقتصادي أسرع مسألة ذات أهمية ملحة لوضعي السياسات. ومن بين الفرضيات الأساسية للإصلاح أنه من المتوقع أن يشجع على تحقيق مثل هذا النمو الأسرع. ومنذ الهبوط الشديد في الأسعار الدولية للبتروول في منتصف الثمانينيات، شهدت معظم بلدان منطقة الشرق الأوسط وشمال أفريقيا تباطؤا ملحوظا في النمو و/أو أزمات في الاقتصاد الكلي. وقد فرض هذا الوضع إجراء إصلاحات اقتصادية وبذل جهود واسعة النطاق نسبيا لإعادة هيكلة الاقتصاد (وإن كان ذلك بدرجات متفاوتة) لاستعادة استقرار الاقتصاد الكلي وتنويع الاقتصادات بالابتعاد عن التركيز على البتروول والاتجاه من النمو الذي يتصدره القطاع العام إلى النمو الذي يتصدره القطاع الخاص. ومع ذلك، يرى كثيرون من المراقبين من داخل المنطقة وخارجها على السواء أن النتائج المتحققة من حيث إسرار عجلة النمو في المنطقة تبدو مخادعة وصعبة المنال.

تستقصي هذه الدراسة العلاقة الفعلية، إن وجدت، بين الإصلاح والنمو في منطقة الشرق الأوسط وشمال أفريقيا، خاصة أثناء التسعينيات، وتقارنها بأداء مناطق وبلدان نامية أخرى. ويوحى أداء نمو منطقة الشرق الأوسط وشمال أفريقيا الذي تم استعراضه في هذه الدراسة بأن معظم الإصلاحات في المنطقة تظل نصف منجزة. فمن الواضح أن الإصلاحات بدأت بالفعل، ولكن معظم بلدان المنطقة دخلت ميدان الإصلاح متأخرة ولا يزال أداؤها في هذا المجال متخلفا عن أداء بلدان ومناطق أخرى. ومن الصعب أن نلمس آثار الإصلاحات ولكنها ربما أسهمت على الأقل في عكس اتجاه الخسائر الكلية الكبيرة في إنتاجية عوامل الإنتاج التي شهدتها السبعينيات والثمانينيات. ولكن استجابة الاستثمار الخاص لذلك لا تزال متأخرة، ويمثل فهم أسباب ذلك أولوية هامة - كما أن الإصلاحات المطلوبة ربما يتعين أن تتجاوز كثيرا المرحلة الأولى من الإصلاحات الهيكلية في هذه البلدان. وأخيرا، سيكون تحقيق تحسن مستمر في أداء الإنتاجية أمرا حاسم الأهمية ويبدو أنه مرتبط، على الأقل للوهلة الأولى، بالنجاح في تحقيق تنويع سريع في النشاط الاقتصادي بمرور الوقت في الخدمات والسلع المتبادلة تجاريا، والابتعاد عن الاعتماد المفرط على الموارد الطبيعية والسلع الأولية كالبتروول (الذي يؤدي إلى تقلب شديد في الأداء وانخفاض في الإنتاجية).

Résumé

Pour les décideurs, il est très important de réaliser une croissance économique plus rapide. L'un des postulats fondamentaux de la réforme est qu'elle devrait favoriser cette croissance plus rapide. En raison de la baisse importante des cours pétroliers internationaux au milieu des années 80, la majorité des pays de la Région MENA ont connu un ralentissement marqué de la croissance et/ou des crises macro-économiques. Cette situation a imposé une réforme relativement étendue et des efforts de restructuration (mais à des degrés divers) pour ramener la stabilité macro-économique et diversifier les économies loin des produits pétroliers et visant une croissance induite par le secteur privé. Et pourtant, pour de nombreux observateurs dans la région et en dehors de la région, les résultats en termes de croissance accélérée dans la région semblent évasifs.

Le document examine la relation réelle, si elle existe, entre la réforme et la croissance dans la Région Moyen-Orient et Afrique du Nord (MENA), en particulier au cours des années 90, en la comparant à la performance d'autres régions et pays en développement. Les résultats de la croissance des pays MENA examinés dans ce document donnent à entendre que les réformes dans cette Région ressemblent fort à une tâche à moitié terminée. Il est clair que les réformes ont commencé, mais la majorité des pays de la Région MENA sont des réformateurs lents et qui continuent à être en retard par rapport aux résultats d'autres pays et d'autres régions. L'effet des réformes est difficile à distinguer mais il peut au moins avoir contribué à inverser les pertes importantes de productivité de facteur des années 70 et 80. Mais la réponse de l'investissement privé se fait attendre et il est prioritaire d'en comprendre les raisons – et il faudra que les réformes requises aillent au-delà de la première étape des réformes structurelles dans ces pays. Enfin, des améliorations soutenues des résultats de la productivité seront critiques et semblent être liés, à première vue, à la réussite d'une diversification rapide de l'activité économique sur les années, des échanges de biens et de services et à l'éloignement de la dépendance excessive des ressources et des produits comme le pétrole (qui donne lieu à une volatilité élevée et une faible productivité).

Abstract

Achieving faster economic growth is of pressing importance to policy-makers. One of the fundamental premises of reform is that it would be expected to foster such faster growth. Since the large fall in international oil prices in the mid-80s, most MNA countries experienced a marked growth slowdown and/or macroeconomic crises. This forced fairly widespread economic reform and restructuring efforts (albeit in varying degrees) to bring back macroeconomic stability and to diversify the economies away from oil and from a public sector to a private sector led growth. Yet, to many observers within and outside the region, the pay-offs in terms of accelerated growth in the region are seen to have been elusive.

The paper explores the actual relationship, if any, between reform and growth in the Middle-East and North Africa (MNA) region, especially in the 1990s, benchmarking against the performance of other developing regions and countries. The growth performance of MNA countries reviewed in this paper suggests that reforms in MNA remain very much a half-finished business. Reforms have clearly begun but most MNA countries are late reformers and continue to lag other countries and regions' performance. The effect of reforms is difficult to distinguish but may have at least contributed to reverse the large negative total factor productivity losses of the 1970s and 1980s. But the private investment response has been lagging and understanding the reasons are a priority---and the needed reforms may need to go well beyond the first stage of structural reforms in these countries. Finally, sustained improvement in productivity performance will be critical and appears to be tied, at least at first glance, to success in rapid diversification in economic activity over time, in traded goods and services and away from excessive dependence on resources and commodities such as oil (which induce high volatility and low productivity performance).

A. Introduction

Achieving faster economic growth is of pressing importance to policy-makers. One of the fundamental premises of reform is that it would be expected to foster such faster growth. The “Washington consensus” of the early 1990s had advocated a certain core set of reforms as essential in a rapidly globalizing world---minimum standards of macroeconomic stability, and structural reforms in openness and the investment environment. But questions have started to be asked by the late 1990s whether these were having their intended effects. Despite apparent reforms---albeit not to the same extent in all countries and areas---actual growth performance in many developing countries and regions has often been disappointing. MNA countries are no different in their experience with reform and growth in the 1990s.

Reform and its link to economic growth is also politically and socially central issue. It is especially critical in the MNA region because of the unemployment problem. At least some part of the critical pressure on governments (other than the decline in oil prices and macroeconomic crises) arises from the unemployment situation as the labor force grew by about 2.8 percent a year, about the highest rate in the world while job opportunities have been lagging. While rapid labor force growth can be a “demographic gift” in the right circumstances, it can also create enormous social pressures if actual job opportunities for this are not generated. Formal unemployment rates in the region (outside of the Gulf Cooperation Council or GCC countries), now average close to 25% - - the second highest in the world². In some countries – Algeria, Iran, Syria, Libya, Yemen -- as much as one-third of the labor force is unemployed. Even the GCC economies, with comparatively low unemployment rates averaging about 5%, have begun to experience growing unemployment among their national populations. The absence of growth and rapidly rising unemployment also coincided with falling real wages in the region---as is to be expected. Consequently, the crisis of growth in the MNA region since the 1980s has translated into an “unemployment crisis”, which could spill over into a larger poverty crisis (which the region has so far managed to avoid in most places because of the presence of formal and informal and implicit or explicit social safety nets). The biggest impact of unemployment is also often on young first-time job-seekers, and a potentially socially explosive situation. Unemployment rates for those under 25 are about twice as high as national averages, as in Algeria and Tunisia, and as high as two and a half times to three higher in Lebanon and Iran. This same age group is also better educated. Rising education and unemployment are potentially powerful pressures for change and reforms.

In the above context, the main question that is explored in this paper is to understand the actual relationship, if any, between reform and growth in the Middle-East and North Africa (MNA) region, especially in the 1990s, benchmarked against the performance of other developing regions and countries. Since the large fall in international oil prices in the mid-80s, most MNA countries experienced a marked growth slowdown and/or macroeconomic crises. This forced fairly widespread economic reform and restructuring efforts (albeit in varying degrees) to bring back macroeconomic

² Unemployment in Sub-Saharan Africa is estimated to be about 25%, but definitional differences make comparisons of unemployment rates across countries difficult.

stability and to diversify the economies away from oil and from a public sector to a private sector led growth.

Yet, to many observers within and outside the region, the pay-offs in terms of accelerated growth in the region are seen to have been elusive. Regional GDP growth averaged 3.2% a year over the 1990s³, higher than in the 1980s (2.7% a year), but not the rebound one might have wanted or expected following a decade of stagnation. On a per capita basis, economic growth averaged less than 1% a year. Outside the Gulf economies, growth has been somewhat healthier, averaging 3.5% per year, but remains weak on a per capita basis. Were the reforms inadequate? Were they directed at the wrong areas? Or did the reforms miss out some other vital ingredients---such as governance, market institutions, end of conflict and favorable geography---for faster growth to happen? This paper attempts to provide a preliminary first evaluation of these broad questions.

The structure and principal conclusions of this paper are the following:

As a first step in understanding factors affecting growth outcomes, section B examines the relationship between oil prices and aggregate growth. A trend decline (and high volatility) in international oil prices, which persisted throughout the 1990s, was a major exogenous factor dampening growth outcomes in all MNA economies. Countries were forced to adjust to a sizeable real income decline (mainly by reduced public spending). While the negative income effects dominate, some positive effects of substitution to non-oil activities might also however be expected with lower oil prices (and reduced Dutch-disease). In the major oil-producing countries (GCC, Iran, Algeria, Syria), the negative income effects clearly dominated aggregate growth outcomes, as might be expected both because of the very large weight of oil and slower reform. In the more diversified and earlier reform economies (Egypt, Jordan, Morocco), however, there was evidence to suggest a distinct break in the relationship of aggregate growth with oil prices and therefore relative success in diversification (the aim of the reform efforts).

Section C then measures actual reform effort and its intensity in the diversified MNA economies. A variety of indicators are used that attempt to be closer to the choice of policies and instruments (rather than outcomes that are often wrongly used to measure policy effort). The reform effort is also benchmarked against a large number of countries in all other regions. The conclusions are nuanced. MNA countries have indeed undertaken sizeable reform effort, but the main area of progress is in macroeconomic stability (expenditure reduction, lower inflation) rather than in core structural reform. In structural reform (trade policy, private investment environment), MNA countries are a late-comer, with significant reform only happening from the mid-1990s onwards. At the same time, other competitors and comparators globally have been moving faster and/or catching-up, especially in middle-income Latin America, Europe and East Asia. All of the countries we would classify as diversified economies (Morocco, Egypt, Tunisia and Jordan) are rated in the paper as slow or gradual reformers. Nevertheless, institutional investor surveys are responding and beginning to positively re-evaluate reform intensity and effort in MNA countries.

³ Weighted (by population) growth and per capita growth rates for Algeria, Egypt, Iran, Jordan, Morocco, Syria, Tunisia, Yemen, Bahrain, Oman, and Saudi Arabia.

Section D then turns to a detailed discussion of the sources of growth in the MNA region, from an accounting perspective, and focuses on both trends in factor accumulation and total factor productivity, and their qualitative relationship to the extent of reform undertaken. Four main conclusions emerge. First, while reform has had a growth pay-off for some countries, for the region as a whole, per capita GDP growth remains anemic, increasing by an average of only 0.3 percentage points per year. Second, this growth stagnation occurs despite a significant increase in virtually all of the MENA region in total factor productivity growth. For the region as a whole, total factor productivity growth increased by an average of 1.3 percentage points per year, from an average of -1.3 % per year in the 1980s (linked to massive and inefficient public and private investments of the oil-boom years) to 0 percent per year in the 1990s. Structural reform has probably contributed to reversing this negative factor productivity in the region. In 8 out of 10 countries in the region, TFP performance improved. Third, the principal reason that growth has remained stagnant is the collapse in factor accumulation, especially physical capital, within most of MNA. In only two countries in the region has factor accumulation increased from the 1980s to 1990s. Public investment has certainly fallen, much as to be expected with the fiscal adjustment. But equally, private investment has not taken up the slack nor responded aggressively to the reform. In the 1990s, investment has declined dramatically, and without exception across the region. Fourth, preliminary evidence using cross-country regression panel data including the MNA countries seem to suggest that the macroeconomic reform effort has had the greater positive (and significant) association with the improvement in aggregate growth and in total factor productivity. The structural reform index shows no significant or discernible impact so far. However, this work needs to be extended and examined much more carefully, before any definite conclusions can be drawn. Finally, countries which rank high on an index of sustained total factor productivity growth appears to be those that are successful in rapid diversification, openness, and macroeconomic stability, while countries at the bottom tend to be those which are relatively heavily reliant on resources and relatively undiversified and subject to larger macroeconomic volatility

For structural reform to have an effect, the private investment response and its redirection to the traded goods sector is essential. For that to happen, questions remain as to some other critical factors that we do not understand well—factors affecting the critical private investment response, the export diversification response, and geography (regional conflict and peace) factor---as to why faster growth continues to elude some most countries in MNA. This should now form the main agenda of research questions on the growth question in the MNA region, as indeed in most other middle-income countries around the world facing slow growth despite reform.

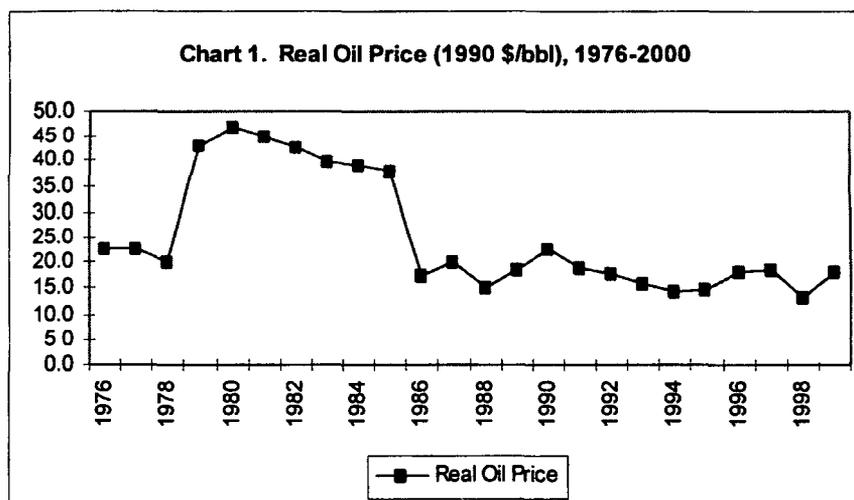
B. Oil Prices and Growth in the MNA Region

Oil has an usual degree of importance in the MNA countries. Three different typologies can be constructed. The first is the core set of OPEC oil producers, mostly the GCC countries⁴, whose economies are dominated by oil and whose objective function is arguably to maximize long-run oil prices and rents in global energy markets (including

⁴ Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE.

its relative stability). The second are larger and more populous OPEC oil exporters (Iran, Algeria, Syria, Iraq), whose economies are also dominated by oil, but whose objective functions are more diverse (in raising and diversifying their economies away from oil). The third is the set of diversified economies, whose oil exporting sectors are either relatively small or non-existent, but which are still relatively reliant on oil markets either directly as exporters or indirectly for regional export markets for traded goods or labor (workers remittances) and capital inflows from richer regional oil exporting countries--Egypt, Morocco, Jordan, Yemen, and Lebanon.

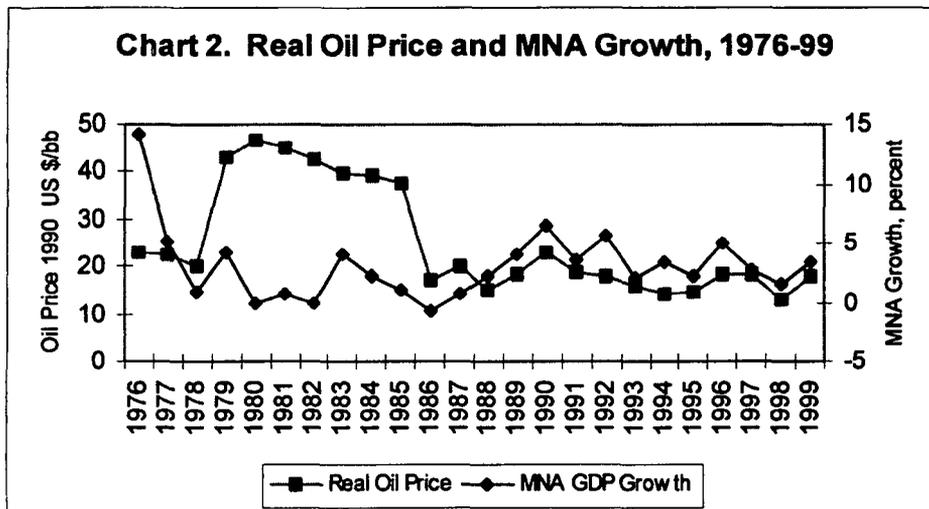
Real oil prices (1990 dollars per barrel), as shown below in Chart 1, collapsed after 1985 and reached a low in the late 1980s, before recovering modestly in the aftermath of the 1990 Gulf War. Following that, oil prices again fell steadily during much of the 1990s, reaching a low in 1999 (of less than \$10 a barrel). Only since the closing months of 1999 have oil prices recovered sharply, to close to \$30 per barrel. Much of the period under examination has therefore been one of a dramatic fall in oil prices in real terms.



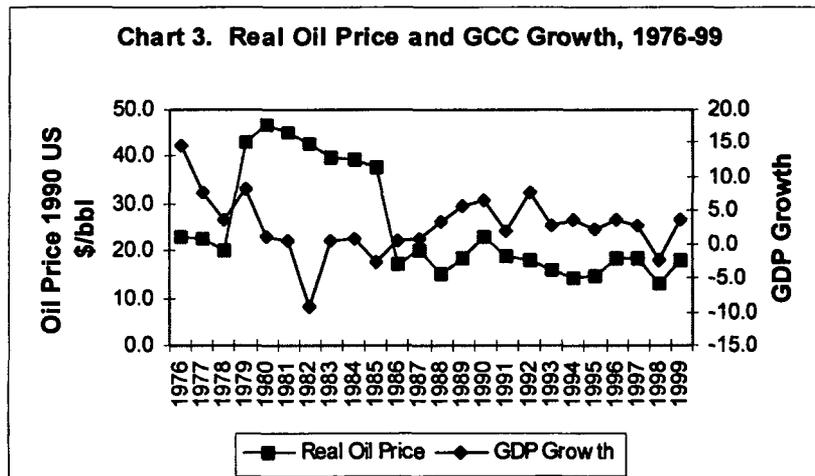
Source: World Bank.

What has been the relationship of such trends in oil prices with regional GDP growth, and as differentiated by the three different typologies of countries described earlier? For the region as a whole, the relationship is mixed, as shown in below Chart 2. More precisely, during the 1970s till 1988 or a period of heavily oil-cartelized world, there is evidently a counter-cyclical relationship---rising oil prices matched by falling GDP growth and vice-versa. But since late 1980s, that relationship broke down and we see a shift to a close positive relationship. But how far is this aggregate picture different between the three types of MNA countries? Three conclusions are possible. First, GCC oil producers continue to show a counter-cyclical GDP growth relationship with oil prices between 1976-88---as would be expected as longer-term cartel producers restrict oil supplies (lowering GDP growth) to raise prices and vice-versa---but when the cartel is pressured beyond a point, they reverse, as evident since 1988 (Chart 3). Second, for non-GCC oil exporters, there is a clear close positive relationship between oil prices and GDP growth throughout, as higher oil prices permit faster growth and vice-versa (and some free-riding on cartel behavior, Chart 4). Third, for the diversified economies, falling oil prices caused collapsing GDP growth till the late 1980s, but since then, the trend is a

promising disassociation between oil prices with GDP growth trends picking up mildly despite continuing trend decline in oil prices (Chart 5).

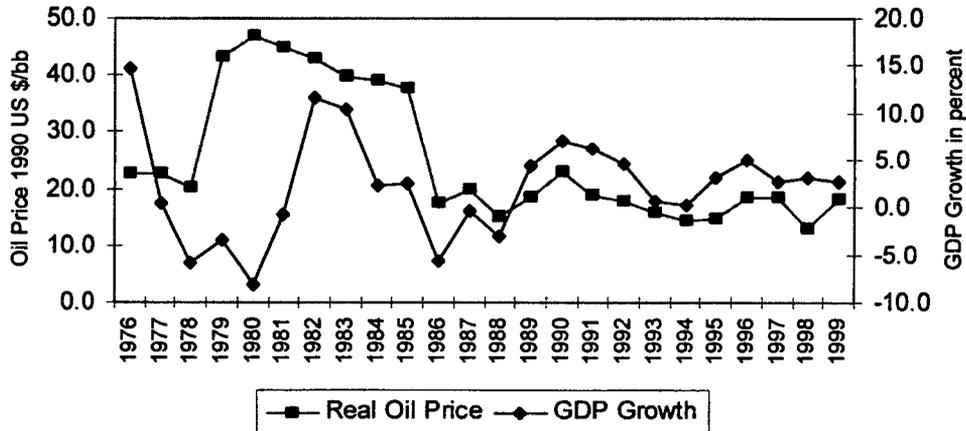


Source: Staff estimates.



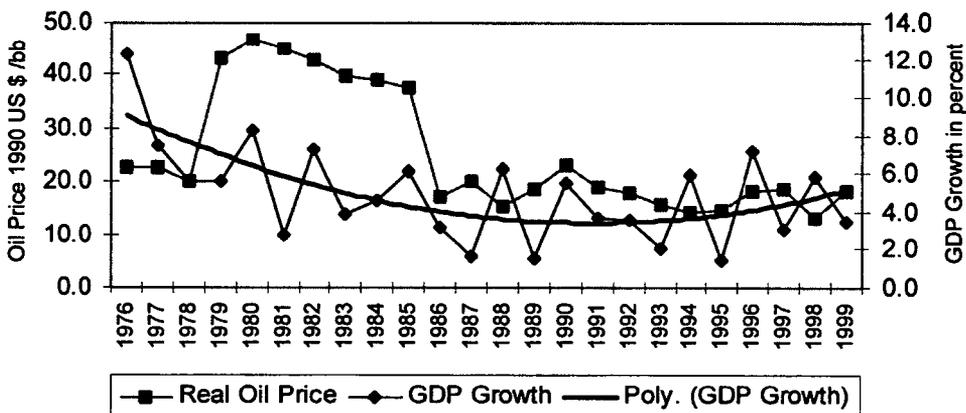
Source: Staff estimates.

Chart 4. The Correlation of Oil Prices and GDP growth in non-GCC Oil Producers, 1976-99 (Algeria, Iran)



Source: Staff estimates.

Chart 5. Oil Prices and Non-GCC Diversified Economist Growth, 1976-99



Source: Staff estimates.

C. Measuring Reform Effort in MNA

Framework

Nearly after two decades after the start of structural reform programs supported by international financial institutions and donor community, consensus has eluded reaching firm conclusions on the effect of these programs on growth. A critical step in such evaluation exercises is the measurement of structural reforms efforts. There have been broadly three approaches to measuring reforms. *First*, the early studies distinguished only between presence or absence of structural reform programs and proceeded to evaluate their effect on growth in a “with” or “without” comparisons. Often,

the researchers used the number of loans or scale of adjustment lending as indicators of the intensity of structural reform efforts (see McGillivray (1999) for a short-survey of empirical methodologies for this approach). Even when used in an econometric regression to separate out the influences of external factors, these measures fail to adequately reflect the varying reform intensities in different countries resulting in possibly differentiated payoffs. *Second*, outcome measures under different components of reform programs such as outward-orientation came to be used because these datasets are easier to assemble (Easterly and others (1997) for example). However, the outcome measures fails to distinguish the between reform efforts by the government and the response of economic agents to these reforms. The response of the agents to reform inputs in itself is a legitimate object of study and therefore a failure to distinguish between reform input and outcomes is a serious shortcoming. *The third* and last approach seeks to directly measure structural reform policy inputs and this is the one the current study also adapts. The earliest example of direct measures of policy reform efforts was in Agarwala (1983), which focused on price distortions in 31 developing countries by means of 7 indicators in three areas of foreign exchange pricing, factor pricing and product pricing. More recent research studies following this approach are listed with indicators used in Srinivasan (2001).

Identifying what constitutes structural reform is important for putting together a set of policy indicators that are monitorable. In broad terms, structural reforms can be defined as the set of policies that increase an economy's market orientation. Structural reforms are a large part of policies that came to be termed as the "Washington Consensus" by Williamson (1990). Williamson provided a convenient overview of 10 policy areas for *government action* that formed this consensus which can be grouped in his own words under "macroeconomic prudence, outward orientation and domestic liberalization":

- Fiscal discipline
- Public expenditure quality
- Tax Reform
- Interest Rate liberalization.
- Competitive real exchange rate
- Freer Trade
- Fostering FDI
- Privatization
- Deregulation
- Property rights

Leaving aside macroeconomic prudence as the subject matter identical with macroeconomic stabilization, we are left with outward orientation and domestic liberalization as the two key components of structural reform. Research on construction of structural reform indices have implicitly followed the Washington Consensus

typology, but emphasized in greater detail particular sub-components and different weights to derive a composite indicator based on the developing country region under investigation. For example, Lora (1977) and Morley et al (1999) in their work on Latin America emphasize financial indicators, Dicks-Mireaux and others (1997) and Bonaglia and others (2000) in their work on SSA, or, Martha de Melo and others (1996) on transition countries, stress on public enterprise reform, price controls and state intervention in marketing, and on European transition countries). For the current study in its initial phase, we have identified 4 components (Trade Policy, Tax Policy, Real Exchange Rate Over-valuation, and, Privatization)---see Srinivasan (2001) for more details. We opted for a parsimonious set of components because we wanted to quickly assemble indicators for as many countries as possible with a view to compare MNA countries with all other developing countries.

Progress of Structural Reform in MNA

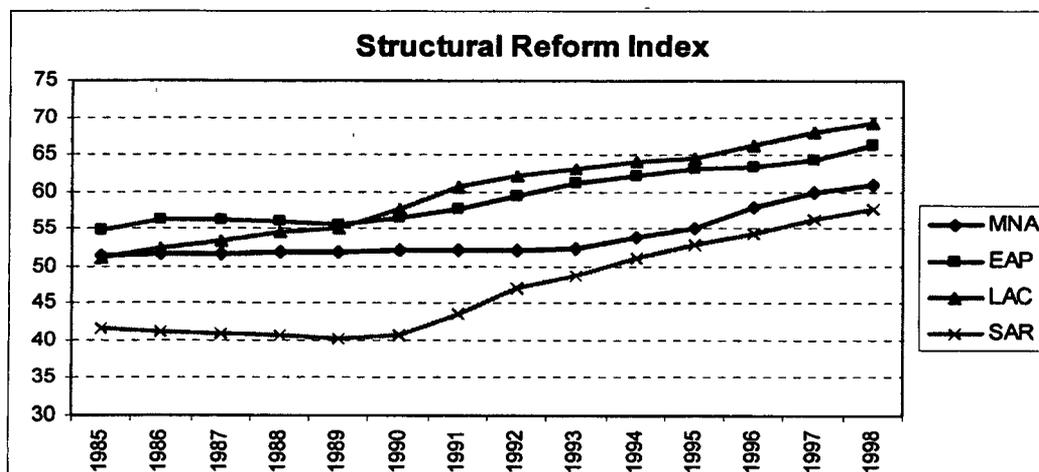
In the current phase of structural reform initiated since the mid-1980s, MNA reforms were the last to start among the four regions of MNA, East Asia and Pacific (EAP), Latin America and Caribbean (LAC) and South Asia (SAR)⁵. MNA reform index did not show a strong pick up until 1994 compared to LAC which had a steady pace from 1985, EAP reforms that accelerated since 1990, and South Asia that dramatically accelerated reforms since 1990. Also, the pace of reforms have been slower in MNA than other regions. As a result, the regions ahead of MNA in 1985 (East Asia and Latin America) have raced further ahead as shown in Chart 6. Those who were behind MNA in 1985 (South Asia and possibly Europe and Central Asia) have closed in. At a time when global competition is becoming intense, without accelerated reforms to improve efficiency of domestic production, MNA producers are likely to feel disadvantaged in global markets. Considerable scope for further reforms exist for MNA countries.

How representative is our structural reform index for MNA? The MNA index used in the discussion that follows is the average of four reformers among developing MNA – Egypt, Jordan, Morocco and Tunisia. Building a comprehensive picture of reform indicators for the rest of developing MNA (that is, excluding high income countries of GCC) is hard. But the available reform indicator evidence on these countries suggests that the MNA indicators would not alter the force of arguments made in the current study for MNA. On trade policy reforms, for example, most recent available estimates⁶ of average import tariff rates for six developing MNA countries not included in this study (Algeria, Iran, Lebanon, Libya, Syria and Yemen) amounts to 24 percent. If measures of non-tariff barriers were also included then the excluded countries would significantly worsen the reform index as they continue to have very high NTBs, compared to the MNA economies included. On other dimension of reforms such as privatization (outside oil sector), or removal of price controls in the economy or taxation, the late reformers in developing MNA such as Syria, Libya or Iran have a long way to go to catch up with the rest of the world. Therefore, we conjecture that if we include reform measures for all countries of MNA, the aggregate measure could look considerably worse.

⁵ There are insufficient observations from 1985 to derive regional average for ECA and SSA.

⁶ Oliva (2000)

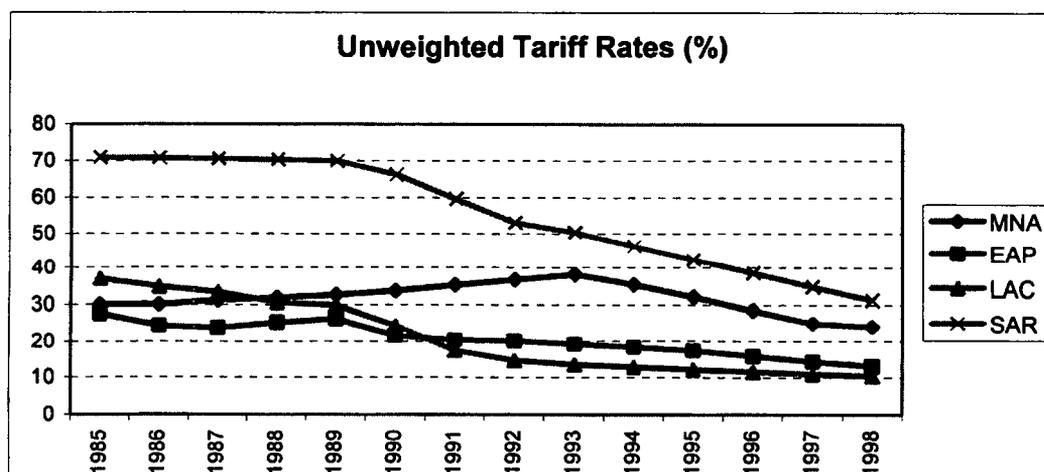
Chart 6. Composite Structural Reform Index in Developing Regions



Source: Staff estimates.

This weak pace of reforms in MNA is because of slow progress in all components of structural reforms excluding real exchange rate over-valuation. In trade policy reforms, measured by the un-weighted average tariff rate, MNA region is the second worst among the four developing country regions averaging around 24 percent. LAC region, which had a tariff rate higher than MNA in 1985, has cut them rapidly to reach around 10 percent in 1998, marginally lower than EAP (Chart 7).

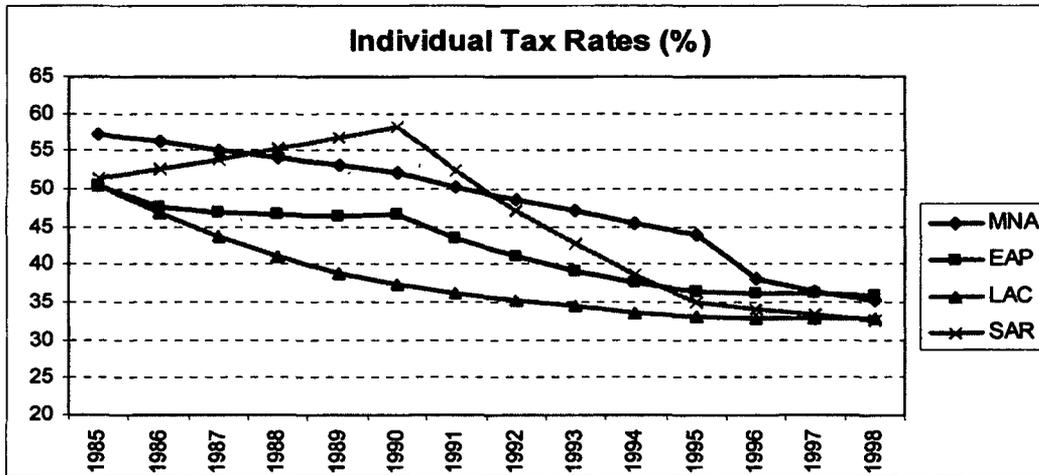
Chart 7. Comparison Trade Policy Indicator Among Developing Regions



Source: See Annex 1.

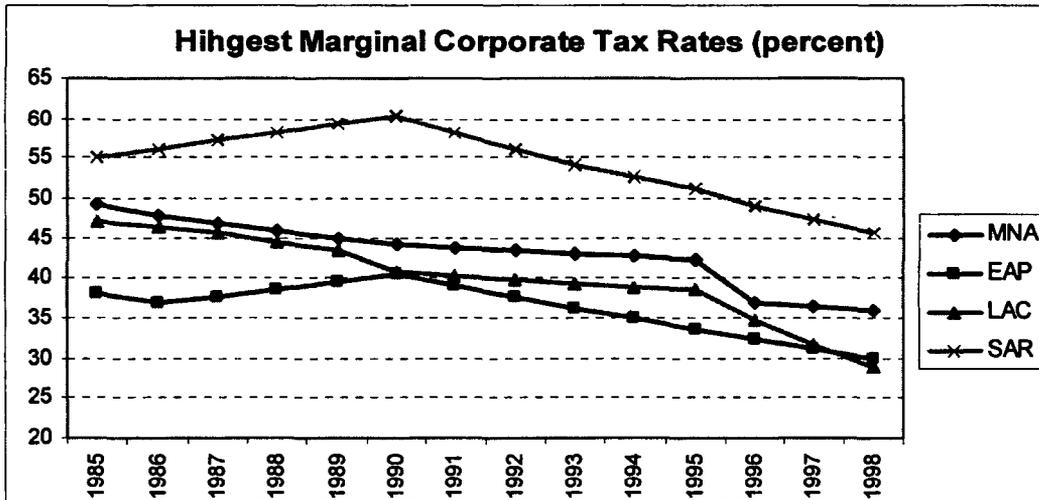
Tax policy is measured by two sub-components – highest marginal tax rates on individuals and corporations. In terms of highest marginal individual income tax rate, there is not as much divergence among countries in 1998 as there was in 1985. MNA region has closed the gap considerably by bringing it down to 35 percent from being the highest taxed (57 percent) region among the four regions compared (Chart 8).

Chart 8. Highest Marginal Tax Rate on Individuals Among Developing Regions



Source: See Annex 1.

Chart 9. Highest Marginal Corporate Rate on Individuals Among Developing Regions.

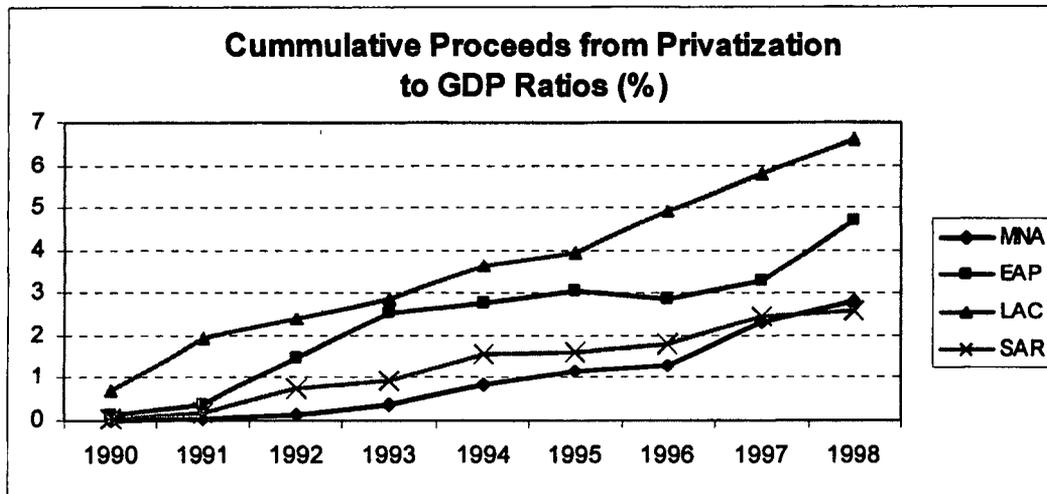


Source: See Annex 1.

In terms of highest marginal corporate tax, MNA region continues to be the second worst in 1998 as it was in 1985 (Chart 9). Though for the region as a whole the index was on a declining trend, some countries like Egypt actually moved in the opposite direction until 1990. Only the LAC region has aggressively moved to match the 30 percent corporate tax average in EAP.

In terms of privatization, measured by the cumulative privatization proceeds expressed as a ratio of GDP, MNA region bears the rear guard averaging around 3 percent in 1998, some 50 percent below LAC (Chart 10).

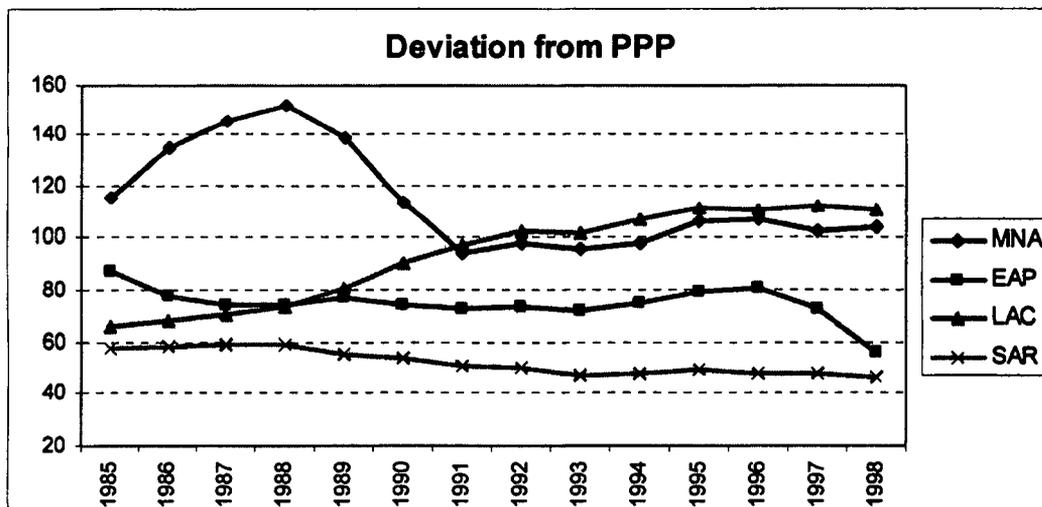
Chart 10. Privatization Proceeds Among Developing Regions



Source: See Annex 1.

In terms of real exchange rate overvaluation, as measured by David Dollar's overvaluation index ⁷, MNA region compares well with little overvaluation compared to strong under-valuation noted in the case of EAP or South Asia. However, good indicators of real exchange rate overvaluation are hard to come by, and the strength of MNA reformers (excluding Tunisia) in this regard does not accord well with regimes dominated by fixed pegs to US dollar for most of the period under investigation with occasional changes. However, an important conclusion to emerge from the comparison in movements of this index in Chart 11 is that MNA region corrected largely the overvaluation episode that occurred in late 1980s but the Asian region have remained relatively undervalued to LAC and MNA, maintaining the edge in competition.

Chart 11. Real Exchange Rate Over-Valuation in Developing Regions

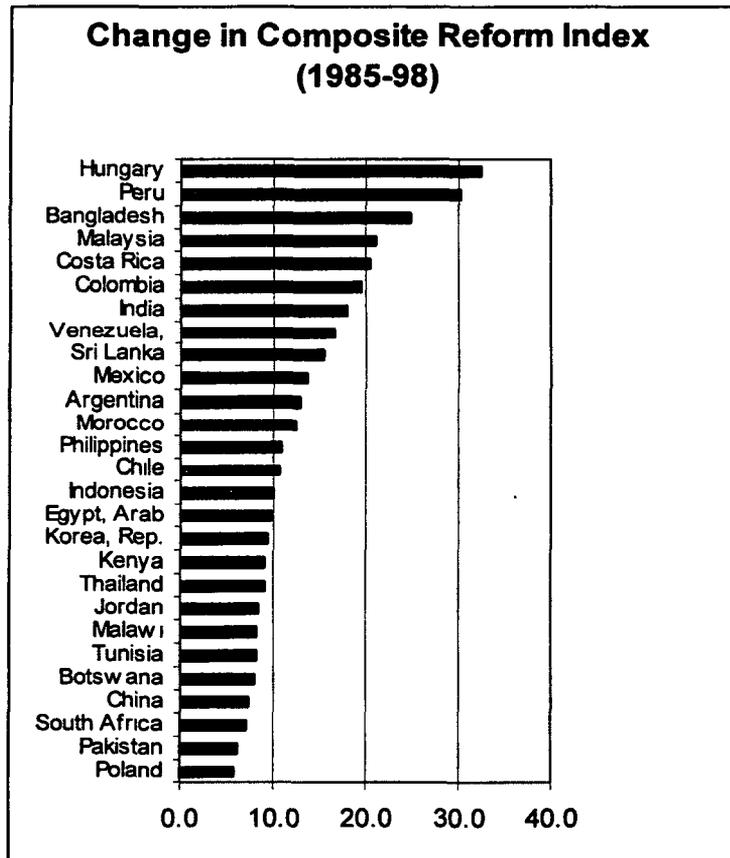


Source: See Annex 1.

⁷ Dollar (1992)

How does the *pace of reform* in MNA countries, individually, as against the regional average discussed before, compare with others? The countries that are relative advanced in MNA (Egypt, Jordan, Morocco and Tunisia) are in the bottom two-thirds of countries in terms of cumulative liberalization since 1985. Comparing countries keeping their starting positions on reform index in 1985, MNA reformers can be classified as either gradual or slow reformers. Chart 12 shows the ranking of *change* in composite reform index between 1985-98 for 27 countries across the developing world. Of the four reformers in MNA, two (Jordan and Tunisia) fall in the bottom third, and two (Morocco and Egypt) fall in the middle third.

Chart 12. Change in Composite Reform Index



Source: Staff estimates.

Another way to compare reform performance of countries is to track the pace of reforms against their starting levels and the average for all reformers. Table 1 makes such a comparison. Morocco started off as below average in 1985 and continues to be below average in 1998, falling under the group of “slow reformers”. The other three from MNA (Egypt, Jordan and Tunisia) had above average reform index in 1985 but slipped below average in 1998 as they turned out to be “gradual reformers”. While it is instructive, as in Chart 13, to relate the pace of reforms in Table 1 to growth outcomes, it is important to remember the additional factors that facilitate or weigh down on a country’s growth performance. For instance, in some countries in “early reformers” group, including Indonesia or Argentina, the weak financial regulatory environment has precipitated

financial crises stripping away years of growth. Though Colombia, Peru and Venezuela are counted among intense reformers, their weak performance has possibly has origins in weak governance. The varied growth performance of countries under the general group of “gradual reformers” alludes to the strengths of spillover effects of emanating from location in a region of dynamic growth or not. While the East Asian countries in this group – China, Korea, Thailand – or, Poland and Tunisia reaped the benefits of location to major growing markets, Jordan and South Africa suffered because of slow growing regional economies. Among slow reformers, a common characteristic appears to be their slow speed of integration with the rest of the world. India is an exception in the group which has achieved high growth despite the slow pace of reforms benefiting from the large size of domestic market that has undergone deregulation.

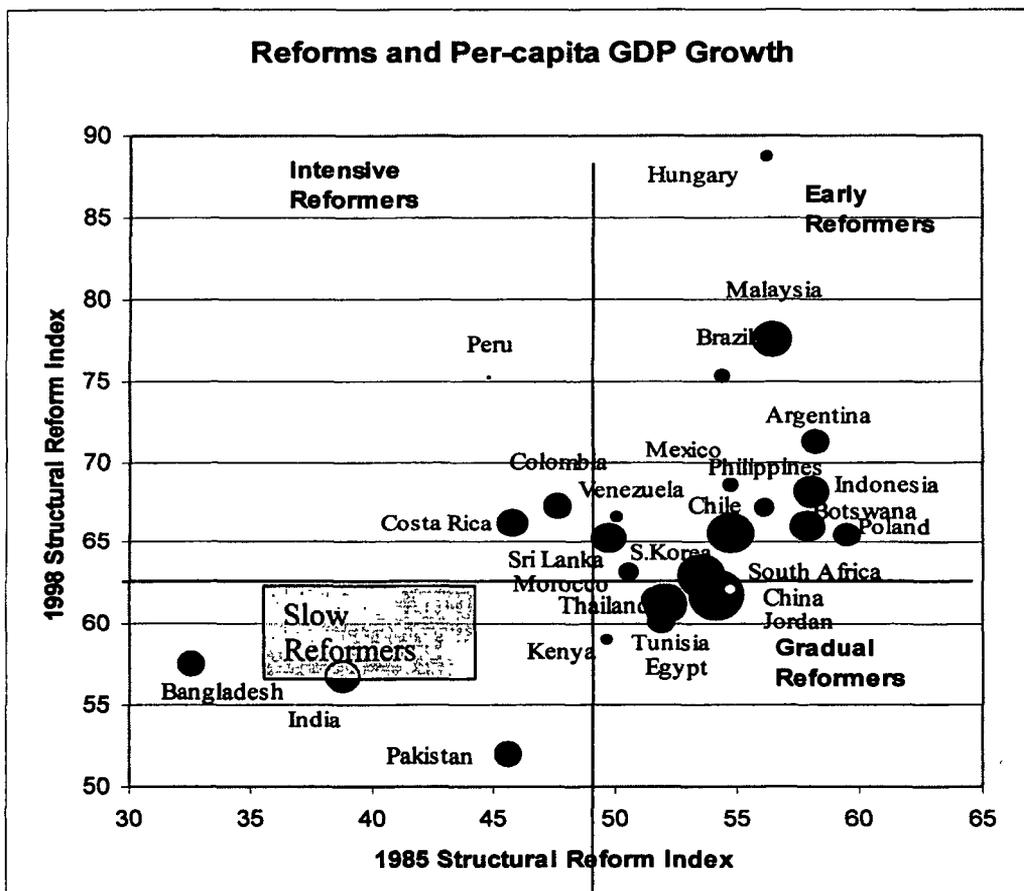
Table 1. Pace of Structural Reforms in Developing Countries

		1998 Structural Reform Index level	
		Above the average	Below the average
		Early reformers:	Gradual reformers:
1985 Structural Reform Index level	Above the average	Argentina	China
		Botswana	Egypt, Arab Rep.
		Brazil	Jordan
		Chile	Korea, Rep.
		Hungary	Malawi
		Indonesia	Poland
		Malaysia	South Africa
		Mexico	Thailand
		Philippines	Tunisia
		Below the average	<u>Intense reformers:</u>
Colombia	Bangladesh		
Costa Rica	India		
Peru	Kenya		
Venezuela, RB	Morocco		
		Pakistan	
		Sri Lanka	

Source: Staff estimates.

Contrasting the pace of reforms with the realization of real per-capita GDP growth rates (Chart 13), we see a pattern that higher growth performance has largely concentrated in gradual and early reformers.

Chart 13. Pace of Reforms and Per-capita GDP Growth



Source: Staff estimates based on own computations and World Bank Databases.

Note: The size of bubbles are scaled proportionately to per-capita GDP growth rate, China has the largest bubble corresponding to its 8.2 percent growth rate. Jordan and South Africa have negative growth rate shown in inverse color. South African bubble is visible whereas Jordan's is hidden behind China's.

Positive Signs

Though the preceding analysis of MNA reform performance may sound gloomy, there are two positive signs that auger well for strengthening reforms and raising growth in MNA. First, MNA countries (the four reformers) have done very well in terms of economic stabilization, a pre-requisite for reforms and a key component of Washington Consensus. MNA Reformers have risen to the top of the league countries in Economic Stabilization by lowering inflation, ending black market in exchange rates and narrowing current account deficits. Chart 14 shows that MNA region has maintained its good record of economic stabilization and has managed to move to the top among regions marginally edging past East Asia. The composite index of economic stabilization is built using four components with equal weights:

Fiscal balance as a ratio of GDP excluding foreign grants.

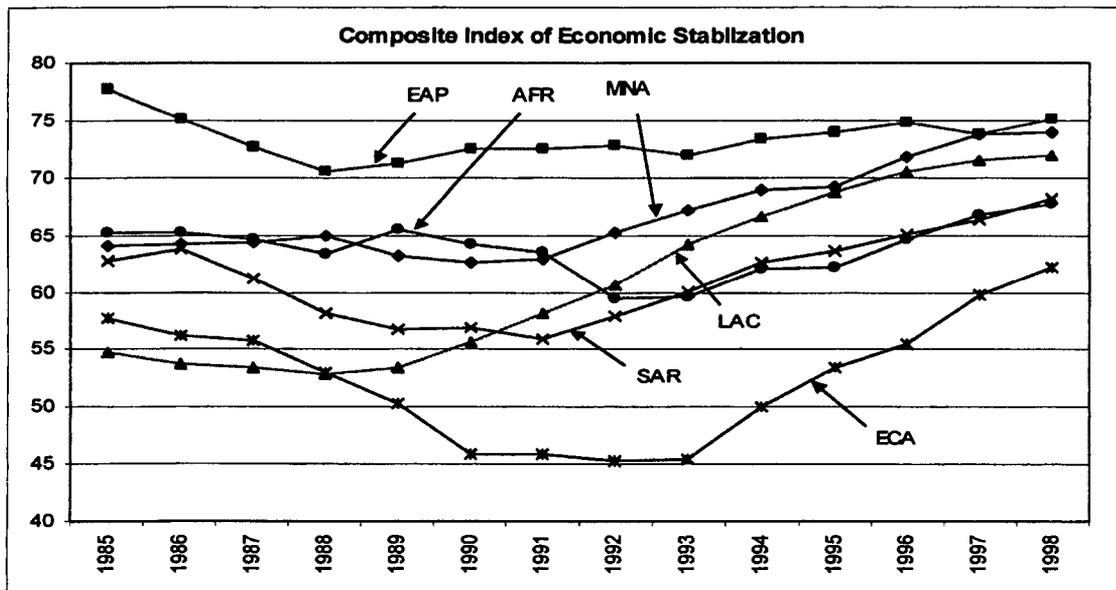
Current account balance as a ratio of GDP excluding foreign grants.

Inflation, as measured by consumer price index.

Black market premium on exchange rate.

The methodology and data sources are described in Srinivasan (2001).

Chart 14. Composite Index of Economic Stabilization by Regions

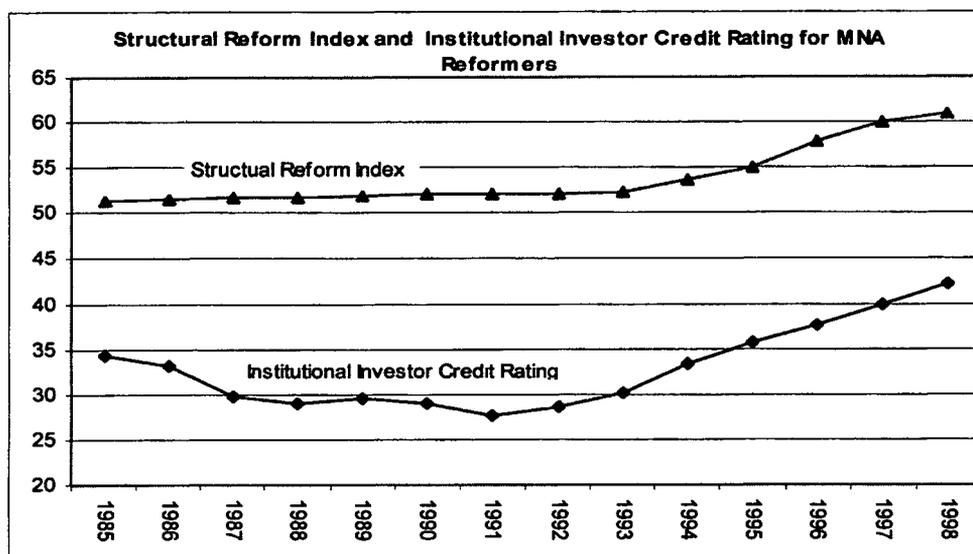


Source: Staff estimates.

Note: LAC: Latin America and Caribbean ; MNA: Middle East and North Africa; EAP: East Asia and Pacific; AFR: Sub-Saharan Africa; ECA: Europe and Central Asia; SAR: South Asia.

The second positive sign is that investor evaluation of MNA region is responding favorably to the improvements in structural reforms. As shown in Chart 15, the institutional investor credit rating average for MNA countries (the same four reforming countries as used in the construction of structural reform index) improved in keeping with the acceleration of reforms since 1994.

Chart 15. Credit Rating Improves with Structural Reforms for MNA



Source: Staff estimates based on institutional investor credit rating published twice a year in Institutional Investor magazine.

D. Sources of Growth in MNA

As indicated above, over the past decade, the MNA region took a number of steps to overcome the macroeconomic imbalances and structural impediments that prevailed throughout the 1980s. Starting in the late 1980s, several countries in the region – Morocco and Tunisia, and soon after, Jordan, embarked on far-reaching programs of macroeconomic stabilization and policy reform. By the 1990s, nearly all of the non-GCC countries in the region followed suit, as did several of the Gulf economies. While there has been considerable variance among economies in terms of both the speed and depth of these reforms, the overall change in policy throughout the region would seem to be a significant step forward in creating an environment in which the private sector could emerge and become an engine for higher and sustainable growth. The question remains, what has the more than decade-long process of macroeconomic and structural reform achieved?

A cursory examination of growth rates in the region over the last decade would appear to yield disappointing results. GDP growth over the region averaged only 3.2% a year over the 1990s⁸, higher than in the 1980s (2.7% a year), but not the rebound one would have desired following a decade of stagnation. Still, *the turnaround* in growth outcomes on a per capita basis is significant from a negative -0.7 percent a year to a positive 1 percent in the 1990s.

⁸ Weighted (by population) growth and per capita growth rates for Algeria, Egypt, Iran, Jordan, Morocco, Syria, Tunisia, Yemen, Bahrain, Oman, and Saudi Arabia.

Table 2. GDP per capita growth over the 1980s and 1990s, MNA region

	<i>GDP per capita (1995 US\$)</i>			<i>Average Annual Growth</i>	
	1980	1990	1999	1980-1990	1990-1999
Algeria	1,692	1,638	1,573	-0.3	-0.4
Egypt, Arab Rep.	731	971	1,194	2.9	2.3
Iran, Islamic Rep.	1,421	1,330	1,610	-0.7	2.2
Jordan	1,715	1,436	1,468	-1.8	0.2
Morocco	1,114	1,310	1,368	1.6	0.5
Syrian Arab Republic	1,071	956	1,242	-1.1	3.0
Tunisia	1,641	1,823	2,394	1.1	3.1
Yemen, Rep.	315	315	281	0.0	-1.3
Bahrain	12,022	8,551	9,329	-3.3	1.0
Oman	3,509	5,581	5,900	4.7	0.6
Saudi Arabia	11,554	7,101	6,455	-4.8	-1.1
GDP per capita: weighted average	1,817	1,702	1,859	-0.7	1.0

Source: World Bank data.

The decomposition of this growth performance between factor accumulation and productivity growth is also important. Indeed, a careful look at the total factor productivity growth performance is especially important. As has been pointed out by Easterly and Levine (2000), the bulk of the cross-country differences in growth rates of GDP per capita are not the result of factor accumulation, but of differences in TFP growth. Decomposing accurately factor accumulation and productivity growth components is notoriously difficult. For this paper, Keller (2001) undertakes a careful assessment, using other benchmarks, especially Bosworth, Collins and Chen (1995) (see methodology, Annex 2).

Results. To check the consistency of our estimations with prior findings, we compared our TFP series between 1960 and 1990 with the TFP estimates of Bosworth, Collins and Chen (1995), and found a high degree of consistency between the two series, with the relationship between the two series statistically significant at the 99% level (Prob $\rho=0 = 0.0001$) and a correlation coefficient of 0.93 between Bosworth's average TFP growth by decade and our TFP series.

In Table 3, estimates of total factor productivity growth over the 1960-1999 period are presented by region and decade. Prior to interpreting the TFP results for the MNA region, it is worth noting that our TFP growth estimates, in general, are low compared with others which have emerged in prior cross-country growth-accounting exercises. The TFP estimates are, in fact, highly sensitive the assumptions underlying the production function, in particular the factor shares placed on capital and human capital.

For The East Asian Miracle¹⁰, for example, TFP growth estimates were based upon a factor share on capital of less than 0.2, which contributed to much higher TFP growth rates for all heavy-capital accumulating economies, such as the East Asian “tigers” and the high-income OECD. On the other hand, as will be seen, the TFP estimates for the MNA region – in terms of country rankings, and in terms of degree to which performance is above or below the world average – are relatively insensitive to such changes in assumptions. It is thus possible to speak about the region’s performance relative to the world with some degree of confidence. Our estimates of TFP growth for the MNA region over the 1960-1990 period are largely consistent with previous findings, where the region exhibited a pattern of high TFP growth in the 1960s, declining dramatically over the 1970s and continuing throughout the 1980s¹¹.

Region	1960s	1970s	1980s	1990s
Sub-Saharan Africa	0.1	-1.3	-1.3	0.0
East Asia and the Pacific	1.2	0.7	2.3	4.0
Latin America and the Caribbean	1.3	0.8	-2.4	-0.1
South Asia	0.0	-0.7	2.0	1.6
High income/OECD	1.7	-0.4	0.7	0.1
Middle East and North Africa	2.4	-1.4	-1.3	0.0
Early reformers	2.5	0.9	-1.0	0.0
Later reformers	1.9	-4.0	-0.9	0.4
GCC	4.7	-3.8	-4.5	-1.4
World Average	1.1	0.0	1.2	2.0

Source: World Bank staff estimates.

Note: In the 1960s, the GCC figure reflects only Saudi Arabia. Regional averages weighted by population.

In the 1960s, MNA’s per capita economic growth performance was the highest in the world, averaging 4.6% per year. Fueled by revenues from oil exports, worker remittances, and external financing flows, the region began a two-decade period of massive public investment in infrastructure, health and education, which in this early period of development was able to translate into high growth. In addition to high levels of accumulation spurring growth, TFP growth over the 1960s was also high, with large-scale public investments in critical infrastructure generating a significant growth response.

¹⁰ World Bank, 1993.

¹¹ See Bosworth, Collins and Chen (1995) for similar findings.

In the 1970s, going by growth figures alone, MENA was still in the middle of a growth “heyday”, with GDP growth averaging 5.7 percent a year. But the underlying conditions spurring growth in the 1970s represent a serious and negative departure from the previous decade of high growth and productivity. To begin, the 1970s were marked by an increase in the rate of physical capital accumulation per laborer of more than 60%, and an almost doubling of the rate of human capital accumulation per laborer. Over the 1970s, the MENA region realized the highest rates of growth of *both* physical capital per laborer and human capital per laborer. Despite this immense increase in accumulation, on a per laborer basis, growth actually declined, on average by close to 2% a year. Thus, the 1970s represented two large and yet conflicting growth dynamics for the region, where investments were being undertaken in record levels (all things equal, increasing the region’s growth potential) at the same time that these investments were having increasingly poor payoffs, in terms of growth.

But by the 1980s, as international oil prices slumped in the wake of global overproduction, these economic gains became unsustainable and the region’s countries witnessed slow or even negative per laborer growth rates. With eroding macroeconomic balances and growing debt burdens, and despite both heavy external assistance (which permitted spending for several more years), investments declined dramatically, with the rate of growth of the physical capital stock per laborer cut by almost three quarters from the prior decade.

This decline in accumulation was almost without exception, with every country in the region but Kuwait experiencing a dramatic decline in accumulation between the 1970s and 1980s, and almost every economy experiencing a likewise decline in TFP. Only Iran and Oman saw actual improvements in total factor productivity between the 1970s and 1980s. Negative productivity growth was most prevalent in the oil-producing economies of the region – both within the GCC economies as well as Algeria. Because our TFP estimates are a reflection of factor efficiency, the degree to which capital is underutilized will be heavily reflected in the ensuing TFP growth measurements. This feature is of particular importance for these economies, since as oil prices collapsed in the 1980s, there was a significant effort on the part of oil-producers to prop up oil prices by holding down production. Nevertheless, even in the non-oil producing economies, there were widespread declines in productivity for almost every country. With both massive declines in accumulation and corresponding declines in TFP for most countries, the MENA region experienced a collapse of economic growth per laborer.

Table 4
GDP per capita growth and growth of accumulation and productivity by region
1960-1990

Region	Decade	Growth of GDP per laborer	Growth of Physical capital per laborer	Growth of Human capital per laborer	TFP Growth
Sub-Saharan Africa	1960s	1.8	3.8	0.4	0.1
	1970s	0.6	4.2	0.3	-1.3
	1980s	-0.9	-0.1	0.7	-1.3
	1990s	0.3	0.0	0.5	0.0
East Asia & Pacific	1960s	2.1	1.1	0.8	1.2
	1970s	3.3	5.3	0.9	0.7
	1980s	5.6	6.7	1.0	2.3
	1990s	7.5	7.8	0.6	4.0
Latin America/Caribb.	1960s	2.9	3.1	0.6	1.3
	1970s	2.9	4.3	0.6	0.8
	1980s	-1.7	0.2	0.9	-2.4
	1990s	0.6	0.6	0.8	-0.1
High Income/OECD	1960s	4.4	5.8	0.5	1.7
	1970s	1.8	3.6	1.4	-0.4
	1980s	1.8	2.3	0.3	0.7
	1990s	1.3	2.2	0.5	0.1
South Asia	1960s	2.2	4.0	0.6	0.2
	1970s	0.6	1.9	1.0	-0.7
	1980s	3.6	2.7	0.9	2.0
	1990s	2.9	2.1	0.8	1.6
MENA	1960s	4.6	4.9	0.5	2.4
	1970s	2.6	7.9	1.5	-1.4
	1980s	0.4	2.1	1.4	-1.3
	1990s	0.7	-0.3	1.2	0.0
World	1960s	2.7	3.2	0.6	1.1
	1970s	2.2	4.1	1.0	0.0
	1980s	3.2	3.8	0.8	1.2
	1990s	4.0	4.1	0.7	2.0

Source: World Bank staff estimates. Regional averages weighted by population.

By the late 1980s, the 'lost decade of growth' prompted a handful of countries in the region – Morocco and Tunisia, and soon after, Jordan, to embark on programs of macroeconomic stabilization and policy reform. By the 1990s, nearly all of the non-GCC countries in the region followed suit, as did several of the Gulf economies. The reasoning, of course, was to create an environment in which the private sector could emerge and become an engine for higher and sustainable economic growth, crucial for employment creation.

How has the region fared in the 1990s? To understand the developments over the decade, we again turn to a growth decomposition. In Table 5 below, we present the MENA region's changes to accumulation, productivity and growth, relative to global changes, to evaluate how changes over the decade within MENA compare to the rest of the world. For clarity, the table does not present GDP and TFP growth over the 1990s, but rather the change in average GDP, factor, and TFP growth between the 1980s and 1990s (thus if an economy moved from an average GDP per laborer growth of 2% a year in the 1980s, to 5% a year over the 1990s, the change in GDP growth per laborer over the decade is 3%). Further, these growth rate changes are evaluated with respect to worldwide growth averages, to separate out the effects of changes in the world-wide utilization of capital or labor (global recessions or booms) from the MENA region's specific improvement in accumulation and utilization of capital and labor in the production process.

The countries are presented in order of the change to their average TFP growth per laborer between the 1980s and 1990s. Countries falling below the worldwide average growth of TFP of 0.75% a year, then, appear below the worldwide figure.

Table 5
Change in MENA's growth and TFP growth between 1980s and 1990s (%)

Country	Change in average GDP growth per laborer	Change in average physical capital accumulation per laborer	Change in average human capital accumulation per laborer	Change in TFP growth
Syria	2.54	-3.06	-0.80	4.24
Jordan	1.07	-6.27	-0.71	4.00
Saudi Arabia	5.69	5.20	-0.27	3.77
Kuwait	9.11	7.64	6.47	2.17
Egypt	-0.99	-5.65	-0.66	1.67
Tunisia	0.84	-1.45	0.09	1.37
Iran	0.88	-0.57	0.23	0.97
Algeria	-0.92	-3.80	-0.46	0.88
Worldwide	0.74	0.24	-0.18	0.75
Morocco	-1.23	-1.35	0.12	-0.77
Oman	-4.10	-3.33	0.52	-3.08

The table presents in an easily understood way what improvements have occurred for the MENA economies, relative to the world. At the top of the list of improved productivity growth is Syria, which in the 1990s benefited from both increased oil production and agricultural performance, as well as an aid windfall during the Gulf war (which allowed it to undertake key growth-enhancing infrastructure investments, such as the purchase of power stations and a telephone network). Three of the four countries¹²

¹² Jordan, Morocco, Tunisia and Egypt, which all embarked upon structural reform programs in mid to late 1980s.

we would term the 'early reformers' (Jordan, Tunisia and Egypt) also experienced better than average increases in average TFP growth between the 1980s and 1990s.

Overall, TFP growth in the region actually improved in all but 2 economies (Morocco and Oman), and on a relative basis, TFP performance improved relative to the rest of the world in 8 out of the 10 countries in the sample.

At the same time, however, due to large declines in accumulation within most of MENA (larger than average global changes to the growth in factor accumulation), the change in relative GDP growth (to the world) has not reflected the large improvements in factor allocation and efficiency (Jordan, Egypt and Tunisia, for example).

It is difficult to definitively interpret the substantial declines in accumulation throughout the 1990s. Public sector investments have certainly dropped off. So, in the midst of an overall factor accumulation deterioration, it could be that private sector factor accumulation is actually improving. More likely, however, is that while productivity and factor allocation efficiency has improved significantly over the 1990s, it has failed to generate a comparable private sector investment response. Country studies on the private investment response in Jordan, Egypt and Morocco, for example, suggest weak recovery in private investment. Yet there are also signs in some countries, such as Jordan, that private investment is shifting slowly towards traded goods sectors and away from non-traded areas such as construction, which augurs better for the future.

Nevertheless, most country evidence seems to suggest that the private sector investment response has been slow. It is beyond the scope of this paper to adequately analyze why the reform process, which has clearly produced an impact on the region's productivity, has failed to generate a private-sector investment response in the external-oriented sectors. However, the literature on growth modeling is paying increasing focus to the role of institutions on growth¹³. Institutional factors -- such as the degree of regulation, red tape, and corruption of the government -- have become ever more recognized as critical factors that can either fasten or stand in the way of sustained economic growth. Surveys of existing enterprises and potential investors consistently rank the three elements of institutional capability -- red tape, judiciary system efficiency, and corruption -- as among the major factors determining the attractiveness of developing economies for new private investment¹⁴.

To accurately diagnose the continuing fall in MNA's factor accumulation would, to start, require a detailed analysis of the changes to both public and private investments, information which is generally lacking in the region. On the other hand, getting a grasp on the specifics behind the investment collapse within MNA might be invaluable in enabling the comprehensive macroeconomic and structural reform agenda the region has undertaken to generate a more dynamic growth response.

Did the reforms as measured by our indices have any statistically significant effects on the changes in growth performance and in TFP observed over the period in

¹³ See Hall and Jones (1998), Mauro (1995), for example.

¹⁴ See for example the Private Sector Assessments conducted by the World Bank for more than 40 developing economies.

MNA? Cross-country panel regression analysis has been initiated to attempt to answer this question, but is not yet robust enough to derive anything meaningful other than some very preliminary and qualitative remarks at this time. The very preliminary data and results seem to suggest some significant positive association between observed growth and TFP changes across all countries and in MNA with macroeconomic stability index, but not necessarily with the structural reform index.

What characteristics define strong performance in productivity growth?

Finally, inherent in our TFP calculation exercise is the belief that higher productivity growth, if it is sustained, can generate a corresponding private sector investment response that together form the engine for rapid growth. But realizing higher rates of total factor productivity growth for consistent periods of time has been elusive for a majority of the world's economies. Looking at TFP growth rates across countries, relative to world averages, reveals a startling degree of variation across time. Countries that had the highest TFP growth rates over one decade fall close to the bottom the next decade. Thus, trying to discern commonalities among countries who are "on top" now may be quite misleading.

As an exercise, we looked at TFP growth rates across countries over the four-decade period for which we have information, in an effort to discern what may be some common features among the world's emerging economies, in terms of sustained better TFP performance. However, to create a topology of "better performers" requires some subjective ordering of the importance of certain TFP features over others. For example, constructing a composite TFP score as the simple average of TFP growth (relative to the world) for the 1960s through the 1990s implicitly weights a good (or poor) performance 35 years ago the same as today. For that matter, averaging a poor performance and good performance under equivalent weights implicitly means valuing a boom and a bust in productivity equally.

Therefore, in deriving a composite performance index on productivity, certain characteristics may be important. We have constructed such an index to rank countries with two basic features which, in our mind, are important in talking about the world's emerging economies in terms of TFP growth. Firstly, we are primarily interested in the present. At the same time, because productivity fluctuates from decade to decade (sometimes, simply the result of good weather or production windfalls), it would be imprudent to look strictly at the 1990s to determine the recent better performers. Thus, in deriving a composite index of TFP growth, we have placed increased emphasis on the present, but we have not altogether overlooked the past, with each decade's TFP performance carrying twice the weight of the previous decade.

Secondly, we are interested in economies in which productivity growth has been improving. Thus, a decline in productivity growth from one decade to the next carries a penalty, signaling a deterioration of productivity (even if productivity growth remains above world averages). Thus, in our composite index, we have additionally penalized TFP growth deteriorations, again with increasing weight for on the present, by subtracting half of any decline in TFP growth (if indeed there was a decline) as a share of the average worldwide declines.

The construction of this composite index permits a very qualitative assessment of the overall performance of economies in productivity growth over the past four decades and in distinguishing certain characteristics of laggards and leaders. Annex 3 provides such a composite index of countries which have done very well (the top runners) and those who are at the bottom. While this needs much more careful testing certain qualitative remarks about distinguishing features may be possible:

The first is the diversity of economies in the top third. Among the top 31 performers as measured over the last 40 years, five are from East Asia and the Pacific, eleven from high income or OECD economies, four from Latin America and the Caribbean, four from South Asia, five from South Africa, one from Europe and Central Asia, and one from the Middle East and North Africa – namely, Tunisia. Sustained strong productivity performance is not the preserve of any one region or income group.

The second is the suggestion of the importance of macroeconomic stability, export growth and diversification in economic activity from traditional to new sectors over time, and concurrently, the critical importance therefore of a strong private investment response (new investment in new and diversified sectors). Most countries in the top third are anecdotally those who have diversified their economies over time away from a few major sectors. This includes China, Ireland and Mauritius in the top three for example. And only Tunisia, for example, makes the list of the top third of countries.

The third is the relative prevalence of commodity or resource dependence among the bottom third--- all the oil economies are there, and those that are less diversified and with greater volatility and macroeconomic instability.

E. Conclusion

The growth performance of MNA countries reviewed in this paper suggests that reforms in MNA remain very much a half-finished business. Reforms have clearly begun but most MNA countries are late reformers and continue to lag other countries and regions' performance. The effect of reforms is difficult to distinguish but may have at least contributed to reverse the large negative total factor productivity losses of the 1970s and 1980s. But the private investment response has been lagging and understanding the reasons are a priority---and the needed reforms may need to go well beyond the first stage of structural reforms in these countries. Finally, sustained improvement in productivity performance will be critical and appears to be tied, at least at first glance, to success in rapid diversification in economic activity over time, in traded goods and services and away from excessive dependence on resources and commodities such as oil (which induce high volatility and low productivity performance). All of these conclusions in the paper nevertheless represent work in progress and need much more careful testing and analyses for the future.

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Annex 1. Data sources for Construction of Structural Reform Index

1. The data for privatization receipts are taken from *World Development Indicators*.
2. The data for Tariff are also taken from i) *Trade Policy Review* (WTO) for various years and countries, ii) *Trade Policy Reform in Developing Countries since 1985* (World Bank Discussion Paper No.267), iii) *Jordan: Policies and Prospects for Small and Medium Scale Manufacturing Industries* (World Bank Publication Report No. 6848-jo) and iii) *Jordan: Strategy for Adjustment and Growth* (IMF, Occasional Paper No. 136)
3. For individual and corporate taxes, i).*Price Water House Coopers, Coopers & Lybrand Global Tax Network* and ii). *International Tax Summaries*, Deloitte Touche Tohmatsu International, Syria are supplementary used.
4. The data for real exchange rate deviation from PPP are originally from David Dollar, used in "Outward-oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDBs, 1976-1985: *Economic Development and Cultural Change*, 1992, extended to 1999 by research staff and downloaded from <http://www.worldbank.org/research/growth/GDNdata.htm#1>).

Methodology:

1. Structural Reform Index (SRI) consists of five sub-indices, i.e., simple mean tariff rates, cumulated privatization receipts to GDP ratios, highest marginal corporate tax rates, highest marginal individual tax rates and real exchange rate deviation from PPP. The composite index is build by assigning weights, one fourth, one fourth, one eighth, one eighth and one fourth, respectively.
2. For exchange rates deviation from PPP, any differences from 100 is treated as equal whether positive or negative.
3. All the data are normalized by the formula as below:

$$X_{ij} = (W - V_{jt}) / (W - B)$$

Where W: Worst value of all the years and all the countries,
 V_{jt}: Value of country j in year t,
 B: Best value of all the countries and all the years;
 X_{jt}: Normalized Value j for year t.

The best and worst benchmarks for the raw indicators before normalization are shown in the table below:

	BEST	WORST	
IT	Bahrain	0.0	Thailand 85.0
CT	Nicaragua	0.0	Iran 75.0
TAR	Bulgaria	1.5	Bangladesh 106.6
PRV	Hungary	26.9	Multiple Countries 0.0
PPP	ECA 4 countries	0.0	Nicaragua 5426.6

IT: Highest marginal income tax rate on individuals.
 CT: Highest marginal income tax rate on corporations.
 TAR: Average un-weighted tariff rate on imports.
 PRV: Cumulative privatization proceeds as a ratio of GDP.
 PPP: Deviations from PPP exchange rate.

Annex 2. Measuring Factor Accumulation and TFP growth contributions to Aggregate Growth

TFP growth estimates were made utilizing panel data of capital stock accumulation, human capital stock accumulation, and GDP growth from 1960-1999. Estimates of the physical capital stock for a sample of 83 economies from 1960 to 1990 come from Nehru and Dharehwar (1993¹⁵), which was created by a perpetual inventory method from investment rates from 1950 forward, with initial assumptions about the capital/output ratio, and assuming a common fixed annual geometric depreciation rate of 0.04. These capital stock data were extended to 1999 using the growth rates of constant price local currency investment from the World Bank's World Development Indicators database¹⁶, and applying similar assumptions on the depreciation rate. Capital stock estimates for another 12 economies, including 4 economies in the MNA region of particular interest to us, were created according to a similar methodology, using investment rates from 1960 forward. Since we will estimate GDP growth using a panel regression approach over 10 year periods, the sample was restricted to those economies in which the capital stock could be estimated for the full 1960-1999 period, both to maintain a balanced panel, and reducing the importance of the assumption about the initial stock in the period of analysis of particular importance to us, the 1990s.

Real GDP in constant local currency also come from World Bank data. The human capital-augmented labor stock was estimated, using both labor force estimates as reported by the International Labor Organization, from the World Bank database, and estimates of the educational attainment of the adult population from Barro and Lee¹⁷. The functional form of human capital augmented labor has been assumed as:

$$H = L e^{(r \cdot S)}$$

where L is the labor force and S is the average years of schooling of the adult population, and r is the rate of return to schooling. According to international evidence, a reasonable approximation of that rate of return is 10%, which we have assumed for the purposes of our analysis.

TFP growth was calculated over ten-year periods from 1960-1999, rather than on an annual basis, to minimize the error that is inherent in current capital stock measurements. National accounts would attribute any investment expenditures made over the year, even the last day of the year, to that year's capital stock. However, it is unlikely that that investment expenditure would contribute to economic growth immediately, but rather would only create the potential to contribute to growth into the future. To reduce this lag-effect that physical capital exhibits, we calculated TFP growth based on ten-year averages. We allowed for slight variation into the years included for Kuwait, in order to minimize the very large impact that came from the Gulf war. In Kuwait, we removed the years 1989-1992 from the analysis. This decision was made not to mine the data in any fashion, but only to better serve our purpose of evaluating the country's growth, accumulation, and productivity.

¹⁵ Nehru, Vikram Ashok Dharehwar. 1993. A New Database on Physical Capital Stock: Sources, Methodology and Results. *Revista de Analisis Economico* 8 (1): 37-59

¹⁶ In the case of MNA economies, where there were inconsistencies, the World Bank MNA regional database investment series was preferred.

¹⁷ "International Data on Educational Attainment: Updates and Implications"; CID Working paper No. 42; Center for International Development at Harvard University; April 2000.

¹⁸ Nehru, Vikram Ashok Dharehwar. 1993. A New Database on Physical Capital Stock: Sources, Methodology and Results. *Revista de Analisis Economico* 8 (1): 37-59.

¹⁹ In the case of MNA economies, where there were inconsistencies, the World Bank MNA regional database investment series was preferred.

²⁰ "International Data on Educational Attainment: Updates and Implications"; CID Working paper No. 42; Center for International Development at Harvard University; April 2000.

Production was assumed to follow a Cobb-Douglas specification with constant returns to scale between physical and human-capital-augmented labor:

$$Y_t = A(t) * K_t^\alpha * H_t^{(1-\alpha)}$$

where Y is output, A is an index of total factor productivity, and K and H are the stocks of physical and human-augmented labor, respectively. Dividing both sides by the work force, taking logs, and first-differencing, growth of output per worker can be related as follows:

$$\ln (y_t / y_{t-1}) = \alpha \ln (k_t / k_{t-1}) + (1-\alpha) \ln (h_t / h_{t-1}) + \ln (A_t / A_{t-1})$$

To determine the coefficients on capital and human-capital augmented labor, α and $(1-\alpha)$, the average annual rate of GDP per capita growth over the decade was regressed on average growth of physical capital per worker and human-capital per worker with a least squares trend over the entire period of availability (1960-1999).

From our estimation, the elasticity of output of physical capital was estimated to be 0.49, somewhat higher than the average estimated coefficient from previous research, but within the range of accepted parameters. This may be due to the inclusion of several more developing countries than in the original Nehru-Dharehwar physical capital stock dataset, made possible using World Bank data. At the same time, our purpose here is not to break new ground in measuring TFP, but to evaluate the region's performance in factor allocation and efficiency. Thus, we have calculated the TFP using three distinct calculation of factor shares -- $\alpha_k=0.3$, $\alpha_k=0.4$, and $\alpha_k=0.5$, to check the sensitivity of the region's growth performance to the assumptions made on the output elasticities. The resulting sets of TFP growth estimations for the full sample of countries are presented in Annex 3. Within the text of the paper, TFP calculations are based on elasticity of capital assumption of 0.4 across countries.

**Annex 3. Emerging economies in terms of improved productivity growth
Performance, 1960-1999**

REGION	COUNTRY	1960s	1970s	1980s	1990s	Score *
1 East Asia and the Pacific	China	1.38	0.77	3.01	5.34	3.90
2 High Income / OECD	Ireland	1.69	1.13	1.08	3.61	2.53
3 Sub-Saharan Africa	Mauritius	0.27	1.10	3.79	1.61	1.95
4 Europe and Central Asia	Cyprus	4.45	0.87	1.87	1.53	1.66
5 South Asia	India	0.11	-0.77	2.14	1.73	1.35
6 East Asia and the Pacific	Singapore	-0.22	0.04	0.88	1.79	1.19
7 Latin America and the Caribbean	Chile	1.40	-0.20	-0.16	2.04	1.16
8 Sub-Saharan Africa	Botswana	1.80	4.59	2.61	-0.35	0.95
9 South Asia	Bangladesh	0.87	-1.09	1.85	1.12	0.91
10 Sub-Saharan Africa	Malawi	-0.73	0.02	0.07	1.77	0.91
11 High Income / OECD	Denmark	0.74	-0.47	0.51	1.32	0.85
12 High Income / OECD	Australia	1.10	0.05	0.07	1.27	0.83
13 High Income / OECD	Finland	1.66	0.57	0.12	0.95	0.77
14 High Income / OECD	Norway	0.96	1.01	-1.66	2.12	0.76
15 Middle East and North Africa	Tunisia	1.43	1.45	-0.36	1.02	0.76
16 South Asia	Sri Lanka	1.36	-0.26	-0.32	1.21	0.66
17 Sub-Saharan Africa	Mali	0.36	1.89	-0.57	1.04	0.66
18 Latin America and the Caribbean	Argentina	0.83	-0.53	-2.66	3.07	0.63
19 High Income / OECD	Israel	3.05	0.49	0.65	0.36	0.60
20 South Asia	Pakistan	-0.11	0.20	1.16	0.56	0.59
21 Latin America and the Caribbean	Uruguay	-0.22	-0.72	-0.32	1.47	0.57
22 Latin America and the Caribbean	Bolivia	1.82	0.25	-1.43	1.58	0.54
23 East Asia and the Pacific	Korea	1.09	-0.96	2.21	0.18	0.48
24 High Income / OECD	Belgium	2.04	1.40	0.61	0.06	0.45
25 High Income / OECD	United States	0.74	-1.33	1.05	0.74	0.45
26 Sub-Saharan Africa	Mozambique	1.16	-3.82	-1.35	3.09	0.43
27 High Income / OECD	Netherlands	0.00	0.01	-0.59	1.06	0.43
28 High Income / OECD	Iceland	0.56	1.86	-0.73	0.57	0.37
29 East Asia and the Pacific	Papua New Guinea	-0.59	-1.53	-1.52	2.22	0.36
30 East Asia and the Pacific	Thailand	1.53	0.47	2.30	-0.33	0.36
31 High Income / OECD	United Kingdom	0.45	-0.17	0.78	0.29	0.35
32 Sub-Saharan Africa	Tanzania	2.98	-0.36	-0.06	0.44	0.34
33 East Asia and the Pacific	Malaysia	0.21	0.56	0.02	0.44	0.33
34 High Income / OECD	Austria	2.20	0.77	0.49	-0.05	0.26
35 Sub-Saharan Africa	Uganda	0.03	-10.19	2.23	3.90	0.24
36 East Asia and the Pacific	Myanmar	0.01	1.78	-1.94	1.37	0.22
37 Sub-Saharan Africa	Senegal	0.41	-1.21	0.68	0.37	0.16
38 High Income / OECD	Italy	2.42	1.38	0.35	-0.24	0.15
39 Latin America and the Caribbean	Costa Rica	0.89	-1.06	-1.44	1.37	0.15
40 Middle East and North Africa	Egypt	1.78	1.34	-1.23	0.45	0.15
41 Latin America and the Caribbean	Dominican Republic	0.53	0.20	-2.64	2.02	0.14
42 High Income / OECD	Portugal	2.66	0.01	0.31	-0.04	0.11
43 High Income / OECD	Greece	3.27	0.41	-0.79	0.07	0.02
44 High Income / OECD	Spain	2.52	-0.37	0.51	-0.18	-0.03
45 Middle East and North Africa	Syria	0.26	1.92	-2.76	1.48	-0.05
46 Sub-Saharan Africa	Ghana	-2.52	-2.00	-0.29	1.17	-0.06

REGION	COUNTRY	1960s	1970s	1980s	1990s	Score *	
47	High Income / OECD	France	1.75	-0.09	0.69	-0.31	-0.07
48	Latin America and the Caribbean	Guatemala	1.40	0.89	-1.62	0.46	-0.09
49	Sub-Saharan Africa	Kenya	1.50	3.22	1.10	-0.98	-0.15
50	High Income / OECD	Canada	1.85	-0.24	-0.47	-0.14	-0.22
51	Europe and Central Asia	Turkey	2.01	0.53	1.41	-0.84	-0.24
52	Sub-Saharan Africa	Zimbabwe	3.35	-0.91	-0.95	-0.04	-0.37
53	High Income / OECD	New Zealand	0.53	-1.45	-0.54	0.07	-0.40
54	Latin America and the Caribbean	Guyana	0.92	-1.39	-4.45	2.78	-0.49
55	Europe and Central Asia	Hungary	0.01	0.82	0.31	-0.81	-0.60
56	Latin America and the Caribbean	Panama	2.01	-0.60	-3.38	1.28	-0.61
57	Middle East and North Africa	Oman	...	-4.21	2.60	-0.48	-0.62
58	High Income / OECD	Sweden	1.57	-1.21	0.47	-0.64	-0.66
59	Latin America and the Caribbean	Brazil	1.46	2.63	-2.39	-0.18	-0.70
60	High Income / OECD	Japan	3.64	-0.33	1.02	-1.19	-0.72
61	Latin America and the Caribbean	Barbados	-1.16	0.72	-1.46	-0.26	-0.81
62	Middle East and North Africa	Jordan	...	2.30	-3.45	0.55	-0.83
63	East Asia and the Pacific	Fiji	-1.69	-0.97	-1.49	0.01	-0.88
64	Latin America and the Caribbean	El Salvador	0.32	-1.55	-2.49	0.50	-0.90
65	Sub-Saharan Africa	Lesotho	1.16	-0.26	-0.53	-1.05	-1.03
66	Middle East and North Africa	Morocco	4.59	-0.36	-0.44	-1.20	-1.04
67	Middle East and North Africa	Iran	2.39	-4.68	-2.12	1.22	-1.05
68	Latin America and the Caribbean	Colombia	2.26	0.63	-0.86	-1.22	-1.10
69	Sub-Saharan Africa	Cote D'Ivoire	3.06	-0.85	-2.52	-0.31	-1.24
70	Sub-Saharan Africa	Niger	-1.71	-2.88	-2.43	0.56	-1.27
71	Sub-Saharan Africa	Ethiopia	-0.38	0.12	-3.12	0.01	-1.31
72	Latin America and the Caribbean	Peru	1.22	-0.95	-3.56	0.22	-1.37
73	Latin America and the Caribbean	Ecuador	0.78	-3.05	-1.13	-1.60	-1.37
74	High Income / OECD	Switzerland	-0.28	-1.72	-0.06	-1.11	-1.37
75	East Asia and the Pacific	Indonesia	-0.46	0.56	-0.46	-1.61	-1.46
76	Latin America and the Caribbean	Mexico	1.42	-0.11	-3.14	-0.48	-1.54
77	East Asia and the Pacific	Phillipines	0.15	-0.03	-2.26	-0.81	-1.55
78	Sub-Saharan Africa	Zambia	0.36	-1.37	-0.27	-1.39	-1.58
79	Sub-Saharan Africa	Cameroon	-1.06	2.81	-2.88	-0.80	-1.63
80	Sub-Saharan Africa	Togo	0.43	-2.36	-2.09	-0.48	-1.64
81	Latin America and the Caribbean	Honduras	0.62	0.69	-2.02	-1.23	-1.67
82	Sub-Saharan Africa	South Africa	1.47	-0.01	-2.43	-1.10	-1.74
83	Latin America and the Caribbean	Paraguay	0.50	1.56	-2.39	-1.48	-1.94
84	Sub-Saharan Africa	Nigeria	-1.39	-2.54	-1.95	-1.01	-2.16
85	Middle East and North Africa	Algeria	1.44	-0.42	-2.66	-1.78	-2.46
86	Latin America and the Caribbean	Nicaragua	1.11	-4.03	-4.66	-0.62	-3.17
87	Latin America and the Caribbean	Trinidad and Tobago	1.02	-0.14	-5.74	-1.08	-3.22
88	Latin America and the Caribbean	Jamaica	1.62	-4.07	0.17	-2.82	-3.30
89	Latin America and the Caribbean	Haiti	-1.20	0.29	-4.10	-1.88	-3.32
90	Sub-Saharan Africa	Rwanda	-1.03	0.13	-4.47	-1.87	-3.47
91	Latin America and the Caribbean	Venezuela	1.95	-4.12	-1.69	-2.55	-3.61
92	Middle East and North Africa	Saudi Arabia	4.69	-3.45	-5.11	-1.33	-3.69
93	Middle East and North Africa	Kuwait	...	-5.35	-5.34	-3.17	-5.56

Score determined as follows:

$$(rtfp60s*1 + rtfp70s*2 + rtfp80s*4 + rtfp90s*8)/15 - .5(rdec70s*2 + rdec80s*4 + rdec90s*8)/14,$$

where rtfpxx=tfp growth relative to world average for the decade and rdecxx= decline in tfp growth from previous decade, if there was a decline (otherwise, rdecxx takes a value of 0)

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