
Economic Policies and Their Effects

In the early post–World War II period, there was little understanding of the minimal requirements for sustained economic growth in the former colonial countries. Much of the analysis that existed was based on limited familiarity with poor countries and theories that ignored important realities such as the potential role of international trade. Often analysts drew sweeping conclusions from brief visits, and the generalizations had more than a touch of arrogance or worse: South Korea was hopeless in some descriptions because Confucianism was inimical to growth, and Taiwan would not succeed because the Chinese are interested only in trading and not production— notions that today’s buyers of cellular telephones, laptop computers, and flat panel television sets would find bizarre. After the success of South Korea and Taiwan, many of the same “experts” concluded, without any hesitation, that this success was due to the traits inculcated by the discipline stemming from Confucian tradition.

Often better analysis reflected an increasing understanding of the success or failure of national economic policies rather than improved theoretical insights. The remarkable performance of a small group of Asian countries—Hong Kong, Japan, South Korea, Singapore, and Taiwan—led to a concerted effort to understand the foundations of their success. A second generation of success stories in Indonesia, Malaysia, and Thailand reinforced some of the principles derived from the first group.¹ And the still more recent success of China and India confirms some of the earlier insights, adding a few new twists.

1. For a comprehensive retrospective of their development, see World Bank (1993) and a follow-up study, Stiglitz and Yusuf (2001).

The experience of Latin American countries provided an interesting contrast to the Far East. The growth in per capita income in many of these countries between 1950 and 1980 was based on a strategy of import-substituting industrialization, which sheltered domestic manufacturing from international competition. Given the larger size of the domestic market in some of the Latin American countries, particularly Argentina, Brazil, Colombia, and Mexico, compared with the early industrializers in Asia, the strategy was feasible. Though it produced slower growth in income per capita than the Asian high performers' norm of 5 percent, it was sustained. However, the oil price increase imposed by the Organization of Petroleum Exporting Countries (OPEC) in the 1970s tested the long-term robustness of the strategy and exposed critical weaknesses. While the Asian countries were able to tighten their belts and encourage exports by restricting aggregate demand and changing the real exchange rate, the Latin American countries typically did neither and accumulated large deficits financed (largely) by commercial borrowing. This eventually led to the debt crisis of the early 1980s in which country after country defaulted on some of their foreign exchange obligations. Austerity was imposed, and the 1980s are often referred to as the lost decade, as per capita income stagnated.

The contrasting experience of the Asian newly industrialized countries and Latin American countries led to a growing agreement among economists in universities, international financial institutions, think tanks, and the private sector about a set of dos and don'ts, which was crystallized in John Williamson's famous (or villainous in some quarters) Washington Consensus, not all of which Williamson himself believed in (Williamson 1990). This set comprised fiscal and monetary discipline, secure property rights, sectorally neutral tax and expenditure policies, financial liberalization, unified and competitive exchange rates, openness to foreign trade and investment, privatization, and deregulation. However, disappointing results in Latin America, lackluster performance in the transitional economies of Eastern Europe after the collapse of Communism, and the Asian financial crisis of the late 1990s all contributed to significant doubts about the validity of many of the elements of the Washington Consensus. One response has been to augment the consensus with so-called second-generation reforms such as strengthening prudential supervision of financial markets or competition policy.

Some planks of the Washington Consensus, circa 1990, were articles of faith rather than a distillation of the sources of success in the Asian and Latin American countries. South Korea and Taiwan had, in fact, been protectionist for quite long periods though progressively reducing the extent of protection (Pack and Westphal 1986); they invested in some state-owned enterprises though many were privatized relatively quickly; financial liberalization was undertaken very late and arguably was one source of the crisis of the late 1990s in Indonesia, South Korea, Malaysia, and Thailand (World Bank 1998, Radelet and Sachs 1998, Noland and Pack

2003). Other deviations from the consensus can be set out. But all of the countries that achieved rapid growth did exhibit relatively responsible macroeconomic policies, including low deficits and moderate growth in the money supply, and emphasized achieving rapid growth in exports. Their real exchange rates were set appropriately and exhibited little instability (World Bank 1993). There is a lively and probably never-ending debate on the precise role of exports and efforts to facilitate them through industrial policy on the growth of these countries (Noland and Pack 2003, World Bank 1993).

The issues raised by the Washington Consensus have formed the backdrop of much of the discussion over the past 15 years about the policies required to initiate and sustain economic growth. Any familiarity with the actual experience of successful economies suggests that some of the principles are almost surely prerequisites to growth, namely, those that lead to macroeconomic stability and an appropriate real exchange rate. Others may deviate with the circumstances and preferences of individual countries—Japan and South Korea were not receptive to foreign direct investment (FDI) while a linchpin of Singapore’s effort was a mobilization of the country to attract FDI, a path emulated to a lesser extent in the “latecomers,” Indonesia, Malaysia, and Thailand. In other regions as well debates about fine-tuning the nonfundamental policies have continued.

Policies in Arab Economies

But analysts and governments in the Arab countries, at least most of them, had not participated in the discussion of the policies until very recently.² Some of the countries have, in fact, had relatively good “fundamentals” in terms of fiscal and monetary policy, and there have been improvements in the last decade (Dasgupta, Keller, and Srinivasan 2002). On the other hand, they have, in many cases, deviated in major ways from the consensus, for example, in being slow to privatize the huge and inefficient state-owned sector. While state-owned enterprises can occasionally be efficient, for example the POSCO steel complex in South Korea, there is a general consensus that they have not been so in most of the Arab countries but have been utilized to provide employment to win political support. While this can be justified in the larger calculation of political and social stability, it has a long-term cost in terms of slowing the growth of productivity. Despite some efforts to initiate the discussion by international financial institutions such as the World Bank (1995, 2003a), there has been relatively limited follow-up.

2. In the early 1990s the World Bank funded the Middle East Economic Research Forum, and the research engendered has been an important source of knowledge.

The absence of a focus on economic growth in many countries, the Arab ones being far from unique, may be contrasted to that of the Asian countries, ranging from Japan to South Korea to Taiwan. For reasons that differed in each case, these governments had little legitimacy following World War II. Japan had suffered a traumatic defeat after initiating the Second World War in the Pacific. South Korea had gained independence from Japan but had then been partitioned, and a devastating three-year war from 1950 to 1952 destroyed much of the capital stock and caused enormous casualties. Taiwan was the base of the defeated Kuomintang government, which hastily left the mainland in 1949. In each case, the government decided to establish its legitimacy by emphasizing economic growth—in the 1950s in Japan and in the early 1960s in South Korea and Taiwan.³ In all three a land reform overcame one set of opponents to policies that were conducive to growth with equity; in turn this sharing in rapid growth led to a perception that government policies benefited the general population.⁴ The combination of political trauma that disrupted existing structures of influence and the need to provide increased living standards to generate legitimacy may have weakened the political obstacles to development, but this never materialized in the wake of what some would describe as cataclysmic events in the Arab world.

Analysts often point to political and military shocks as a reason for the absence of a concerted effort to improve living standards in the countries of the Middle East but do not ask why these shocks did not have the benefits just alluded to in the Far East.⁵ Each of the shocks might have provided the basis for an effort to further establish legitimacy through improved living standards. The argument that these countries were authoritarian is not wholly convincing—South Korea and Taiwan were hardly models of democracy when they began their rapid ascent. The violence of the Algerian war against the French and intra-Algerian convulsions that resulted in up to a million dead in the aftermath of the war never resulted in a program to generate growth nor did the government-Islamist fighting of the 1990s (Horne 1978, Quandt 1998). The Iran-Iraq war of the 1980s and its huge casualties did not lead to improved economic policy despite the absence of any effective internal opposition in Iraq. The 1952 coup against the monarchy, the Egyptian-Saudi war in Yemen in the 1960s, a number of

3. For an insider's account on Taiwan, see K. T. Li (1988).

4. This is part of what the World Bank (1993) describes as a virtuous circle, the diffusion of benefits increasing the political feasibility of further policy reform. See also Campos and Root (1996).

5. Mancur Olson (1982) suggested that postwar growth in a number of countries, particularly Germany and Japan, had been facilitated by the destruction of earlier institutions and also briefly argued this for some of the Asian countries. He omitted, perhaps presciently, the Middle East.

wars with Israel, the Iraqi invasion of Kuwait in 1990 and the ensuing Gulf War, and the US-Iraq war of 2003 have not led to notable reform in the affected or contiguous countries.

Often the dilatory tactics of governments are attributed to the ongoing problems between Israelis and Palestinians, and indeed the need to solve this dilemma was invoked to justify the disregard of American proposals in 2004 and 2005 for democratic and economic reform in Middle Eastern countries. Quite apart from the specifics of the plan and its American origins, the rejection is symptomatic of the diligent quest for excuses to justify delay of reforms. All of these traumatic events could have provided a compelling case for reformers. Instead, these political and military shocks are viewed as having deflected attention from the pursuit of systematic policies to improve living standards.

Paradoxically, favorable developments are also often invoked to explain the failure to concentrate on economic growth. The oil price increase of the 1970s and early 1980s provided oil exporters with a cushion on which to recline comfortably without undue attention to assuring future growth. The nonoil Arab countries participated in the bounty as the OPEC members had a high demand for labor, much of it supplied by other Arab countries, whose citizens repatriated considerable earnings to their country of origin. Even the frequent conflicts were a source of a benefit, namely, large aid inflows to insure allegiance during the Cold War or to reward countries for specific behavior, most notably Egypt after the signing of the Camp David agreement in 1979. Moreover, Egypt received a huge remission of its external debt after its participation in the Gulf War of 1991. Oil, repatriated earnings, and aid, three seemingly favorable developments, are combined with the adverse geopolitical shocks of the previous paragraph to explain the absence of attention to the details of economic policy. Even the relatively low level of absolute poverty is noted as a problem—the national governments are viewed as having to pay less attention to populist pressures.

In these views, both the bad and the good have adverse consequences for economic growth. Contrary to Dr. Pangloss, this is the worst of all possible worlds. Yet, to take the bad first, Japan and South Korea suffered huge physical damage compared with any Arab country, in any war, with the possible exception of Kuwait in the aftermath of the 1990 Iraqi invasion. South Korea and Taiwan both faced more than credible threats from heavily armed enemies whose intentions were not benevolent. Vietnam, a recently rapidly growing economy, suffered much more physical damage from US bombing than any of the Arab economies. And the psychological consequences of the Vietnam War on its leadership could not have been small—yet, perhaps because of a neighborhood effect and the presence of nearby successful Asian examples, Vietnam has taken economic growth as an important objective. Some of the previously stagnant nations of

Eastern Europe that experienced the presence of the Soviet army for more than 40 years also changed their focus.⁶ While it would be facile to dismiss the deleterious consequences of external shocks, these and other examples suggest they are not a sufficient explanation of bad policymaking—too often countries in other regions have turned them to an advantage.

Similarly, unearned riches, whether in the form of natural resources or repatriated earnings, are not uniformly a source of decline. Botswana, a major diamond producer, has been an important success story, as has Indonesia, a significant oil producer. Sierra Leone and Liberia have been traumatized by civil wars, attributed by some to the same diamonds, albeit produced under different geological conditions using different extractive techniques from those in Botswana (Noland and Spector 2006). Nigeria, like Saudi Arabia, suffered a major collapse after the growth in the price of oil. While one strand of analysis, the literature on “Dutch disease,” would attribute this to market-induced shifts from traded to non-traded goods, and the concomitant overvaluation of the real exchange rate that made production of conventional tradable goods unprofitable, a complementary view is that a huge waste of investment occurred in both the tradable and nontradable sectors due to corruption.

Measuring Policy Effects

In recent studies of the Middle East many variables measuring policy reform and institutions have been examined and the region is found lagging on many of them such as tariff liberalization, real exchange rates, receipts from sales of state-owned enterprises, and the business environment (World Bank 2003a, Page 2003). Low initial levels relative to other regions and slow improvement are often adduced as an explanation of weaker growth performance than occurred in other regions. But there is little evidence that the specific policy deficiencies cited in fact have had a serious quantitative impact—the connection between policy stances and growth may be more tenuous than many discussions imply.

For example, the Asian countries that provided the template for the components of the Washington Consensus did not have policies in place that were uniformly good in the 1960s, the period of their growth acceleration. They had high tariff rates, significant investment in state-owned enterprises, subsidies to sectors that were deemed to be national champions, a poor to nonexistent regulatory environment, no serious corporate governance laws, a lack of transparency in both the public and private sector, and so on (Pack and Westphal 1986, Wade 1990, World Bank 1993). What they did have was considerable macroeconomic stability and relatively constant and realistic real exchange rates. Moreover, exporters had access

6. In chapter 7 we attempt to explain the different response in Eastern Europe.

to traded inputs at international prices. China is a more recent instance of a similar historical trajectory, with good macro policies combined with a protected domestic market, a large (though declining) state sector, corruption, and other deficiencies in the “investment climate.” While its special economic zones operate at world prices, the rest of the economy has been characterized by relatively high tariffs that are decreasing with China’s accession to the World Trade Organization (WTO). Its major early reform, property rights in the rural area, has not been an issue discussed in the Arab economies. Similarly, a considerable part of the growth acceleration in India since the 1980s occurred without any deep nonmacro reform, though the International Monetary Fund–imposed policy changes of the early 1990s were one among many contributors to maintaining growth that had begun earlier.

A number of studies have measured the changes in the performance of the Middle East and North Africa (MENA) on various policy indicators (Page 2003; Dasgupta, Keller, and Srinivasan 2002). The indicators employed have typically been MENA-wide averages that show there has been limited reform, for example, average tariffs have been reduced by less than in other regions. But aside from measuring the smaller degree of reform, no connection has been demonstrated between this and low growth performance in individual countries. Policy reforms (or their absence) are described, but no quantitative estimate is provided of the size of the likely reduction in growth that can be attributed to dilatory policies.

Recently there has been a focus on the “investment climate” as a source of poor performance (World Bank 2005, 2006b). Much of the evidence of the deleterious effect of a bad investment climate consists of international comparisons that simply show the differences, for example, in the time it takes to open a new business. It is obviously difficult to interpret such a “fact” because of endogeneity problems—as countries become richer a growing middle class with entrepreneurial instincts may lobby for less regulation. A cross-country comparison might then show richer countries with lower levels of regulation, but the historical sequence within a given country may have been a growth in income followed by a reduction in regulation. Though such cross-country tabulations are useful as benchmarks to indicate the range of experience, the endogeneity of some of the explanatory variables suggests caution in imputing causality. Our presentation in chapter 5 of some investment climate variables was intended to convey that, whatever the degree of endogeneity, the Arab countries were not conspicuously bad on these measures though the precise interpretation is moot.

Rather than focus on one or another deficiency in the policy environment, it is useful to consider the effect of specific policy shortcomings in a comparable and systematic framework that can provide some quantitative measure of the importance of insufficient reforms by focusing on their calculated statistical effect rather than on good intentions signaled by reform.

While there can be no definitive resolution of the importance of policy, the exercise provides a preliminary test of the claim that one or another reform is *the key* to accelerated growth. To make such calculations, we employ the results of Barry Bosworth and Susan M. Collins (2003), who attempt a synthesis of the huge amount of research on the correlates of growth by searching for robust correlated variables for growth in output per worker and separately, capital-labor ratios and total factor productivity (TFP) growth. They estimate TFP growth using growth accounting and then explain growth in output per worker, TFP, and the capital-labor ratio using variables that are frequently assumed to have important effects. Their analysis is appropriate for the question that we are posing as it does not try to estimate production parameters simultaneously with the effect of policy variables, which is the standard procedure in other growth regressions. While there are a number of studies from which to choose, calculations with their model provide illustrative numbers and demonstrate the possibly tenuous relation between policy stances and growth.⁷

Questions can be raised about their methodology.⁸ For example, growth accounting requires very strong assumptions about the production function and the functioning of factor markets, and econometric estimation of TFP growth often generates very different results than growth accounting (Kim and Lau 1994, Nelson and Pack 1999). The Bosworth-Collins results are employed here to illustrate the type of approach that is necessary to establish that policy-induced problems such as inflation are in fact empirically harmful to growth rather than simply reflecting a theoretical view. Thus our use of their estimated coefficients for the impact of particular policies is not meant to be definitive but an organizing framework that could be used employing other econometric estimates as well to sort out whether policies in the Arab economies have lowered growth rates.

Among the huge number of indicators that have been employed in various studies, Bosworth and Collins find that only a few of the policy variables or still “deeper” measures turn out to be significant in explaining growth in labor productivity or TFP.⁹ After testing many specifications their preferred equation for the 1980–2000 period is one in which the

7. Also see Sala-i-Martin, Doppelhofer, and Miller (2004) and the references cited there.

8. See the comments on the Bosworth-Collins paper by Jeffrey Frankel (2003) and Steven Durlauf (2003).

9. In addition to the variables that are shown in the following footnote, other variables tested but not found to be significant were the following: control of corruption, average log change of annual consumer price index, restrictions on current and capital account, type of economic organization, international country risk guide index, economic risk, index of ethnolinguistic fractionalization, index of political freedoms, government antidiversion policies, index of institutional quality, rule of law, political risk, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, bureaucracy quality, regulatory quality, and European settlers' mortality rate.

growth of output per worker is explained by the initial level of income per capita in 1980 (YC20), life expectancy in 1980 (LE20), the log of population (GPOP), a variable that describes international trade patterns (GRAVITY), and a physical location variable (GEOG).¹⁰ Three measures of the quality of macro policy outcomes, the annual rate of inflation (DLCPI20), the budget balance relative to GDP (BAL20), and the Sachs-Warner measure of openness (SW20), were added to the predetermined variables, along with a measure of institutional quality (ICRG82).¹¹ Thus, the significant policy and institutional variables include a possibly endogenous policy variable (the budget balance) and a possibly more fundamental institutional one.

Figures 6.1 to 6.4 show the budget balance, the rate of inflation, the Sachs-Warner index, and institutional quality for the five Arab countries for which Bosworth and Collins have data and for other regional groupings. The figures indicate that the Arab countries of the Maghreb and Jordan have not been conspicuously poor in policy performance as is often suggested in popular accounts and in studies that concentrate solely on these countries without examining other nations. Over 1980–2000 Jordan had a fiscal deficit rate only slightly larger than all developing countries but considerably less than the countries of Southeast Asia, while its inflation rate was at East Asian levels. It was more open, using the Sachs-Warner index, than East Asia, but its institutional quality was, by a slight margin, the lowest. An answer to the question of whether the policy and institutional environment was *the* source of Jordan’s abysmal growth record in this period requires weighting the indicators by their coefficients in the estimated regression equation. Jordan is used as an example, though as noted earlier its poor performance may in fact have had more to do with the dislocations following the Gulf War than any policy defects. Similar questions arise in the other Middle Eastern countries—their pattern on these indicators is mixed and not obviously correlated with

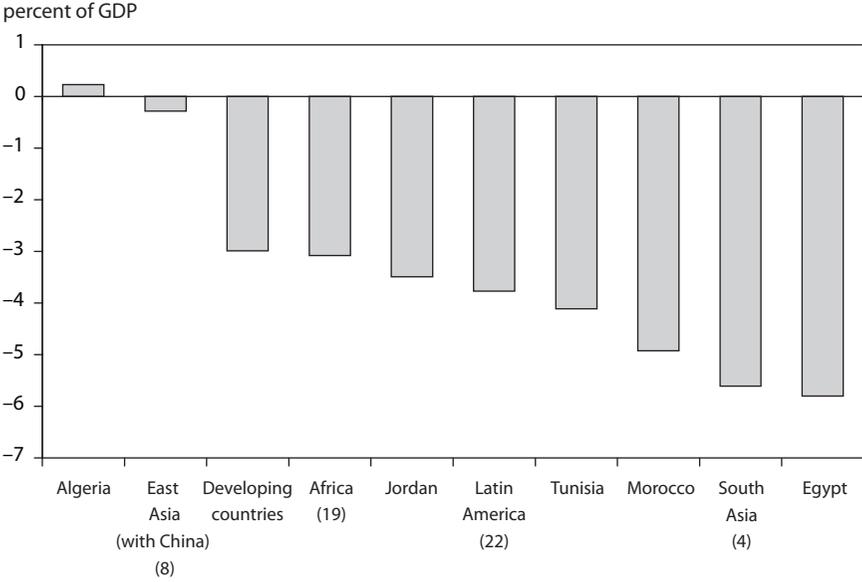
10. The estimated equation (6.1) is

$$\begin{aligned}
 Q^*-L^* = & 0.28 - 6.51YC20 + 0.07LE20 + 0.25GPOP + 3.46GRAVITY + 0.37GEOG - 0.01DLCPI20 \\
 & (0.2) \quad (-7.9)^a \quad (3.7)^a \quad (2.8)^a \quad (2.0)^b \quad (1.9)^c \quad (-0.5) \\
 & + 0.14BAL20 + 0.32SW20 + 2.09ICRG82 \\
 & (3.2)^a \quad (0.9) \quad (2.2)^b
 \end{aligned}$$

$n=77$, adjusted $R^2=0.60$, t -statistics in parentheses, “a” indicates significance at the 1 percent level, “b” at the 5 percent level, and “c” at the 10 percent level.

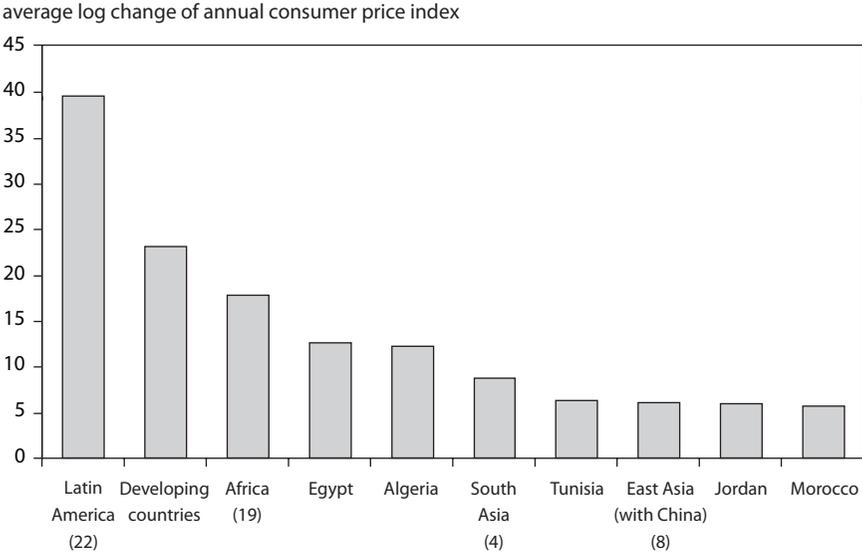
11. “An economy is deemed to be open to trade if it satisfies five tests: (1) average tariff rates below 40 percent; (2) average quota and licensing coverage of imports of less than 40 percent; (3) a black market exchange rate premium of less than 20 percent; (4) no extreme controls (taxes, quotas, and state monopolies) on exports; and (5) not considered a socialist country by the standard” defined by Janos Kornai (Sachs and Warner 1997). ICRG82, an index of institutional quality, is an average of five subindexes developed from data by Political Risk Services (Knack and Keefer 1995).

Figure 6.1 Fiscal balance, 1980–2000



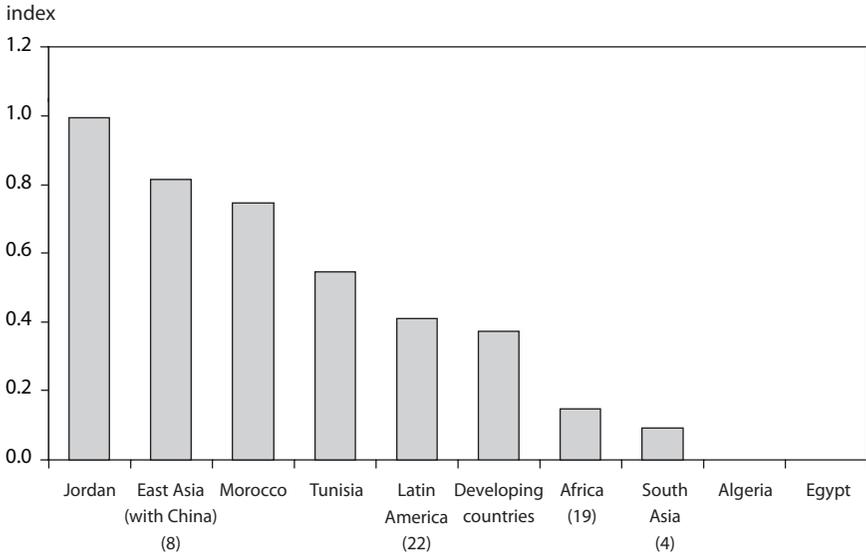
Source: Bosworth and Collins (2003).

Figure 6.2 Inflation, 1980–2000



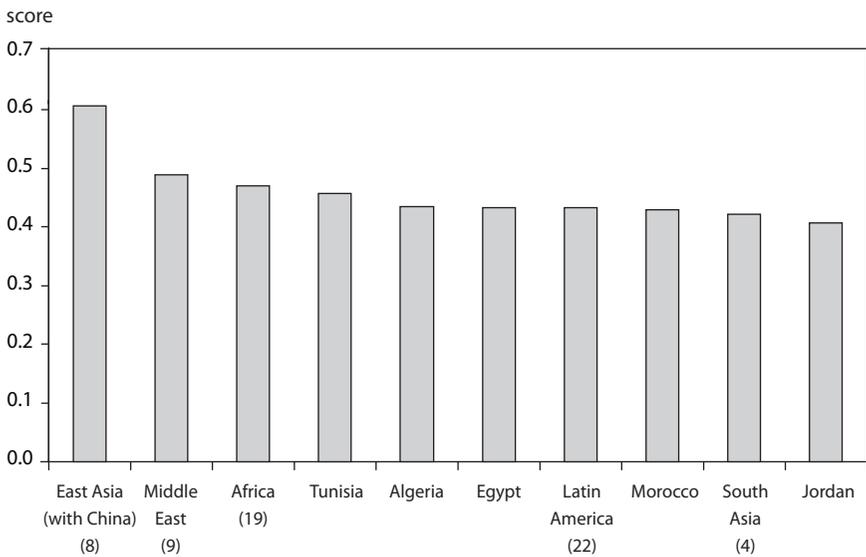
Source: Bosworth and Collins (2003).

Figure 6.3 Sachs-Warner openness index, 1980–2000



Source: Bosworth and Collins (2003).

Figure 6.4 Institutional quality, 1982



Note: Figure shows the *International Country Risk Guide* score in 1982.

Source: Bosworth and Collins (2003).

Table 6.1 Effects of policy variables and institutional quality on growth in income per worker, 1980–2000

Country	Annual rate of growth of output per worker	Effect of three macro policy variables	Effect of institutional quality	Total effect
Algeria	-1.52	-0.11	1.54	1.43
Egypt	2.18	-0.41	1.23	0.82
Jordan	-1.69	0.95	2.5	3.45
Morocco	0.51	0.59	2.22	2.81
Tunisia	1.33	0.39	1.09	1.48

Source: Calculated from Bosworth and Collins (2003), supporting data for 1980–2000.

economic growth. For example, Egypt had bad fiscal balance and fairly high inflation yet did relatively well.

Using the actual policy variables that characterized individual countries during the 1980–2000 period multiplied by the estimated coefficients in the regression, the calculated effects of policy on growth for the MENA countries in the sample are shown in table 6.1. The contribution of the policy variables does not account for the weak performance in Algeria and Jordan over the period. In all five countries institutional quality contributed positively to growth as did the three macro variables in Jordan, Morocco, and Tunisia. The sum of the effects of the policy variables shown in the last column exceeds the actual growth in the first column for Jordan, Morocco, and Tunisia suggesting that other forces constrained growth or that the cross-country regression used does not provide a good description of the structure of these countries. Again, the results depend on both the equation used and the specific measures of policy employed, but they underline that simple assertions that still greater policy reform in one dimension or another in the Middle East would bring accelerated growth are based on a priori views rather than demonstrated connection.

To repeat our earlier caution, these results are highly model specific: Other estimates would produce other results, and the continuing proliferation of cross-country regressions will undoubtedly generate still other empirical estimates that may or may not confirm these numbers (though these results generally coincide with those obtained in the massive econometric research exercise by Xavier Sala-i-Martin, Gernot Doppelhofer, and Ronald I. Miller [2004], who found a tighter correlation between growth and a variety of clearly predetermined fundamental factors, and possibly government consumption, than with other macroeconomic policy variables such as inflation or trade openness). The point here is that the assumed benefits of still greater reform may be correct but its importance in

explaining slow growth in the past is not easily demonstrated. In pursuing a quest for changed policy stances and estimating their likely impact, it is likely to be more fruitful to derive the needed adjustments from detailed country analysis and historical episodes of policy change and response. Simply asserting that tariffs remain high or that it takes 120 days to open a business in Egypt is not sufficient to prove the likely payoff to still greater reforms that require spending considerable political capital. This is not to deny that policies matter, simply that we don't have even rough guidelines as to which matter a lot.

Indeed, a narrative history of the 1990s of laggards in growth, Algeria and Jordan, would not put policy measures in the foreground. In the case of Jordan, the political upheavals including the Gulf War in 1991 and the expulsion of large numbers of Palestinians from other Arab countries who returned to Jordan and the reduction in their remittances were important as was the decline in legal trade with Iraq as a result of UN sanctions. Throughout the period Algeria continued with an outmoded highly centralized state-dominated economy, never propitious for growth, a characteristic not caught in the particular measure of institutional quality, ICRG82. However, much of the reversal of growth in the 1990s undoubtedly reflected the chaotic conditions of a widespread conflict between the government and the Islamist opposition following the aborted election process in 1992. In this respect, Algeria had more in common with African countries that underwent civil wars than with its Maghreb neighbors. But similar calculations for other poorer countries suggest that the policy performance of the Arab economies for which Bosworth-Collins were able to obtain data is not that different from other countries.

Table 6.2 shows the predicted versus actual performance in our benchmark countries using the appropriate values of equation 6.1 for 1960–80 and 1980–2000 (see footnote 10). The growth in all of the MENA countries is faster than predicted in the earlier period whereas in the second period only Egypt and Tunisia have a positive value for the difference between actual and predicted. More generally, countries that have gotten their policies “right” by the Washington Consensus do not necessarily have superior performance—for example, Chile (not shown in the table) in the second period considerably lagged its predicted growth rate.

The big story, which could be told without the regressions, is that the East Asian countries do spectacularly well, and India turns around between the two periods. China, in particular, does very well among the East Asians. Countries that had many institutions “wrong” overcame such handicaps. For example, the extensive literature on the investment environment, governance, and corruption all imply that investment may be lower because of the high costs, especially to smaller firms, of obtaining funds for initiation or expansion, licenses, and clearances. It is alleged that small and medium-sized enterprises (SMEs) are discriminated against with the implication that they have greater rates of return than larger firms

Table 6.2 GDP per capita growth rates: Actual and predicted (percent)

Country	1960–80			1980–2000		
	Predicted	Actual	Actual minus predicted	Predicted	Actual	Actual minus predicted
Middle East						
Algeria	1.99	3.01	1.02	-0.38	-1.61	-1.24
Egypt	2.04	3.61	1.56	0.21	2.43	2.22
Jordan	1.68	1.68	0.00	1.76	-1.03	-2.79
Kuwait	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Morocco	2.13	2.48	0.36	1.78	0.55	-1.22
Saudi Arabia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Syria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tunisia	n.a.	3.82	n.a.	1.46	1.58	0.12
High-performing comparators						
South Korea	4.78	4.48	-0.30	4.39	4.52	0.13
Taiwan	5.62	6.27	0.66	3.92	4.99	1.07
Large comparators						
China	n.a.	2.17	n.a.	4.92	7.09	2.18
India	3.64	1.29	-2.35	2.43	3.50	1.07
Normally endowed comparators						
Bangladesh	n.a.	1.05	n.a.	1.27	1.95	0.68
Brazil	3.15	3.84	0.70	-0.49	-0.51	-0.02
Pakistan	2.93	3.28	0.35	2.02	2.33	0.31
Turkey	3.12	3.28	0.16	2.01	1.74	-0.28
Resource-rich comparators						
Botswana	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Indonesia	2.26	3.49	1.23	1.79	2.70	0.91
Nigeria	2.11	2.70	0.59	-0.43	-0.47	-0.04
Venezuela	1.14	0.20	-0.94	0.03	-1.97	-2.00

n.a. = not available

Source: Bosworth and Collins (2003).

that are better able to cope with these obstacles whether through bribery, maintaining a larger staff to deal with these problems, or simply because the costs are not proportional to firm size. This has many similarities to an earlier literature that argued that large firms with substantial collateral were privileged recipients of loans from the banking system.

But the economic history of several successful nations suggests that these obstacles are not necessarily binding constraints on growth. Most countries in early stages of development have had small enterprises that succeeded in raising funds and improving productivity. For example, in Taiwan SMEs were begun on the basis of loans from relatives and acquaintances.¹² This diversity of experience may account for the failure of many of the measures of institutional quality to be significant in the Bosworth-Collins estimates. There are simply too many factors determining the success of firms, including the entrepreneurial ability of the population.

All else being equal, a badly functioning capital market, high levels of protection, and widespread corruption may reduce entrepreneurial activity and slow TFP growth. But a combination of offsetting policies might succeed. In South Korea in the 1960s and 1970s and China in the 1980s and 1990s there was considerable corruption, high protection, and an inefficient capital market, partly mitigated in South Korea by the better functioning internal capital market of the *chaebol*. Moreover, other features of the South Korean economy gave rise to productive investment. For example, South Korean firms typically imported considerable amounts of their equipment, which embodied new technology, and often hired consultants, particularly from Japan. Both of these activities were contingent on the availability of foreign exchange, which reflected the rapid growth of export earnings. The South Korean experience, which is one variant of the Asian experience, suggests a complex matrix of causation. No single deficiency establishes insuperable obstacles to growth. Other characteristics of the policy environment may impinge favorably on growth, and these policies are not captured by measures of investment climate or corruption or governance. A favorable real exchange rate or high protection (for a while) or low-interest loans accompanied by quid pro quo on the part of firms requiring them to export could generate greater and more efficient investment (World Bank 1993, Noland and Pack 2003).

Thus, the indicators by which the Arab economies fail to pass muster cannot be viewed in isolation. While it may be the case that if all of the measures of policy quality were at the best practice frontier a large industrial entrepreneurial class would unexpectedly emerge, various combinations of good and bad policies might also be successful and more politi-

12. That said, Taiwan subsequently intentionally and affirmatively attempted to regulate the curb market and boost the efficiency of financial intermediation for SMEs, for example by equipping banks with personal computers on which SME applicants could fill out common forms for loan approval, which could then be used to apply for loans at any bank.

cally feasible. This perspective assumes the latent existence of a capable entrepreneurial class that will respond to the net package of incentives. But in many of the Asian economies that have been successful, the entrepreneurial effort originated with foreigners, and the implications of this for the Middle East will be considered in chapter 9.

Technology and Productivity Growth

One of the problems highlighted in chapter 2 was the significant decrease in the rate of growth of TFP between the 1960–80 period and the succeeding two decades. Although it is well known that TFP growth may be attributable to many characteristics of any economy and is not solely a technological phenomenon, we believe that one “technological” interpretation helps to integrate the understanding of many of the characteristics of the Arab economies.

The specification in Bosworth and Collins, which is the conventional one, is that TFP growth is determined as a residual from growth accounting and then explained in terms of fundamental determinants.¹³ But there are alternate views of the determinants of countries’ growth. Some of the discussion of the success of the Asian countries notes their ability to improve their technological levels (Pack 1992), a process that was facilitated by the interaction between highly skilled labor and inflows of technology. The precise mechanism of this interaction is not captured in standard cross-country regressions.

Four decades ago, Richard Nelson and Edmund Phelps (1966) presented a model that provides a plausible alternative to growth accounting explanations that assume that growth is a function simply of factor accumulation that has no complex interactions among the factors.¹⁴ The intuition of their model is that new technology is the major source of growth, and its successful assimilation into the economy depends on the presence of high skills. (See appendix 6A for an elucidation of the model.) Education will have its greatest impact when there is rapid technological change. If the basic technology (a loom used in weaving) is largely unchanged over time, the production process becomes routine, and the ability of more highly educated workers to deal with change is not germane—

13. An identical production function is assumed for all countries that employ the same elasticity of output with respect to capital and labor. While actual shares do differ across countries, this could be explained by differences in market power of labor and capital even where an identical production function does exist. For a discussion in the context of the East Asian countries, see Pack (2001).

14. The Nelson-Phelps model has recently obtained a second life in the endogenous growth literature, with financial sector development standing in for human capital. See, for example, Aghion and Howitt (1997) and Aghion, Howitt, and Mayer-Foulkes (2005).

growing education results in only limited productivity gains. In contrast, where technology is rapidly evolving, learning about the existence of new processes, learning to use them when they are deployed, and staying abreast of new developments require the adaptability provided by formal education. This view helps to explain the puzzling low apparent returns to education in some developing countries.¹⁵

To be clear, it is true that East Asia in general and South Korea in particular have accumulated human capital at a very rapid rate. Already in the 1950s, South Korea had a very high level of human capital relative to its level of per capita income compared with a broad range of both developed and developing countries (Noland and Pack 2003, table 2.1). From this relatively high base (at least relative to its contemporaneous level of income), South Korea increased its level of educational attainment rapidly, outstripping comparable countries (figure 2.3a in chapter 2).

At the same time education in South Korea had a more technical character, presumably more useful in the traded-goods sector, with the share of science and engineering graduates among university-level students ramping up quickly, exceeding all Arab countries save Algeria and nearly four times the level of Egypt (table 2.5). At least with respect to the contemporary period, the quality as well as quantity of this technical education also appears to be higher in Asia than in the Middle East: In the *Times of London* rankings of top 100 science universities, South Korea (2), Hong Kong (2), Taiwan (1), Singapore (1), China (1), and India (1) all have institutions within the top 100 while MENA has none; for the engineering and IT university rankings, the results are even more striking with universities from China (6), South Korea (2), Hong Kong (2), Singapore (2), Taiwan (1), and India (1) making the list but with no Arab institution making the grade.

To the extent that education is complementary to other imported inputs, investment in education while necessary may not be a sufficient condition for development. For poorer nations with low research and development (R&D), the primary vector of new technology is imports—new equipment, new intermediate inputs, and new disembodied knowledge (Enos and Park 1988, Hobday 1995, Coe and Helpman 1995). Absent such imports, TFP growth is likely to be low, though conventional sources of internal productivity growth such as R&D, organizational innovations, greater specialization, and better training could yield benefits as well, but the successful assimilation of these will also be contingent on high skills.

Much of the microeconomic and case study literature on the success of the Asian countries emphasizes the various modes of knowledge acquisition and absorption though the model is extremely difficult to test empirically. It might be argued that the openness variable in cross-country regressions captures this process to some extent, but the relation is very

15. See, for example, Pritchett (2001). For a more thorough analysis of the returns to education, see Hanushek (2005).

indirect. Yet another indirect way of substantiating this notion would be to point to the literature that establishes the complementarity between skills and capital in a variety of settings (Fallon and Layard 1975; Duffy, Papageorgiou, and Perez-Sebastian 2004) or that implies that skill-biased technical change is a pervasive phenomenon in both developed and developing countries (Berman, Bound, and Machin 1998).¹⁶

If one uses the Nelson-Phelps model as a departure point for thinking about growth, the TFP measures that have been calculated are not appropriate as they assume that TFP is a residual derived from an assumed standard multiplicative production function whereas the Nelson-Phelps model implies that newly available technology interacts with education to produce productivity growth. Growth accounting becomes a less reliable guide in explaining growth because of the interaction of factors that implies observed factor shares may not correspond to output elasticities with respect to individual factors. Econometric estimates of these interactions would be possible if adequate data on technology inflows were available—but as will be seen they are not. Measurable indicators of technology inflow (or generation within the domestic economy) could include domestic R&D, inflows of FDI, equipment imports, and more difficult, new intermediate inputs. All are best assimilated by those with high education, average years of education only indirectly reflecting this.

In contrast to this discussion, technology and education have usually been considered in isolation in discussions of the Middle East without noting their critical interdependence—for example, the *Arab Human Development Report 2002* identifies deficient education as one of a major critical obstacles to growth in Arab economies. The implication of the view taken here is different, namely, an increase in education (assuming it is of the right type) would have little payoff in the absence of a simultaneous increased inflow of international technology. The wider focus suggests looking at the level of R&D, FDI, technology licensing, use of consultants, imports of equipment, and other major vectors of imported technology. These are occasionally considered in some studies as one in a list of measures demonstrating the absence of globalization—but they are not typically incorporated into an effort to understand their importance as inputs in the productive efficiency of an economy rather than ends in themselves.

Any effort to implement this form of analysis immediately encounters serious analytic problems about causality. For example, countries may receive high FDI as foreign firms seek to sell in a country that has imposed tariffs to protect fledgling domestic firms. But such tariff-jumping FDI will occur only in nations with large markets as the tariff regime combined with overvalued exchange rates militates against the country as an export platform. Conversely, a country may experience FDI inflow in the context

16. De Ferranti et al. (2003, chapter 3) provides a comprehensive review of the evidence on the complementarity of education and technology.

of a preferential trade agreement that makes it a distinctively attractive export platform as will be discussed in chapter 8. Other factors may affect FDI inflows, and thus their size is a function of a complex process and is likely to have a large endogenous component. But whatever its source, FDI does not guarantee that the knowledge potentially provided to host country firms, through channels such as worker mobility, is fruitfully utilized by them. Potential knowledge recipients may not be sufficiently well educated. Local higher education may be driven by the need to offer alternatives to high school graduates and to delay their entry into the labor force. Little in the way of cognitive knowledge may be transmitted in the process. Thus, even if there are inflows, there is no guarantee that they will have a significant effect.

The available evidence provides a few largely suggestive measures of knowledge inflow—the pattern shown is fairly stark and provides part of the explanation why the rapid increase in education in the Middle East shown in chapter 2 has not necessarily translated into accelerated growth. Table 4.9 showed that the Arab countries have received little FDI as a share of GDP.¹⁷ In some major countries with similarly low levels, such as India, there was a conscious effort to keep FDI out, following the regnant view in that nation until recently that FDI was a new form of imperialism. Other countries have also followed this cardinal tenet of dependency theory, whether or not explicitly articulated by policymakers. Not only is the level low in the Middle East, but unlike other regions, it has stayed low. Many countries, regardless of an initial perception that learning is best achieved by keeping FDI out, have reversed this policy—India, Japan, South Korea, and China are important examples. The increase in South Asia reflects the changing stance of India, but levels in Bangladesh and Pakistan remain low. Though as previously noted, dependency theory was never a particularly important part of the worldview of either intellectuals or policymakers in the Arab countries, until recently FDI has remained low and even in the recent surge appears to be largely oriented toward extraction. The possible reasons for this will be explored later. The point here is that one of the potential sources of improving productivity and generating employment in the manufacturing sectors has not been exploited.

The crude direct observation of FDI inflows can be supplemented with suggestive (but not definitive) survey data on technology transfer. Table 6.3 reports country rankings from the World Economic Forum's *Global Competitiveness Report* on technology importation via FDI. Algeria stands

17. There are difficult data problems, but the pattern shown would probably not differ much with still better measures. For many of the Arab countries of interest such as Syria, data are not available. While some of the oil countries receive substantial FDI inflows, much of it is directed to the petroleum sector whereas the role of FDI in improving TFP performance arises from the possibility of knowledge inflows that might accompany FDI and diffuse to the rest of the economy. In contrast, FDI into the petroleum sector is unlikely to provide technology transfers to the rest of the economy.

Table 6.3 Technology absorption (percentile)

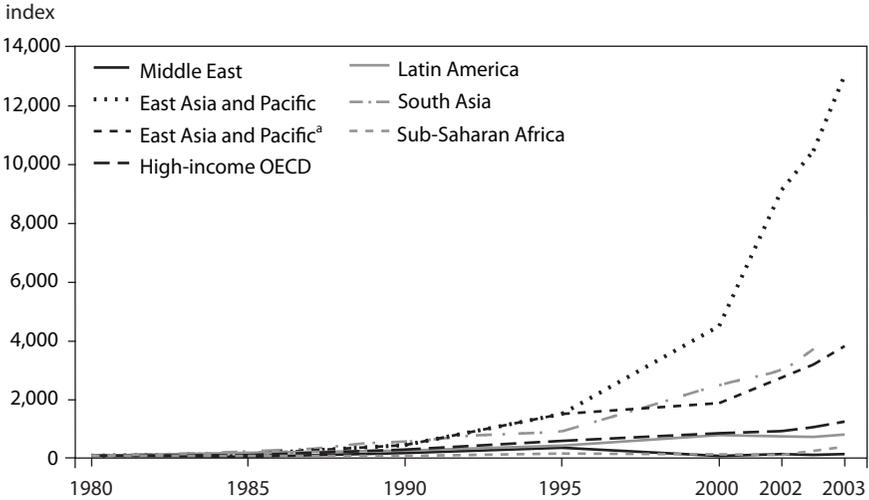
Country	Foreign direct investment and technology transfer	Prevalence of foreign technology licensing	Intellectual property protection	Cost of importing foreign equipment	Brain drain	Technology innovation and diffusion: Firm-level technology absorption
Middle East						
Algeria	3	10	17	17	9	54
Bahrain	59	84	68	88	72	74
Egypt	82	67	54	18	22	58
Jordan	56	68	77	38	26	62
Kuwait	33	77	55	n.a.	97	74
Morocco	49	45	39	25	12	39
Qatar	94	74	73	n.a.	99	64
Tunisia	38	63	76	42	67	72
United Arab Emirates	63	88	74	97	98	88
High-performing comparators						
South Korea	53	72	78	63	79	94
Taiwan	79	100	79	83	90	97
Large comparators						
China	52	40	47	44	65	69
India	72	95	66	41	61	85
Normally endowed comparators						
Bangladesh	30	30	6	16	11	36
Brazil	74	69	45	6	68	62
Pakistan	67	26	26	46	23	61
Turkey	50	76	38	59	55	76
Resource-rich comparators						
Botswana	42	44	58	45	70	32
Indonesia	64	71	43	51	74	31
Nigeria	46	36	36	1	38	17
Venezuela	32	32	10	13	30	44

n.a. = not available

Note: Data are in percentiles (higher number is better); sample: n = 117; cost of importing foreign equipment sample: n = 104.

Source: World Economic Forum, *Global Competitiveness Report 2005–2006*; cost of importing foreign equipment: *Global Competitiveness Report 2004–2005*.

Figure 6.5 Royalties and fees for technology licensing, 1980–2004



a. Excluding China.

Source: World Bank, *World Development Indicators*, June 2006.

out as one of the worst performers. The rest of the Arab countries range across the middle of the rankings.

There are alternatives to FDI for acquiring foreign knowledge, for example, technology licensing. While technology licensing may be more appropriate as countries shift to more technology-intensive sectors, it can be helpful even in the early stages of industrial development. Indeed, it was an important form of technology transfer in South Korea that eschewed FDI. Unfortunately, beyond the rich countries of the Organization for Economic Cooperation and Development (OECD), the data on this are highly fragmentary. Figure 6.5 displays regional indices constructed from a subset of countries for which consistent time-series data are available of royalties and fees for technology licensing in each region, with the initial level set to equal 100.¹⁸ Because China did not begin reporting these data until 1997, yet is quantitatively important, two indices are reported for Asia, one including and the other excluding China. The index indicates that the Middle East has displayed the lowest growth in technology licensing of any region, with the level of technology licensing in the terminal year of

18. Country coverage for the OECD is complete. For the Middle East, the index is constructed from data for Morocco and Tunisia. Egypt is quantitatively important but reported the data only intermittently. East Asia is the Philippines, Thailand, and China. Latin America is Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Panama, and Peru. South Asia is India and Pakistan. Sub-Saharan Africa is South Africa.

2004 actually lower than at the start of the series in 1980 and completely dwarfed by the massive increases observed in East and South Asia. While the Middle East index consists only of Morocco and Tunisia (footnote 18), they are likely to have exhibited more licensing than other countries in the region because of their former colonial connection to France.

However, with policy reforms in recent years, including a number of countries joining the WTO and signing free trade agreements with the United States as will be discussed in chapter 8, intellectual property rights (IPR) protection has improved and with it technology licensing. Firms are less reluctant to do business with firms in countries with good IPRs. If they conform to the experience elsewhere (Branstetter, Fisman, and Foley 2005), as anecdotal evidence appears to confirm, with the passage of new IPR legislation and the signing of free trade agreements with the United States, which make enforcement credible, technology licensing arrangements may surge in countries like Morocco and Jordan (the latter scores well on the 2005–06 “prevalence of technology licensing indicator” in table 6.3), but one cannot as yet document this conjecture with actual data on financial flows. Others such as Algeria continue to lag on all indicators. Thus, during the period between 1960 and 2003 on which we are focusing, most Arab countries reported scant, if any, inward FDI or royalty payments, clearly not a stance for facilitating a move toward higher productivity levels. This situation has eased in recent years in some countries, though it remains difficult to document quantitatively.

Domestic knowledge generation can substitute for foreign technology. It is possible to construct many measures of potential effort, from R&D expenditures to enrollments in science and engineering programs in tertiary education institutions. The former are problematic—definitions of R&D vary widely across countries. In any case they are available in only a few instances for the countries in question—only Egypt among the Arab countries. While data on school enrollments are available, their interpretation is difficult without some benchmark of the quality of the instruction rather than numbers of students going through the education system. As noted in chapter 2, with respect to the Middle East there is reason for concern on this dimension.

Another tack would be to consider measures of the outcome rather than the input, such as the number of scientific and technical articles in journals and patent applications by residents. On both measures, the Arab countries have low levels. In journal articles they are comparable to Africa despite the latter’s much lower levels of tertiary and science enrollments and other measures of education input. Of patent applications by residents, the data are highly fragmentary, but at least according to the reported data, for 2002, the latest year that data are available, Egypt was the only significant source, accounting for 86 percent of the region’s patenting activity.¹⁹ How-

19. World Bank, *World Development Indicators* (accessed August 4, 2005).

ever, only 15 percent of these patents went to Egyptian nationals (Council on Foreign Relations 2005). A similar story holds elsewhere in the region, for example in Algeria—of 111 patents granted in 2002, only 8 went to Algerians. In Saudi Arabia, where 25 patents were issued, only 2 went to Saudis. The Council on Foreign Relations report goes on to observe that Moldova, one of the poorest countries in Europe, granted more patents in 2002 than Algeria and Saudi Arabia combined.

Whatever the lacunae and imprecision in these indicators, the ineluctable image is one of nations in which little or no formal innovative activity is going on. It is possible, of course, that some effort at enhancing productivity is occurring but does not get reported in formal measures of effort. But if a major source of potential productivity growth stems from the productive absorption of foreign technology inflow, its absence implies absorptive capacity is low. Moreover, unlike South Korea, Taiwan, and many Latin American countries of the 1960s and 1970s, there are no case studies to suggest that this global picture is not valid.²⁰

This absence of technology inflow is perhaps part of the general picture of limited industrialization and the restricted change in product or sectoral composition that would necessitate such inflows. It presumably is not due to the absence of foreign exchange. In particular, royalty and licensing payments are a tiny percentage of total foreign exchange earnings and could easily have been multiplied without any serious impact on the reserve position of the countries. New knowledge may have entered in the form of new intermediate goods or been embodied in new equipment. But these countries have typically not been major importers of either. That in part may be due to their cost—as shown in the fourth column of table 6.3, most of the Arab countries exhibit a high cost for imported equipment.

If the model of the interaction of new technology and education provides a useful adjunct (or alternative) to standard growth explanations, then much of the recent discussion, especially in the three editions of the *Arab Human Development Report*, needs considerable refinement. More and higher-quality education, the recommended panacea for the countries, absent new technology inflows or rapid change in product or industrial structure, will result in low social marginal productivity. If the output mix and the technology employed continue to be the same, there may be little need for additional skills, which have their payoff only when production is shifting rapidly. More education, absent “true” demand reflecting the productivity of education rather than politically dictated demand (stemming from the imperative to create jobs for the better educated), will create more of a problem with unemployed or underemployed graduates. Thus, a greater opening toward the international economy is a prerequisite for the success of improved education.

20. For an evaluation of this case study literature, see Pack (2006).

It might be argued that the inflow of technology is itself likely to respond to the presence of a highly educated labor force, a favorite argument of countries, states, and regions attempting to attract new investment from outside of the region. Without going into the determinants of FDI and licensing at this point, it is noteworthy that countries like South Korea and Taiwan experienced extensive emigration of the highly educated in the 1950s through the early 1970s as does the Philippines today. The same is true for India. While FDI was discouraged in South Korea, Taiwan was more open, but firms did not locate there until many policies were changed. The simple presence of an educated labor pool is no guarantee of the attractiveness to foreign firms absent other favorable conditions.

More generally, there is a serious coordination problem that no country has quite solved. Enrollments will not shift toward areas that may be useful in competitive industries until these sectors actually exist. Conversely, such industries may not develop absent a local skill base. A country could, as in the case of South Korea and Taiwan, choose an uncoordinated path—educate first, suffer underemployment and emigration, and hope to attract these workers home as new sectors begin. In the case of South Korea, and especially Taiwan, that brain drain was subsequently reversed and became a source of technological dynamism as will be discussed in greater detail in chapter 9. With the exception of Tunisia, the survey data from the *Global Competitiveness Report* suggest that the Arab countries face acute challenges retaining highly skilled people, with the phenomenon being particularly problematic for Algeria and Morocco, which have combined relatively weak economic performance with relatively strong historical ties to Western Europe as shown by the column on brain drain in table 6.3. Tunisia's relatively strong growth performance appears to be its saving grace.

Alternately, countries could industrialize first, use imported skilled labor initially, and then assume that current students observe the growing employment in specific sectors and occupations and change their enrollment. But such changes are difficult to mandate by a central government.²¹ A government might give subsidies to change the enrollment patterns (as the United States did after the Russians launched Sputnik in 1957), but even this runs into severe monitoring problems. On the other hand the South Korea–Taiwan path (not that the strategy was planned) of emigration of the highly educated is impeded in the post-9/11 world nor, given the hostile climate, is the use of foreign nationals to staff new en-

21. Marwan Kardoosh and Riad al Khoury (2005) provide a concrete example of this coordination problem. As is discussed in appendix 8B in chapter 8, Jordan has established special zones to encourage foreign investment, much of which is in garment manufacture. To boost local employment it in essence has to create an industrial proletariat yet has encountered difficulty coordinating its vocational training programs with the needs of the garment producers. Developing the ability to work in a garment factory is presumably one of the easier coordination problems that prospective industrializers would encounter.

terprises, as in Singapore, an easy option. As in other areas, recent concern with terrorism precludes paths that have occurred in other countries.

It could also be the case that the existence of a substantial pool of highly educated workers with an internationally valuable skill could attract either FDI or outsourced business from OECD firms. The offshoring to other countries of US white-collar jobs, ranging from chip design to radiology, has become a serious policy concern in the United States. Yet journalistic accounts seldom mention Middle Eastern countries. China, India, Pakistan, Mexico, and the Philippines are among the major beneficiaries of still another source of potential technology transfer, though Tunisia, Egypt, and the United Arab Emirates are making inroads.

Taking the perspective offered here, the problems of the Middle Eastern countries discussed in chapter 4 become clearer. The absence of participation in the international economy, limited export growth in nonoil products, and the emphasis in imports on final consumer goods are all measures of the absence of technological stimulus from abroad. So are the relative paucity of FDI and technology licensing. Thus, education levels that are not bad by international standards, at least in years, can have only a limited payoff. However, the emphasis on education, a popular nostrum, absent the technological stimulus, is likely to have a limited effect on growth. And these deficiencies (along with the absence of internal competitive pressures) interact to limit the rate of productivity growth that might augment the growth of income per person for a given commitment of physical capital.

The limited domestic competitiveness given the still fairly high tariffs and the absence of substantial exporting activity that requires innovation undoubtedly contribute to the low demand for productivity-enhancing technology transfers. It is not necessary to invoke a millennial decline in attitudes toward innovation or the rote nature of much of education to explain the exceptionally low levels of R&D or patenting although these more fundamental forces may well contribute to the observed pattern.

Conclusion

The analysis thus far suggests that for the most part Arab economies such as Egypt or Morocco are comprehensible in terms of the experiences of other developing countries around the world. Their growth rates are not significantly different nor are their policy stances from those of a broad range of comparators. Within this group, Tunisia has done relatively well, while Syria has performed poorly. The major extractive economies, Algeria, Kuwait, and Saudi Arabia, understandably have exhibited a distinctive trajectory, strongly influenced by the price of their major export, oil. There have been many descriptions of the needed policy changes in these nations though they tend to be generic without any sense of the likely

country-specific payoffs. Yet the payoffs are uncertain and may not be large—witness, for example, the recent controversies over the benefits to Mexico from the North American Free Trade Agreement (Lederman, Maloney, and Servén 2004).

The suggested policy changes typically are variants of the now familiar Washington Consensus combination of macroeconomic stability together with microeconomic sectoral neutrality, including such recommendations as liberalizing the trade regime including reduction of tariffs and quotas; decreasing the number of state-owned enterprises; improving the investment climate by cutting the number of licensing requirements, better enforcement of contracts, and lowering other “behind-the-border” limits on competition; eliminating obstacles to FDI and improving the transparency of the FDI regime; making labor markets more flexible by reducing minimum wage enforcement and allowing firms to fire workers without excessive difficulty; upgrading the education system so that students are more oriented to analysis than memorization as well as attempting to match more closely the generation of skills with their demand by potential employers; and providing a safety net including cash transfer and public works programs.

The cumulative effect of implementing these policies would be to create an environment conducive to private investment, provide a labor force that was responsive to shifting demands, and protect those who would suffer in the transformed environment resulting from privatization and liberalization. The last would be intrinsically desirable and reduce opposition to potentially wrenching changes. The time phasing, big bang or gradual, is usually omitted, perhaps intentionally.

There are few analysts of developing economies who would not advocate most or all of these policies, a large subset of the Washington Consensus discussed previously, though it is worth emphasizing that as demonstrated in this chapter, the effect of existing measures of many of these reforms is not statistically significant in explaining cross-country growth. The most successful economies, those in Asia, did not conform to all of these recommendations in their period of growth acceleration. Most had fairly high tariffs, significant levels of publicly owned enterprises, and corruption that was hardly at Nordic levels. Most did have macroeconomic basics in place including relatively low budget deficits, realistic and stable real exchange rates, and a variety of nonstandard policies designed to promote exports. South Korea and Taiwan pursued industrial policies that promoted individual sectors and firms by using the financial system to channel low-interest loans to particular firms in the sectors. In South Korea large conglomerates allocated funds among subsidiaries through an internal capital market that overcame some of the repression of the financial system though perhaps with later deleterious consequences (Noland and Pack 2003). South Korea and Taiwan also encouraged exports by a variety of means including drawbacks on tariffs on in-

puts necessary for the production of exports. There is a considerable empirical literature suggesting that industrial policies were, at most, a mild stimulus to growth (Noland and Pack 2003) though the relatively uniform industrywide export incentives may have been of some importance. While the Asian countries might have grown even more rapidly had they conformed to all of the points listed above, their experience does suggest that not all deviations from the Washington Consensus lead to absolute constraints on growth—some are almost surely critical (an appropriate real exchange rate level that exhibits limited variability) while some can be compensated for by countervailing policies (tariffs on imports combined with drawbacks on inputs entering into exports).

Although it obviously would be desirable to have only good policies, bad policies can be offset by a variety of countervailing stimuli if this is politically and socially feasible. The willingness and ability to exploit these opportunities is presumably a function of elite attitudes and interests set against internal and external policy constraints. The issue is whether Arab elites hold attitudes that would predispose them toward or against liberal economic policies and whether their polities face any unique internal or external constraints on (or enablers to) the implementation of an improved set of policies. The examples of the latter are not only the ideas or policy innovations that may arise from abroad but also the impact of demonstration effects of good (and bad) policies undertaken by regional neighbors and also the potential that commitments with other sovereigns, through free trade agreements for example, might have to leverage domestic reform or increase perceptions of its credibility and irreversibility.²²

22. See Esfahani (2000) for a wide-ranging discussion of the issues of credibility and irreversibility from the perspective of MENA economies.

Appendix 6A

Interaction of Education and Technology

The discussion in this chapter of the interaction of domestic skills and inflow of knowledge can be formalized following Nelson and Phelps (1966). Firms in less developed countries (LDCs) in the Middle East operate with a technology level equal to $A(t)$ in period t . Their peers in industrial countries operate technology $T(t)$. The rate at which developed-country technology in the form of licenses and consultants' knowledge is diffused into the LDC depends on the level of human capital, h , and is

$$A'(t) / A(t) = \alpha(h) \left[\frac{T(t) - A(t)}{A(t)} \right]. \quad (6A.1)$$

The extent to which local LDC technology or total factor productivity improves depends on the amount of educated labor in the potential recipient—it is a positive function, $\alpha(h) > 0$, of the level of human capital and proportional to the difference between current and “best practice” technology. As the technology $T(t)$ does not have to be invented *de novo*, the potential productivity gain from the transfer of this technology can be rapid. It is one of the potential benefits of relative backwardness (Gerschenkron 1962) that has only rarely been capitalized upon in poorer countries except for a handful of Asian countries. Assume that the developed-country technology improves each year by φ percent so that

$$T(t) = T_0 e^{\varphi t} \quad (6A.2)$$

Given equations 6A.1 and 6A.2, the underlying differential equation implies that the path of technology of an LDC firm is

$$A(t) = [\alpha(h) / (\alpha(h) + \varphi)] T_0 e^{\varphi t}. \quad (6A.3)$$

This technology or productivity level will thus be higher: The greater a country's ability to absorb new technologies as a result of the presence of educated individuals on its staff, the greater the inflow of technology to firms in the form of new equipment, new material inputs, and new knowledge obtained from consultants, licensors, and foreign owners. The potential level of technology of the firm in the developing country is described by equation 6A.3 and depends solely on its own level of h and the rate of technical progress in the developed countries that becomes available to the LDC firm. If ideology, foreign exchange shortages, or arbitrary rules prohibiting some forms of technology imports reduce the inflow of new knowledge, the benefit conferred by having educated labor, h , is reduced.

There is a lower actual rate of technology inflow, $\gamma < \phi$. In this case equation 6A.3 can be rewritten to reflect the lower rate of technology inflow:

$$A_\gamma(t) = [\alpha(h)/(\alpha(h) + \gamma)] T_0 e^{\gamma t} \quad (6A.4)$$

and $A_\gamma < A$. If γ is close to zero as it appears to be in much of the Middle East, equation 6A.4 implies low productivity levels regardless of the extent of education. Indeed, equation 6A.4 implies that human capital will have no effect on the level of output obtained with conventional inputs unless $\gamma > 0$, which can only occur if new productivity-enhancing activities are constantly introduced. While education is indeed important, its payoff as noted in this chapter will be severely reduced unless there is a concomitant increase in the inflow of technology as part of the overall process of globalization of these economies.