

# **Demographic Transition and Economic Opportunity: The Case of Jordan<sup>1</sup>**

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## Introduction

The future of a country is in the hands of its people. Economic growth and development can only happen when their skills, energies, and potential are harnessed. But who are these people? Are they young or old? Working or dependent? Living alone, or in nuclear or extended families? Healthy and long-lived, or not? And, as people are born and die, how do populations change? In the future, will countries have more productive populations? Or will they have to devote increasing resources to looking after their old people?

An understanding of demography is of enormous importance to Jordan's policy-makers. It can be used in three main ways. First, it is a predictive tool of great power, providing a powerful lens through which to view future trends. Second, demographic change can provide beneficial conditions for development, offering a country the chance to set out on a path of rapid growth. Jordan has the opportunity to access a demographic dividend that could double its economic growth over the next 25 years, but this requires policy-makers to understand the demographic trends and create a policy environment that takes maximal advantage of demographic potential. Finally, demography offers a *narrative* about the challenges of the future. It helps policy-makers explain the changes Jordan is likely to face and to articulate their priorities for building a better future. Demography is the story of people. And in the modern economy, more than ever before, it is the quality, commitment, and enthusiasm of a country's people that determines whether it thrives.

Over the next 50 years, Jordan's demographics will change dramatically – a change that has the potential to translate into dividend or disaster for the country. The country's population is growing rapidly, doubling over the last 20 years and likely to almost double again by 2035. More important, however, is the demographic transition the country is undergoing, as it moves from high fertility and mortality, to low fertility and mortality. This is changing the age structure of the population, as well as leading to fundamental changes in parents' perceptions of what their children can and should achieve. Over the next 40 years Jordan will see the relative size of its working age population more than double. It can also expect demand for quality education and health care to rise, and for people to save increasing proportions of their income, so that they can maintain a reasonable standard of living in their old age. Policies will be needed to continue to reduce fertility rates, anticipate future retirement needs, and address issues that might impede efficient use of the anticipated new labor, national savings and human capital.

This paper explains why demographic change is of such profound importance. It examines Jordan's demography, and looks at the nature of the demographic transition across the region. Finally, it explores the practical policy challenges created by changing demography – focusing especially on labor markets, education, the family, health, and pensions.

## Why demography matters

### *Population growth: optimists and pessimists*

Population growth is popularly thought to have a deleterious effect on a country's prospects. The school of 'population pessimism' has its roots in the work of Thomas Malthus at the end of the 18th century. Malthus believed that the population would inevitably grow due to the innate human desire to procreate, but that the supply of land, physical capital and knowledge would remain fixed or would increase at a slower pace than the population. As a result, countries would tend towards their maximum feasible population, with the vast majority of the population unable to rise above subsistence level.<sup>8</sup>

Population optimists, meanwhile, have argued that population growth fosters economic growth.<sup>9</sup> Three mechanisms are involved. First, rapid population growth and increasing population density stimulate technological change and institutional innovation. Second, larger populations are able to enjoy greater economies of scale. Third, larger populations are likely to have a larger number of 'geniuses', exceptional individuals who have a transforming effect on a country's prospects.

Recent work has done little to advance the case put by either the optimists or the pessimists.<sup>10</sup> Instead, a school of 'population neutralism' has emerged.<sup>11</sup> According to empirical models, when all other factors are controlled the rate of population growth appears to have no significant effect on a country's economic prospects. As a result, population studies have tended to fall into a state of salutary neglect among many developing country governments and international development agencies, with serious consideration of demographic factors becoming less evident in the economic development literature.<sup>12</sup>

It is now increasingly recognized, however, that the traditional focus on the rate of population growth misses the most important mechanism by which population change can affect

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<sup>8</sup> T. R. Malthus, *An Essay on the Principle of Population* (1798), London: W. Pickering (1986). For more recent statements of the pessimist view, see Ansley J. Coale and Edgar Hoover, *Population Growth and Economic Development in Low-income Countries* (Princeton: Princeton University Press, 1958), and Paul R. Ehrlich, *The Population Bomb* (New York: Ballentine, 1968).

<sup>9</sup> See for example E. Boserup, *Population and Technological Change: A Study of Long-Term Trends* (Chicago: University of Chicago Press, 1981); S. Kuznets, "Population and Economic Growth", *Proceedings of the American Philosophical Society* 111 (1967): pp. 170-193; Julian Simon, *The Ultimate Resource* (Princeton: Princeton University Press, 1981).

<sup>10</sup> Allen C. Kelley, "Economic Consequences of Population Change in the Third World," *Journal of Economic Literature* 27 (1988): pp. 1685-1728.

<sup>11</sup> David Bloom and Richard B. Freeman, "The Effects of Rapid Population Growth on Labor Supply and Employment in Developing Countries," *Population and Development Review* 12 (1986): pp. 381-414; David Bloom and Richard B. Freeman, "Economic Development and the Timing and Components of Population Growth," *Journal of Policy Modeling* 10 (1988): pp. 57-82.

<sup>12</sup> National Academy of Sciences, 1986, *Population Growth and Economic Development: Policy Questions*, Washington, D.C.: National Academy Press.

economic growth: changes in the age distribution of a population.<sup>13</sup> This change results from the *demographic transition*, where a country moves from high mortality and fertility to low mortality and fertility. Most developed countries experienced a gradual transition, lasting one to two centuries. Developing countries, however, are experiencing much more rapid transitions, which have correspondingly more dramatic effects on the size and composition of their populations.

A demographic transition starts with falls in mortality, as health improvements allow people to live longer. In developing countries, improvements in public health, especially through vaccinations, antibiotics and antimicrobials, combined with improved sanitation and safer water, have helped increase life expectancy significantly. The most significant impacts are on the health of children, with falling levels of infant mortality leading to a short-lived increase in family size. Contrary to Malthusian theory, however, the demographic transition is completed, as fertility also begins to fall. As parents realize that new-born babies are much more certain to survive to adulthood, they choose to invest more in fewer children, offering each child higher standards of education, health care, and nutrition. They therefore seek ways of reducing fertility, through contraception, later marriage, and changing family structures.

The demographic transition involves an inevitable lag between declines in mortality and fertility, although the extent of this lag varies from country to country. As a result, population growth rates exhibit a rapid (though temporary) rise and a baby-boom generation is born. This generation works its way through the population structure, creating first a rising proportion of children, then an increasing number of adults, and finally a growing number of the elderly. The changing age structure of the population brings with it impacts across society, with especially important effects on labor supply, savings, and human capital.

#### *A demographic dividend*

The demographic transition can have significant effects on a society and its economy. Experience from other countries shows that:

- once family sizes peak they tend to keep falling, often to well below the 'replacement level' of just over two live births for each woman. Families switch *en masse* to a different reproductive strategy: instead of having many children in the hope that some will survive, they tend to try and maximize investment in far fewer children.<sup>14</sup> As a result, the value that a society attaches to education increases, enabling the development of a more sophisticated and knowledge-intensive economy.

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<sup>13</sup> David Bloom and Jeffrey Williamson, "Demographic Transitions, Human Resource Development, and Economic Miracles in Emerging Asia", Ch. 3 in D. Bloom and J. Sachs (eds), *Emerging Asia* (Manila: Asian Development Bank, 1997); David Bloom and Jeffrey Williamson "Demographic Transitions and Economic Miracles in Emerging Asia", *World Bank Economic Review* 12 (3) 1998 419-456; David Bloom and Jeffrey Sachs, "Geography, Demography and Economic Growth in Africa," *Brookings Papers on Economic Activity* 2 1998 207-295; David Bloom, David Canning and Pia Malaney, "Population Dynamics and Economic Growth in Asia" *Population and Development Review*, forthcoming 2000.

<sup>14</sup> Robert J. Barro and G. S. Becker, "Fertility Choice in a Model of Economic Growth," *Econometrica* 57 (1989): pp.481-501.

- the burst of population growth experienced during the demographic transition results in greater urbanization, as people leave the land due to population pressures. Agriculture becomes progressively less important as more people work in manufacturing and services, which can offer greater rewards. Again, the demographic transition encourages modernization and improvements in productivity.
- urbanization disrupts traditional family structures and people have fewer children to rely on in their old age. As a result, the level of savings rises as people plan for a retirement that, due to health improvements, they are far more likely to reach. A high proportion of these savings tends to be circulated through the economy, increasing the amount of investment available to domestic companies. Again, this encourages modernization and can facilitate economic growth.<sup>15</sup>
- as the baby boom generation matures, the size of the workforce – both absolute and relative to the dependent population – increases. These extra workers have the potential to act as an engine for economic growth. This generation may also crystallize the changes modernization has brought, as its members move to cities in greater numbers, have smaller families, invest in their children's education, and save a greater proportion of their income for retirement.

The demographic transition, in other words, offers a society the opportunity of collecting a significant 'demographic dividend', one that can, in some circumstances, catalyze a leap in its level of human and economic development. It offers countries the chance of unprecedented economic growth, with more workers (supporting relatively fewer dependents) engaged in more productive work.

These – and other related changes – tend to be self-reinforcing, increasing the potential impact of the demographic dividend. The health improvements that promote the demographic transition improve the quality of people's lives, as well as diminishing their chances of premature death. Healthier children are able to spend more time in school and learn more effectively. Healthier workers are more productive, miss less work and may retire later.<sup>16</sup> Educated people, in turn, are better able to look after their health and to access health care

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<sup>15</sup> See Matthew Higgins and Jeffrey Williamson, "Age Structure Dynamics in Asia and Dependence on Foreign Capital" *Population and Development Review* 23 (1997): pp. 261-293; Allen C. Kelley and Robert M. Schmidt, "Savings, Dependency and Development" *Journal of Population Economics* 9 (1996): pp. 365-386.

<sup>16</sup> David Bloom, Dean Jamison, Pia Malaney, and Jennifer Ruger, "Health, Health Policy, and Economic Outcomes," Final Report for Health and Development Satellite, World Health Organization Director-General Transition Team, Harvard Institute for International Development University of California at Los Angeles, and The World Bank, 1998; David Bloom and Pia Malaney, "Macroeconomic Consequences of the Russian Mortality Crisis," *World Development* 26 (1998): pp. 2073-2085; David Bloom and Jeffrey G. Williamson, "Demographic Transitions, Human Resource Development, and Economic Miracles in Emerging Asia," Chapter 3 in D. Bloom and J. Sachs, eds., *Emerging Asia* (Manila: Asian Development Bank, 1997); David Bloom and Jeffrey G. Williamson, "Demographic Transitions and Economic Miracles in Emerging Asia," *World Bank Economic Review* 12 (1998): pp. 419-456; David Bloom and Jeffrey Sachs, "Geography, Demography and Economic Growth in Africa," *Brookings Papers on Economic Activity* 2 (1998): pp. 207-295; Robert J. Barro, "Health and Economic Growth," unpublished manuscript, Department of Economics, Harvard University, Cambridge, MA, 1996; Robert J. Barro and Jason R. Barro, "Three Models of Health and Economic Growth," unpublished manuscript, Department of Economics, Harvard University, Cambridge, MA, 1996; and David Bloom, David Canning, and Pia Malaney, "Population Dynamics and Economic Growth in Asia," *Population and Development Review*, forthcoming 2000.

when they are sick. Rising income levels enable people to enjoy improved nutrition and living conditions, and to pay for more sophisticated health services.

The changing role of women provides another example of mutually reinforcing effects. In smaller families, girls are more likely to be educated. Educated women are more likely to choose to work where they command high wages and strengthen the labor force. As a result, the proportion of women in the workforce tends to rise. Women therefore start families later and have fewer children, as the opportunity cost of not being able to work increases. When they do have children they are better able to provide for them, offering improved nutrition and health as well as participating more effectively in their education, especially in the formative early years. The result is increased educational quality, which is an even more important determinant of subsequent economic growth than the standard measures of educational coverage and attainment.<sup>17</sup>

These 'virtuous spirals' are not inevitable, however. If health improvements are not maintained, the demographic transition is unlikely to be completed. Southern Africa, for example, is facing declining life expectancy, mainly due to the HIV/AIDS epidemic. Fertility rates have remained high in response. The population continues to grow, but the demographic opportunity – where the proportion of the population in the workforce exceeds the proportion of the population who are dependent – is not appearing.

Equally, the baby-boom generation will not reach its full potential if its members do not receive adequate education. They will not be able to contribute to the economy if there are no jobs for them to go to (or if they are not qualified to do them). A growing pool of workers will lead to increased unemployment and a "brain drain" (where a country sees its best graduates going abroad to seek gainful employment) if the labor market is unable to expand rapidly. Unemployment tends to lead to rising levels of crime, a situation exacerbated by demographic factors (young men account for a disproportionate amount of a society's lawlessness) and the breakdown of the traditional family.<sup>18</sup>

The long-term costs of a failure to collect a demographic dividend are also great. Eventually the baby-boom generation will age, placing a requirement on society to cater for increasing numbers of elderly people. If economic development has not been achieved – and if people have not saved sufficiently for old age – this burden will be exceptionally hard to bear.<sup>19</sup>

### *Does demography matter?*

Much empirical work has been done on the connection between population growth and economic growth over the past 50 years. Most of these studies find little evidence of an association between economic growth and population growth.

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<sup>17</sup> Eric A. Hanushek and Dongwook Kim, "Schooling, Labor Force Quality, and Economic Growth," National Bureau of Economic Research, Working Paper No. 5399, 1995.

<sup>18</sup> Fukuyama, Francis, *The Great Disruption: Human Nature and the Reconstitution of Social Order* (New York: Free Press, 1999)

<sup>19</sup> For more discussion on aging, see Bloom, Nandakumar, and Bhawalkar, 2001, "The Demography of Aging in Japan and the United States", paper presented at the American Academy of Arts and Sciences.

However, recent empirical literature employs a more sophisticated model of economic growth that reveals a more complex relationship. This new model assumes that every country has a ceiling on the level of per capita income it can attain, which is determined by such characteristics as its geography, natural resources, public policies, and human capital. The model also assumes that every country is generally out of equilibrium with respect to its attainable level of income, but is always tending toward that level. Within this framework, if two countries with the same starting level of income were compared, the country with the higher potential income would grow more quickly. Alternatively, if two countries with the same level of potential income were compared, the country with the lower initial income would grow more quickly. According to this model, if all countries had the same underlying characteristics the per capita income in each country would converge toward the same level.<sup>20</sup>

One of the virtues of this empirical framework is the flexibility with which it lends itself to testing alternative hypotheses about the determinants of economic growth. For example, a series of empirical studies have included life expectancy among the factors that determine the steady-state level of per capita income.<sup>21</sup> These studies uniformly show that initial life expectancy has a positive, sizable, statistically significant, and independent influence on the pace of subsequent economic growth. Indeed, about a quarter of Africa's slow rate of economic growth (relative to East Asia) may be due to the low level of life expectancy there.<sup>22</sup>

More recently, researchers introduced the rate of population growth and changes in the dependency burden into this class of empirical growth models.<sup>23</sup> As noted in these studies, there is a strong theoretical rationale for the introduction of these variables, as the underlying theoretical models are developed in terms of the growth of income per worker, whereas the data analyzed generally refer to per capita income. All of these studies find strong and robust evidence that the effect of population growth influences the pace of economic growth only when it is associated with changes in the age distribution of the population. The models show that it is the dependency ratio, and changes in the dependency ratio, that matter for economic growth – not the overall rate of population growth.

More specifically, population growth has a negative effect on economic growth (holding the growth rate of the economically active population fixed); the growth rate of the economically active population is positively associated with economic growth (holding the rate of population growth fixed); and population growth has no independent influence on economic growth in a stable population in which the overall rate of population growth and the rate of increase in the size of the working-age population are equal. Empirical research in these studies demonstrates the sizable influence of age structure on the growth of per capita income, and suggests that age structure changes accompanying the demographic transition create possibilities for large swings in the rate of economic growth. This effect persists even

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<sup>20</sup> See Robert J. Barro, "Economic Growth in a Cross Section of Countries", *Quarterly Journal of Economics* 106 (1991): pp. 407-443; Robert J. Barro and Xavier Sala-i-Martin, *Economic Growth* (New York: McGraw Hill, 1995).

<sup>21</sup> Barro and Sala-i-Martin, 1995; Jeffrey D. Sachs and Andrew Warner, "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity* I (1995): pp. 1-118; Bloom and Williamson, 1997 and 1998; Bloom and Sachs, 1998; and Bloom, Canning, and Malaney, 1998.

<sup>22</sup> Bloom and Sachs, 1998.

<sup>23</sup> Bloom and Williamson, 1997 and 1998; Bloom and Sachs, 1998; Bloom and Malaney, 1998; and Bloom, Canning, and Malaney, 2000.

when one accounts for possible reverse causality between income growth and population change.<sup>24</sup>

These new models challenge nearly two decades of conventional wisdom on the neutral effects of population changes on economic growth. They allow for countries to escape from a poverty trap of low life expectancy, poor health, inadequate education and low growth,<sup>25</sup> and enter a virtuous growth spiral with good health, high life expectancy and low fertility feeding high growth.<sup>26</sup>

## Jordan's demographic challenges

### *The demographic transition in Jordan*

As in many developing countries, Jordan's demographic transition began with the sharp fall in mortality rates, especially infant and child mortality, that followed the end of World War II. This decline was caused largely by improvements in nutrition, medicine, and public health – in particular, expanded programs for immunization against infectious disease, and improved access to safe water, sanitation, and health services. Infant mortality, which stood at the alarmingly high rate of 160 per 1000 live births in 1950, was roughly halved by 1970 and again by 1985, and now stands at just over 20 per 1000 live births.<sup>27</sup> Figure 1 shows this rapid decline in infant mortality and includes projections up to the year 2050.<sup>28</sup>

Mortality in all age groups also declined, leading to increased life expectancy in Jordan of more than 25 years (Figure 2). From 1950 to 1995, life expectancy for men rose from 42.2 to 68.9 years, and for women from 44.3 to 71.5 years. Jordan has made huge strides in life expectancy – more so than its geographical neighbors. Figure 2 projects that by the year 2050 life expectancy will be about 79 years. The difference in Jordan's life expectancy between men and women, which increased from 2.1 years in 1950 to 3.9 in 1980 before falling again to 2.7, is well below the 1995 average among low- to middle-income countries of 4.3 years.

Jordan's fertility declines were relatively slow to follow its mortality declines. Mortality was already falling in the 1950s, but fertility did not begin to decline until 1970, when the total fertility rate (the number of children a woman could expect to have in her lifetime given current age-specific fertility rates) was about 7.8. The fertility rate declined by nearly 50 per cent over the ensuing 25 years, and is currently at a still-high 4.1 children per woman (Figure 3) – Egypt, whose life expectancy and infant mortality figures are far less impressive

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<sup>24</sup> Bloom, Canning and Malaney, 2000.

<sup>25</sup> G. S. Becker, K. M. Murphy, and R. Tamura, "Human Capital, Fertility and Economic Growth," *Journal of Political Economy* 98 (1990): pp. 212-237; I. Ehrlich and F. T. Lui, "Intergenerational Trade, Longevity and Economic Growth," *Journal of Political Economy* 99 (1991): pp. 1029-1059.

<sup>26</sup> Bloom, Canning and Malaney, 2000.

<sup>27</sup> As a comparison, Egypt's current infant mortality rate is around 41 per 1000 births.

<sup>28</sup> UN Population Prospects 1950–2050, 1998 Revision

than Jordan's, nevertheless has a fertility rate of 2.8.<sup>29</sup> The fertility rate is projected to fall to just over two children per woman by the year 2025.

Population growth is a natural result of Jordan's mortality and fertility transition. Figure 4 shows the crude birth and death rates per thousand people since 1950 (note the major decline in death rates in the late 1960s and 1970s). Death rates are currently decreasing as health improves, and are likely to hover at a relatively low level over the next 20 years. In time they will increase again, as the average age of the population increases. This development, combined with the decline in fertility rates, will lead to a slowing of population growth. However, 'population momentum' will sustain population growth, even when fertility has declined to replacement levels. This momentum occurs because, although on average each woman will have fewer than two children, the number of women reaching childbearing age constitutes a large proportion of the total population. So the crude birth rate, averaged over the total population, will remain high. Also contributing to this momentum is an echo effect which occurs as the children of these women themselves reach childbearing age. Jordan's population has also been swollen by heavy immigration. After the Israeli occupation of the West Bank, Jordan saw a significant influx of Palestinians moving to the East Bank. And the Gulf War saw a return of 300,000 Jordanian nationals from the Gulf.

Figures 5 and 6 illustrate the changes in Jordan's age structure due to the demographic transition, and show the size of the baby-boom generation. Figure 5 plots the ratio of the number of 15- to 64-year-olds (the working-age population) to the number of people below 15 or above 64 (the inverse of the dependency burden) from 1950 to 2050.<sup>30</sup> The plot shows a nadir in 1980, followed by a protracted increase which does not plateau until 2040. This nadir corresponds to the birth of the baby boomers. The rise in the ratio occurs as the baby boomers progress from childhood to full participation in the workforce. The ratio continues to increase as the birth rate declines, and plateaus when the baby boomers begin to retire. Currently, there is just over one worker per dependent. In 40 years, that ratio will double to 2.4 workers per dependent.<sup>31</sup>

This bulge in Jordan's population can also be seen in Figure 6, which gives a three-dimensional picture of the age cohorts over time by plotting successive two-dimensional population curves side by side. This graph appears as a hillside, with the diagonal ridge in the back corner representing the largest youth cohort, born between 2015 and 2020. This cohort will enter the working-age population around the year 2030. The hill then disappears behind this ridge, corresponding to a decline in fertility. The steepest part of the hillside (corresponding to the age cohort born in 1990) is the result of a recent, rapid decline in the infant mortality rate, which has not yet been checked by the slowing fertility rate. A second, less prominent steepening occurred 25 years earlier (corresponding to the age cohort born in approximately 1965) as the result of a peak in the fertility rate accompanied by rapidly declining infant mortality.

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<sup>29</sup> UN Population Prospects 1950–2050, 2000 Revision

<sup>30</sup> UN Population Prospects 1950–2050, 1998 Revision

<sup>31</sup> Egypt's dependency ratio is expected to show a similar decline, from around 100% in 1998 to 50% in 2020. (David E Bloom and David Canning: From Demographic Lift to Economic Liftoff: The case of Egypt. Presented at "Growth Beyond Stabilization: Prospects for Egypt" conference. February 1999.

### *Estimating Jordan's demographic dividend*

Jordan's demographic transition offers the prospect of a period of accelerated economic growth due to both increased longevity and favorable changes in its population's age distribution. The following analysis attempts to estimate the magnitude of these effects.<sup>32</sup> Table 1 lists the 73 countries for which complete data on our specified variables are available. Table 2 lists the variables included in our regression, discussed below, and their summary statistics across the sample. Table 3 shows the per capita growth rate of GDP from 1965 to 1990 regressed against the specified variables. For regression (1), economic growth is negatively associated with 1965 per capita GDP, supporting the conditional convergence hypothesis (whereby as a country gets richer it has less scope for growth). Growth is also negatively associated with the percentage of a country's land area in the tropics, as is generally observed.<sup>33</sup> There is a positive correlation between economic growth and two policy variables: the Sachs-Warner measure of openness to trade over the years 1965 to 1990<sup>34</sup>; and the Knack and Keefer measure of the quality of governmental institutions for 1980.<sup>35</sup>

The model shows that economic growth tends to be greater when initial life expectancy is higher. In addition, increasing levels of secondary school education are associated with greater subsequent economic growth. Economic growth is also greater when the working-age population is growing more quickly than the total population, indicating that the demographic dividend is operating.

To examine the impact of openness to trade on the ability of labor markets to absorb large cohorts into productive employment, regression (2) includes an interaction term between the

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<sup>32</sup> The analysis provided here relies on the same cross-country data set used by Bloom and Sachs (1998). These data encompass a wide spectrum of economic, geographic, demographic and policy conditions. This is the largest sample for which information on economic growth (measured in terms of the annual growth rate of per capita GDP, adjusted for purchasing power parity, from 1965 to 1990) and the requisite control variables are available. Although Jordan is a major recipient of foreign aid (the country is one of USAID's biggest four programs), data on foreign aid does not exist consistently from 1965, so has not been included in the analysis.

<sup>33</sup> See John Luke Gallup and Jeffrey D. Sachs, with Andrew Mellinger, "Geography and Economic Development," *Proceedings of the Annual Bank Conference on Development Economics* (Washington, DC: The World Bank, 1998); and Bloom and Sachs, 1998.

<sup>34</sup> This is the proportion of years between 1965 and 1990 that a country was open to international trade. A country is considered open if it meets minimum criteria on four aspects of trade policy: average tariffs must be lower than 40 per cent; quotas and licensing must cover less than 40 per cent of all imports; the black market premium on foreign exchange must be less than 20 per cent; and export taxes must be moderate. See Jeffrey D. Sachs and Andrew Warner, "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity* 1: 1-118 (1995).

<sup>35</sup> This is an unweighted average of five sub-indexes developed from data by Political Risk Services, measuring the following: the rule of law index "reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes." The bureaucratic quality index measures "autonomy from political pressure", and "strength and expertise to govern without drastic changes in policy or interruptions in government services." The corruption in government index measures whether "illegal payments are generally expected throughout ... government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans." The risk of expropriation index measures high risk of "outright confiscation" or "forced nationalization". The government repudiation of contracts index measures the "risk of a modification in a contract taking the form of a repudiation, postponement or scaling down." These five sub-indexes are scaled and averaged together into our overall institutional quality index. This index was originally constructed by the Center for Institutional Reform and the Informal Sector (MIS) from data published in the International Country Risk Guide by Political Risk Services. See Knack and Keefer (1995) for further details.

difference in growth rates of the working-age and the overall population, and openness to trade. The coefficient for this interaction term is significant, just above the 5 per cent level, while the coefficient for the difference in growth rates becomes insignificant. This suggests that openness to trade is an important element in realizing the growth potential created by a demographic dividend.<sup>36</sup>

Model (2) yields an  $R^2$  of 0.795 for predicting per capita GDP growth rate. Applying this model to Jordan, which is among the 73 countries in the sample, the model predicts that the per capita GDP growth rate for Jordan from 1965 to 1990 would be 2.3 per cent. This is very close to Jordan's actual per capita GDP growth rate of 2.4 per cent (Table 4).

Employing 1990 data for Jordan, we use model (2) to predict the per capita GDP growth rate over the next 25-year period, from 1990 to 2015. We use the following estimates in our predictions: (1) UN Population Division projections are used to estimate the difference in growth rates of the working-age and total populations for the years 1990 to 2015; (2) the Knack and Keefer measure of the quality of governmental institutions is available only for 1980, and we assume it does not change<sup>37</sup>; (3) in every year from 1965 to 1990, Jordan's economy has been open to trade according to the Sachs-Warner measurement. Although Jordan's future trade policies are not known for certain, we assume for the purposes of this analysis Jordan will remain equally open over the next 25-year period.

Employing these estimates, we project that Jordan's per capita GDP from 1990 to 2015 will grow at an average rate of 5.6 per cent (Table 4), a significant boost for the country's prospects. To understand this impressive increase in growth, we compare changes in Jordan's characteristics between 1965 and 1990 (Table 5).

Most of this increase is due to a demographic shift in the labor force. Between the two periods there is a 1 per cent increase in the difference in growth rates between working-age and overall populations. Whereas in 1965–1990 the overall population was growing more quickly than the working-age population (a negative difference), in 1990–2015 the relationship is reversed. This contributes a full 2.7 per cent to Jordan's future predicted per capita GDP growth rate. Sizable contributions also come from (1) a 17-year lengthening in life expectancy, which increases predicted per capita GDP growth rate by 1.2 per cent; and (2) an increase in average secondary schooling from 0.4 to 1.9 years, which increases predicted growth in per capita GDP by 0.7 per cent. A reduction of 1.3 per cent to predicted per capita GDP growth comes from the increased level of per capita GDP, which nearly doubled. This effect is consistent with the conditional convergence hypothesis.

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<sup>36</sup> For a full discussion of how liberalization and globalisation can contribute to economic growth when combined with sustainable human development, see David E Bloom, Ajay S Mahal, Damien King, Fiorina Mugione, Aldrie Henry-Lee, Dillon Alleyne, Philip Castillo and River Path Associates (2001): 'Jamaica: Globalisation, Liberalization and Sustainable Human Development' UNCTAD/UNDP Programme on Globalisation, Liberalization and Sustainable Human Development. February 2001

<sup>37</sup> Amartya Sen has noted the importance of freedom to speak, to vote and to criticize the government as both means to and ends of successful development, in the light of which reports of a "deteriorating human rights situation in Jordan", exemplified by police torture, government influence on the press and the banning of public meetings, are a worrying sign. (Economist Intelligence Unit (2000): Jordan: Political Outlook. 5 June.)

### *The importance of the policy environment*

The demographic dividend is not fixed. Policy decisions make a considerable difference to the size of the dividend Jordan collects. Variations in current Jordanian policy, and their expected effect on future economic growth, are examined in Table 6. Chile, a developing country which has achieved significant economic growth in recent years, is used for comparison. In 1990 the educational levels in Chile and Jordan were comparable (approximately 2 years of secondary schooling). However, Chile's life expectancy in 1990, at 74 years, was comparable to that of developed countries. Had Jordan achieved this level of life expectancy, our model predicts that it could expect an additional 0.3 per cent increase in its future rate of per capita GDP growth. The quality of Chile's government institutions in 1980, as measured by the Knack and Keefer index, was significantly higher than that of Jordan. If Jordan's governmental institutions were comparable in quality to Chile's, our model would predict an increase in Jordan's future per capita GDP growth of 0.4 per cent.<sup>38</sup>

We also use the United States for comparison, examining how characteristics of a fully developed country would be expected to affect Jordan's future economic growth. The US has an average level of secondary schooling among adults which is more than twice that of Jordan. Were Jordan's population to attain this level of education, our model predicts that it would increase the future per capita GDP growth rate by 0.7 per cent. If the quality of Jordan's governmental institutions was comparable to that in the US, our model predicts this would boost Jordan's future rate of economic growth by 1 per cent. However, Jordan does have one advantage over the US – the growth of its working-age population. In 1990, the working-age population in the US was growing only 0.1 per cent more quickly than the total population. If Jordan exhibited similar growth rates, we project that its future per capita GDP would grow at only 3.5 per cent – 2.1 per cent less than the current prediction.

Although the regression estimates and the corresponding calculations are somewhat crude, the results support the assertion that policies resulting in improved governance, life expectancy and education levels have the potential to confer sizable economic benefits upon Jordan.

## **Realizing Jordan's Demographic Dividend**

The demographic dividend offers Jordan the possibility of more than doubling its per capita economic growth. However, as we have seen, this demographic dividend will not be collected automatically. Policy-makers who wish to take full advantage of the demographic dividend should have three main objectives.

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<sup>38</sup> Jordan has had an unusually high level of openness to trade for a country of its income – similar to that of developed countries. There may be nuances in Jordan's openness which are not captured by the Sachs-Warner index.

First, and in light of Jordan's continued relatively high population growth rate, they should try to accelerate the transition by reducing fertility rates. The greater the proportion of workers to dependents, the greater the window of opportunity for economic growth. The fewer children families have, the more they invest in each child, which enriches the quality of Jordan's human capital. In addition, the demographic transition brings with it changes in the family, which policy-makers should also prepare for.

Second, they must work with demographic trends in order to ensure economic growth, by investing in human capital, encouraging job creation, and promoting openness to the global economy.

Third, they must anticipate the consequences of the final stages of the transition. Most important among these are provision for the pension and health care needs of an increasingly elderly population.

### *Changing the family*

#### **Reducing fertility**

Reducing fertility rates is the first step in accentuating Jordan's demographic dividend. Jordan's total fertility rate currently stands at 4.7 children per woman.<sup>39</sup> As that rate continues to fall, there will be increased opportunities for economic growth.

Reduced fertility could be achieved by increasing access to contraception. In 1999, nearly 40 per cent of married women were using some form of modern contraception, an increase from 26.9 per cent in 1990. The most popular method of contraception is the IUD, used by 24.5 per cent of women in 1999.<sup>40</sup> However, there is clear unmet demand. When questioned in 1997, 17 per cent of pregnant women described their child as unwanted, while a further 20 per cent would have altered the timing of their pregnancy. If all these unwanted births could be prevented, the current fertility rate would be 2.9 children per woman.

Increased education about contraception would drive fertility rates down further. Currently, there is a high level of awareness of modern methods of contraception; however, 27 per cent of women have stopped using some form of contraception (including 'traditional methods') because of method failure. Modern methods of contraception have extremely low failure rates – provided they are used properly. So the high failure rate indicates that the methods were not used properly, or that traditional methods were used in place of modern contraception. It is clear that many women do not understand how contraception works, or how their reproductive cycles work. One-third of women did not know when in their menstrual cycle they were most fertile.

Education about and access to family planning and sexual health care are increasingly important, for more than just fertility reduction. While over 80 per cent of the female

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<sup>39</sup> The World Health Report 2000 – Health Systems: Improving Performance. World Health Organization. Geneva: 2000.

<sup>40</sup> Jordan Populations and Family Health Surveys (JPFHS), The Department of Statistics, Amman, Jordan 1990 and 1999.

population knew what condoms were, less than 1 per cent thought using condoms during sex could prevent the transmission of AIDS. While HIV/AIDS infection rates may be low in Jordan, it is imperative that Jordan does not ignore this worldwide crisis. Countries in sub-Saharan Africa that ignored the threat of the HIV/AIDS crisis and did not pursue public health programs are now suffering from extremely high infection rates.<sup>41</sup>

Jordan's policies of using national television campaigns and encouraging the involvement of the Islamic clergy and the private sector to tackle fertility have made some progress, but more will be needed if rates are to fall to high-income country levels and enable Jordan to take full advantage of the demographic shift.

### **Caring and the new family**

A major factor behind declining fertility is a gradual increase in the age at which Jordanian women marry – influenced largely by education and increased employment opportunities. In 1950 the average woman married at 17; by the 1990s women were getting married at 20 or older. The proportion of women never marrying is also increasing. 15 per cent of 25- to 29-year-olds were single in 1986, but 30 per cent were single in 1996.<sup>42</sup> As nearly all women in Jordan have children within marriage, there has been a corresponding increase in women's age at first birth, to 23.2 in 1997.

This trend, and the fact that families are smaller, has a significant impact on the family. With better education and smaller families – females have consistently outperformed males in Jordan's secondary examination, the Tawjihi, in recent years - women are more likely to work, further decreasing the dependency ratio. This increases family incomes and allows greater investment in the education and care of children. However, there is a price. Traditionally women have spent a large proportion of their time caring for children and elderly relatives. With an increasing proportion of women working, there will be a shortage of (previously free) carers. More families will have two working parents, creating a rising demand for childcare. In addition, as women become more financially empowered, they are more likely to leave marriages that are not satisfying or are abusive, as well as waiting longer to marry. As a result, there will be single-parent households – children of which are particularly vulnerable to poverty and lack of proper care – and a growing number of elderly people who are no longer able to rely on their children to provide for them in old age.

### *Enriching the labor force*

A growing proportion of people of working age will have a positive effect on the Jordanian economy only if they can be absorbed into productive employment. Policies are therefore needed to invest in human capital, which is a powerful driver of economic growth. It is also important to favor policies that promote a flexible workforce, allowing the workforce to absorb workers and also to adapt to the demands of an increasingly sophisticated economy.

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<sup>41</sup> Botswana, for example, has an HIV infection rate of 36%; South Africa has a rate of 20%. UNAIDS/WHO Epidemiological Factsheet – 2000 update

<sup>42</sup> The Jordan Living Conditions Survey, Jordan Department of Statistics, 1998

## Health

Improvements in health are the trigger for the beginning of the demographic transition – but maintaining and improving a country's health status remains important for its economic growth.

Health is one of the keys to economic success: countries with healthy populations are more likely to prosper. Formal analysis suggests that if two countries are compared, identical in every respect except that one has a 5-year advantage in life expectancy, the healthier country will experience growth that is 0.5 per cent faster than its counterpart. Reasons for this are varied, but include the fact that healthier and more long-lived populations are more productive, lose fewer working days, have greater incentives to invest in human capital because they have long lives in which to recoup their investment, save more for their old age, and attract direct foreign investment.<sup>43</sup>

Jordanians enjoy average levels of health compared to other Arabic countries, with a Jordanian baby born in 1999 expecting to enjoy an average of 60 years of healthy life (disability-adjusted life expectancy or DALE). On this measure, Jordan ranks tenth out of 20 Arabic countries (Figure 7). Although Jordanian women have a longer life expectancy than men, they have less healthy lives, rating 59.3 years on the DALE scale, compared to 60.7 years for men. Internationally, this is unusual, with men enjoying better health than women in only 11 per cent of the world's countries. However, 42.9 per cent of these countries are Arabic, with women enjoying poorer health than men in 45 per cent of Arabic countries.<sup>44</sup>

Continuing to improve health status is essential for Jordan's future prosperity. The examples of Russia and sub-Saharan Africa demonstrate the catastrophic effects of failing health. Jordan must also face the epidemiological transition from infectious to chronic diseases as its population ages. These diseases, such as cardiovascular disease and cancer, are related to demography more strongly than they are to wealth. As they are expensive to treat, it is essential that a middle-income country both mounts successful prevention campaigns (anti-smoking and pro-healthy living drives, for example), and experiences economic growth, if its health system is not be overwhelmed.

Jordan must also work to reform its health system, which currently ranks 100 out of 191 countries in terms of its overall performance. A 1997 World Bank study of Jordan's health sector has pointed out that this does not necessarily mean more health-sector funding. It estimated it would be possible for Jordan to improve the health status of its population, provide universal coverage and access to service, and improve efficiency, effectiveness and economic sustainability without significant increases in expenditure.<sup>45</sup>

Currently the provision and payment of health services is irrational and chaotic. The authors of this report warn that without rationalization, Jordan could end up with a health system like that of the USA – fragmented, incoherent, inefficient, and expensive. Currently the Ministry of Health, the Royal Medical Services, the United Nations Relief Works Agency, and the Jordan University Hospital all provide payment and provision services, along with the private sector.

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<sup>43</sup> David Bloom and David Canning, "The Health and Wealth of Nations", *Science*, February 18, 2000, 1207, 1209.

<sup>44</sup> The World Health Report 2000 – Healthy Systems: Improving Performance, WHO, 2000

<sup>45</sup> *Hashemite Kingdom of Jordan: Health Sector Study* The World Bank, Washington DC, 1997

Access is good both in terms of geography and capacity, but the system is inefficient in its spending. A rationalization of capital investments in hospitals and expensive technology and the procurement, storage, and distribution of pharmaceuticals are just two areas that could be greatly improved.

Planning for the future, and anticipating future changes in demands on the health services – less maternity care and more geriatric care, for example – is essential. However, improving the delivery of health services more generally is also essential if Jordan is to have a fit workforce capable of expanding its economy.

## Education

The other major component of human capital is education. Jordan's level of education is high compared to that of its neighbors, but to compete in a global market Jordan must continue to deliver high-quality, relevant education to its young people. In this area, policy-makers face three main challenges.

First, as the demographic transition progresses, the quantity of demand for education at different levels will change. There will be a great strain on primary education at the start of the transition, with an enlarged cohort of young children. As they grow older and work through the education system, that pressure will move to secondary education, and finally tertiary. A greater proportion of children are also likely to stay in education for longer, as parents encourage and enable their children to stay in education.

Second, the quality of the education must remain high. The curricula must be relevant to today's and tomorrow's economic realities. Analysts blame Saudi Arabia's growing unemployment problem on an out-of-date curriculum. Private companies are increasingly employing foreigners who are more able to compete successfully in the global market. To participate effectively in the global economy (as Jordan must, if it is to absorb its young cohort into employment), then Jordan's curricula must be of a high quality – and of a high relevance to the global marketplace (under-enrolment in Science courses in the UK, for example, has been attributed to the lack of relevance and interest of the old-fashioned curricula, which focus on rote learning of facts at the expense of the creativity and teamwork skills required of modern scientists).

Third, higher education becomes increasingly important to competing in a knowledge-driven global economy. It will become more and more sought after by Jordan's young people – and will provide a huge return on investment for societies as a whole. As a recent Task Force on Higher Education report has said, "Higher education *obviously* confers benefits above and beyond enhancing the incomes of those who received their degrees. And many of these benefits are public ones – ones that are in the public interest. Higher education contributes to enterprise, leadership, governance, culture, freedom – all vital building blocks for stronger economies and societies and all routes by which the benefit of investment in higher education multiplies throughout society."<sup>46</sup> Higher education is also an important driver of foreign direct investment (FDI), as the success in attracting FDI of India and Ireland – countries which have invested heavily and consistently in tertiary education – has shown.

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<sup>46</sup> Professor David Bloom: Higher Education in Developing Countries: Peril and Promise. Speech delivered at the Conference on Globalisation and Higher Education: Views from the South. March 28 2001.

In 1996, enrolment in tertiary education in Jordan was just 18% (compared to over 80% in Canada, Australia and the US, for example – Jordan’s enrolment is more or less equal to that of neighbors Egypt, Saudi Arabia and Syria, but behind Israel (41%) and Lebanon (27%)).<sup>47</sup> Questions of access, financing, and quality need to be addressed. Jordan invests 35% of its education budget in tertiary education. Along with Egypt and Canada, this is the highest ratio of the nine countries referred to above.<sup>48</sup> However, enrolment rates either similar to or much lower than the comparison countries suggest that Egypt and Jordan’s substantial investment in higher education is inefficiently and inequitably concentrated on a privileged few.

Jordan should build on the work of the Task Force on Higher Education and Society (TFHE) to develop a robust strategy for its higher education system.<sup>49</sup> The TFHE has summed up the importance of government intervention in tertiary education: “A focus on public interest and higher education has two...implications. First, that market forces alone will not deliver vital public goods. Markets are moved by profit, mainly quick profit. Private interests overlap, but only partially, with a society’s long-term interest in accumulating and imparting knowledge and its capacity for generating new knowledge. This observation is especially true with respect to the basic sciences and the humanities, vital subjects the market will never deliver optimally because there is not enough money to be made. Markets, on their own, will not deliver access for all, either. They will cater solely for the privileged, creating elite education, not mass education. The public’s representative – i.e. government – must be prepared, therefore, to protect the public interest. This does not mean that governments should crowd other players out – but they must be prepared to act as guide, facilitator, funder in some areas, strategic planner and, when necessary, regulator prepared to wield a hefty stick.”<sup>50</sup>

### **Employment and work**

A large, healthy, well educated workforce is an engine of economic growth only if it is properly utilized. Absorbing a large cohort of people into the workforce and into productive work is a challenge for any country, especially one with an economy in recession and an already challenging unemployment problem. Jordan is already pursuing policies to address these issues, but the forthcoming demographic transition will see a further increase in the number of working-age people, underlining their importance. If unemployment figures are not to rise from their current high levels, action will need to be taken soon to reform “the old pattern of privilege and nepotism”.<sup>51</sup>

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<sup>47</sup> Source: [www.unesco.org](http://www.unesco.org)

<sup>48</sup> Australia invests 30% of its education budget in higher education; the US 25%; Saudi Arabia 18%; Syria 26%; Israel 18%; and Lebanon 16%. (TFHE *ibid.* 1995 data)

<sup>49</sup> “Higher Education in Developing Countries: Peril and Promise”, a report from the Task Force on Higher Education convened by the World Bank and Unesco. ([www.tfhe.net](http://www.tfhe.net)). The planned pan-Arab Open University, which will be set up in Kuwait next year with a branch in Jordan, will increase both the capacity and the quality of higher education in the Arab world. Partly funded by the Arab Gulf Programme of the UNDP, one of its stated goals is to target women – a key target group for any development effort and any effort to capture the demographic dividend (more educated women help fertility to decline and also bolster the labor force by going out to work). The open university format will benefit women as it enables them to study from home.

<sup>50</sup> Professor David Bloom (2001) *ibid*

<sup>51</sup> The Economist Intelligence Unit has suggested that unemployment is at 30%, and warns against the temptation to simply “create jobs within the bloated government bureaucracy”. (Economist Intelligence Unit (2000): Jordan: Political Outlook. 5 June.)

With limited export products, Jordan will have to look to its services sector to act as the motor which drives economic growth. At present, services account for 72% of GDP<sup>52</sup>, but if the sector is to move up the value chain, the examples of India and Ireland – countries whose investment in the information technology industry has enabled them to convert their human capital into a globally competitive asset which has brought in substantial foreign direct investment – provide good models for making productive use of burgeoning working populations.

Flexibility and openness are key values. Access to world markets is the single most effective way of finding sufficient demand for a nation's output, but globalization is not a passive policy and liberalization, unaccompanied by human development policies, is just as likely to bring social discontent as prosperity.<sup>53</sup> Jordan must invest in education and training in order to ensure wide access to new opportunities. At present, over 30% of those aged 25 and over have no formal schooling – training and re-training these people will enable them to contribute to the new economy instead of being left behind by it. Flexibility allows employers to expand and contract their businesses in order to adjust to changing patterns in demand. However, it is essential that workers are not seen as bearing the bulk of the cost associated with labor flexibility, which gives unions a crucial role. Unions can be useful to bring workers' concerns to management, improve cooperation between workers and owners, and help set wage levels that reflect and encourage greater productivity. Policy-makers need to develop structures that facilitate management and labor developing joint targets for productivity gains, and agreeing on the division of the proceeds. One possibility is to use the inducement of the demographic dividend as a focal point for a new social contract pulling together government, business, unions, and workers.

### **Microfinance**

People are naturally enterprising, provided their opportunities to work are not stifled by bureaucracy, uncompetitive environments, lack of available capital for investment, or an absence of skills. Entrepreneurship (the source of new economic activity and a potential absorber of vast numbers of baby-boomers) is often held back by lack of access to money.

However, the past two decades have seen the development of successful new models of microfinance by the private sector, NGOs, and nation states. Targeting low-income households, and giving credit that is often collateral-free and at significantly lower interest rates than those in the informal credit market, these institutions help microenterprises develop and provide income-generation opportunities to poorer segments of the population. Jordan has already started to develop microfinance initiatives – the Jordan Micro Credit Company and the Microfund for Women have both proved to be successful and sustainable. A Market Survey for microfinance in East Amman showed that most microentrepreneurs were supporting seven family dependents, and that two-thirds of them could not expand their business because of a lack of access to credit. One-third said that they were unable to meet current demand for their product because of lack of income; 85 per cent would like to expand their own business.

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<sup>52</sup> CIA Country Profile, 1998

<sup>53</sup> See Bloom, Mahal (2001) *ibid* for fuller discussion of the benefits and risks of globalisation and liberalization.

One key to success in increasing access to credit must be the development of effective structures for bank management, personnel, accounting, and loan approval so that banks can make relatively small loans at moderate costs. Others include promoting a sense of bank security, and the ability to access savings when they are needed. A regulatory environment that does not impose undue limitations is important. Interest rate ceilings must not be established on loans, as these often need to be relatively high to cover fixed costs.

## **Technology**

With access to global markets, it becomes vital that Jordan is technologically literate so that it can compete on a meaningful level. A young workforce with a recent education and a long work horizon is best able to meet the challenges of adopting new technologies and new working practices.

However, Jordan needs to make progress if it is to participate fully in the knowledge revolution. Internet penetration in the Jordan runs at 1.92 per cent – compared to the USA's 55.8 per cent.<sup>54</sup> In 1996 only 4 per cent of households in Jordan had computers.<sup>55</sup> Jordan has the opportunity to use its recently privatized telecommunications to build a strong infrastructure for the future. It must make good use of technical assistance from donors such as Japan, while investing in increasingly advanced forms of education.

Increasingly, technology and innovation are the drivers of successful economies, with technology making location a less important factor in economic success.<sup>56</sup> Exclusion from technological progress, however, is almost certain to lead to economic stagnation, especially in a country such as Jordan, with a young population that is eager to learn, experiment, and innovate.

## **Investment**

The experience of East and South-East Asian economies demonstrates where growth should be encouraged: in skilled, labor-intensive sectors, particularly those satisfying export demand. Jordan is currently experiencing growing urbanization, with 79 per cent of its population living in cities in 1994, compared to only 70 per cent in 1980. It has also experienced a corresponding switch from subsistence agriculture to manufacturing, and especially to services.<sup>57</sup> However, expanding economic enterprises need capital, and private, public, and inward investment must therefore increase, particularly in skilled labor-intensive sectors.

Investment can come from savings – by government, business, or private individuals – or from overseas development assistance or foreign direct investment. Jordan's national debt and the lack of an Israeli–Palestinian peace accord have inhibited foreign direct investment. Reforms that encourage such investment must remain a high national priority. Private household savings are one of the most powerful ways of financing growth, as the East Asian experience has shown. Individual savings are, in turn, dependent on demography and longevity. People

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<sup>54</sup> Jordan figure for March 2000; USA for November 2000. Nua Internet Surveys ([www.nua.ie/surveys/](http://www.nua.ie/surveys/)).

<sup>55</sup> "The Impact of Globalization on Jordan" *Human Development Report 1999*, UNDP-Jordan, ([www.undp-jordan.org](http://www.undp-jordan.org))

<sup>56</sup> Jeffrey Sachs, "A new map of the world" *The Economist*, June 24<sup>th</sup> 2000

<sup>57</sup> World Bank 1999 World Development Indicators

save at different points in their lives, and for different purposes, most notably their retirement. Research indicates that policies to reduce government involvement in the market, promote the rule of law, and maintain price stability all increase levels of investment. Indices of democracy are also highly – and positively – correlated with investment levels.

### *An aging population and pensions*

The demographic transition has substantial effects on savings and pensions. As people have fewer children and expect to live longer, they are more likely to save, especially if they trust their financial institutions. But expecting people to live longer, and thus have a longer retirement period, also has implications for pension systems and the economy.

In 40 years Jordan's baby boomers will begin to retire, creating a large cohort of elderly dependents, and causing a decline in the working proportion of the population and a corresponding fall in both the size of the economy and the national savings rate. It is important for the government to start preparing for this situation now, rather than waiting until the problem has become critical.

Based on the experience of developed countries, the most urgent area for action is pensions, which risk becoming an unsustainable burden in many of the world's rich countries. These countries have pay-as-you-go pension systems, where those retiring are paid through the contributions of those currently working. Jordan currently runs two schemes: the Social Security Corporation (SSC) provides for the general population, while a separate public scheme covers the armed forces and civil servants. While these schemes are currently building up reserves, contribution rates would have to climb to 34 per cent of wages if the SSC is to meet its obligations in 2040.<sup>58</sup>

Jordan currently has an opportunity to move towards a fully funded pension scheme which pays retirees' benefits exclusively from the contributions they make while working. Such schemes explicitly link savings rates to retirement benefits, encouraging workers to save money that can then be invested in the domestic economy. Fully funded schemes demand high-quality savings vehicles and prudent financial regulation. Reform must therefore be linked to broader initiatives to strengthen Jordan's financial system.

Raising the retirement age is another obvious way of managing the aging process. As well as delaying pension payments, this measure will bolster the workforce and expand the tax base. Research on the effects of raising the retirement age by 5 years in Japan and the US has shown that this will *reverse* the negative impact of the aging boom on living standards,<sup>59</sup> and with life expectancy higher and healthy aging on the rise, people are likely to be both more willing and more capable of working longer.

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<sup>58</sup> Peter S. Heller, Juan Amieva-Huerta, Benedict Clements, and Platen Tinios, "Pension Reform Issues in Jordan", International Monetary Fund, Fiscal Affairs Department, June 13 1996.

<sup>59</sup> Dave Turner, Claude Giorno, Alain de Serres, Ann Vourc'h and Pete Richardson: The Macroeconomic Implications of Ageing in a Global Context. OECD Working Paper 1998 AWP 1.2.

## Conclusion

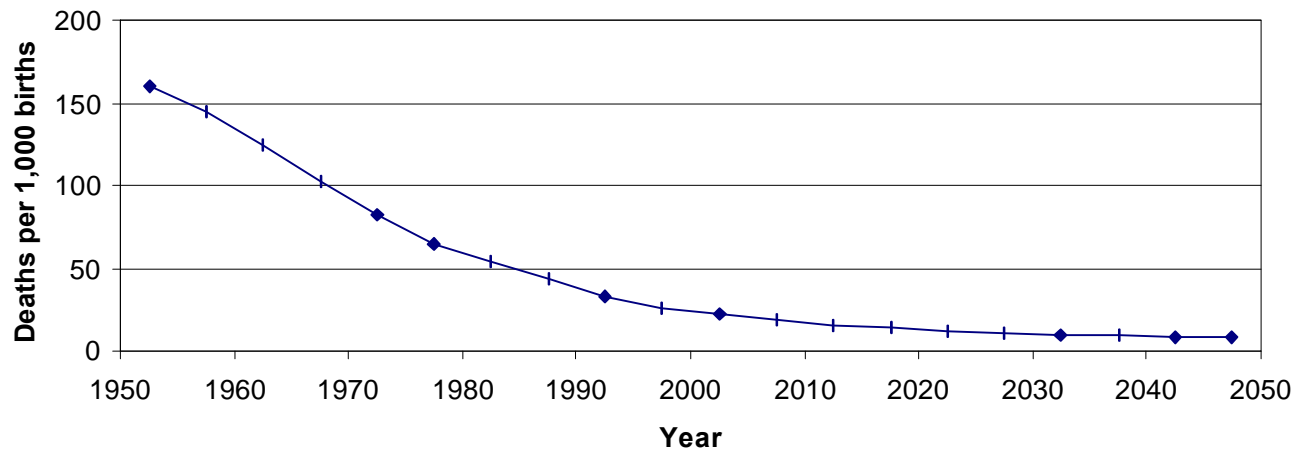
The challenges of demography will have an impact on the whole of society. Changes to family structure, the status of women and children, and the way people work will all have a very immediate impact on everyone's lives. Much-needed reforms will certainly be controversial, and a good policy environment will not be developed without a political struggle. Meanwhile regional peace, or otherwise, and access to scarce resources, especially water (USAID – whose program in Jordan is one of its biggest in the world - has described Jordan as “the most water-poor country in a region already characterized by extreme water scarcity”<sup>60</sup>), will influence the potential for economic development.

Jordan's leaders, therefore, must use their understanding of demographic change to build a shared purpose within their countries and to explain why reforms are necessary for future prosperity. Demography provides a powerful narrative in which many policies can coherently be framed. A new priority for education, promoting healthy living and an increased focus on meeting the health needs of the poor, better planning for old age and, above all, a labor market where rights and responsibilities are shared equally between employee and employer - all these can contribute to a renewed social contract. It is with this clear sense of direction that Jordan is most likely to thrive.

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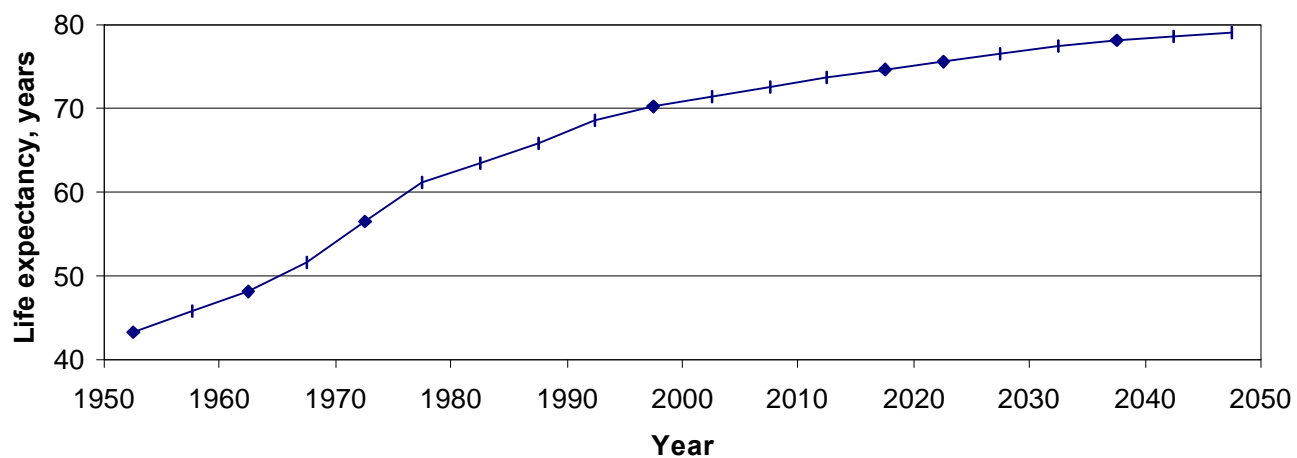
<sup>60</sup> <http://www.usembassy-amman.org.jo/USAID/Extamm.htm>

**Figure 1**  
**Infant Mortality Rate, Jordan**



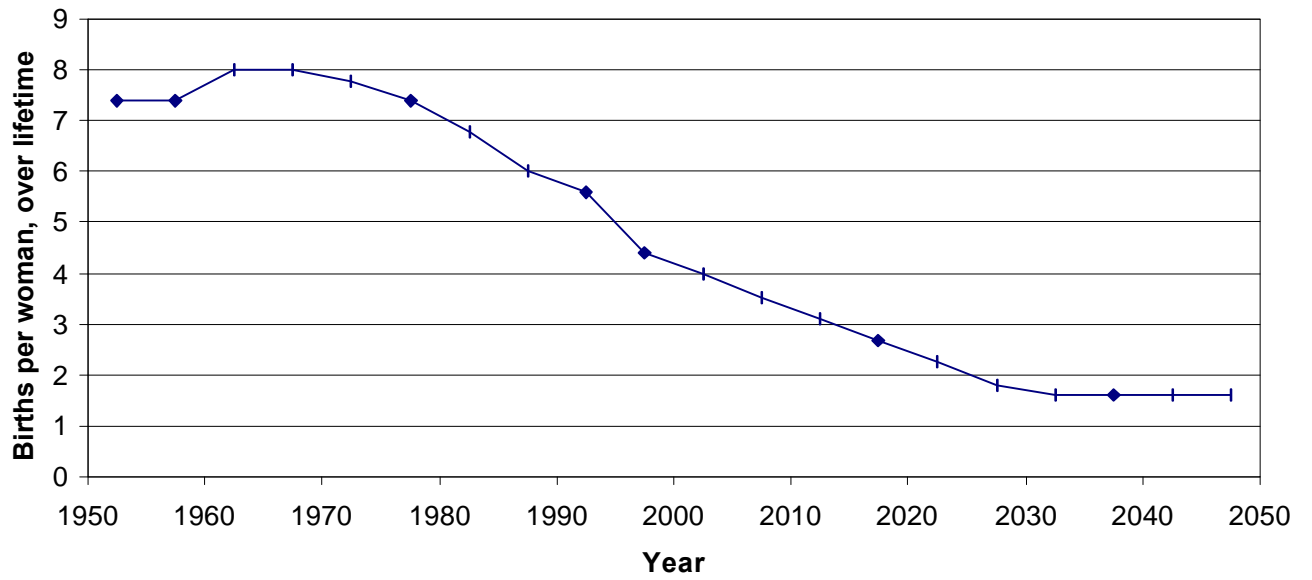
Source: United Nations Population Division, 1998 World Population Prospects

**Figure 2**  
**Life Expectancy at Birth, Jordan**



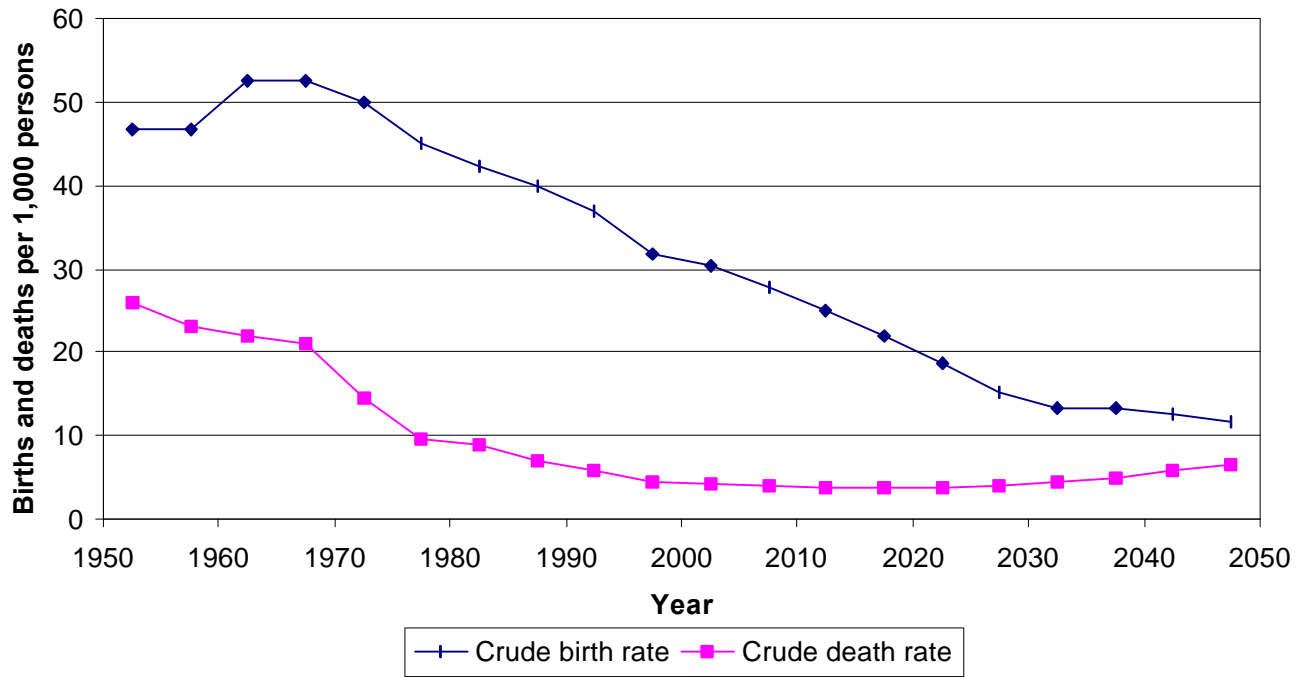
Source: United Nations Population Division, 1998 World Population Prospects

**Figure 3**  
**Total Fertility Rate, Jordan**



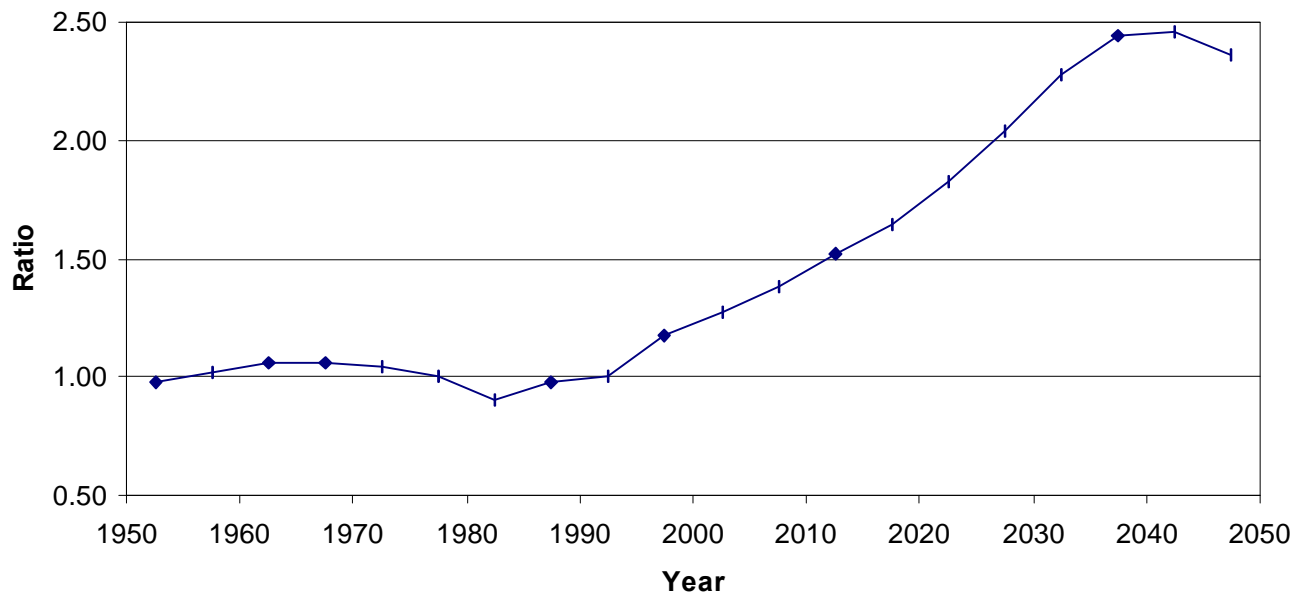
Source: United Nations Population Division, 1998 World Population Prospects

**Figure 4**  
**Crude Birth and Death Rates, Jordan**



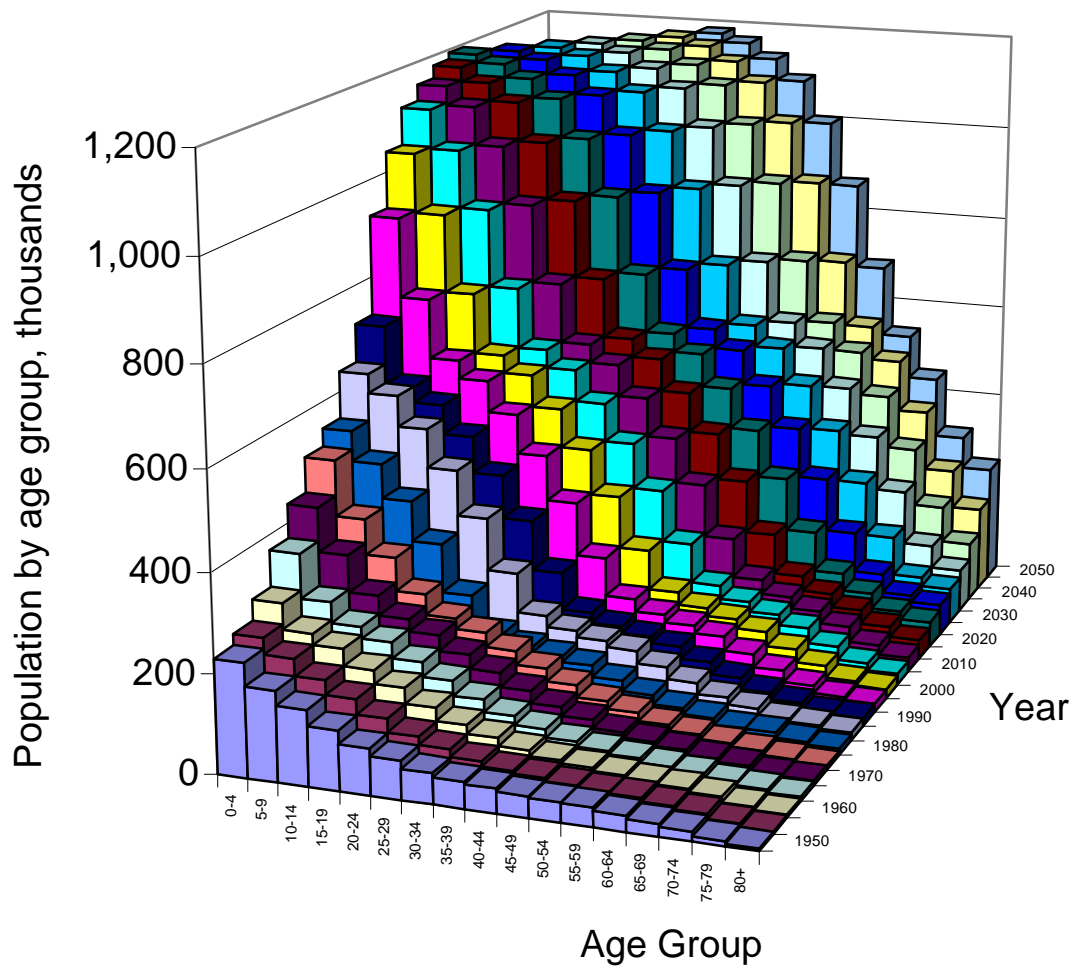
Source: United Nations Population Division, 1998 World Population Prospects

**Figure 5**  
**Ratio of Working-Age Population to Dependent Population, Jordan**



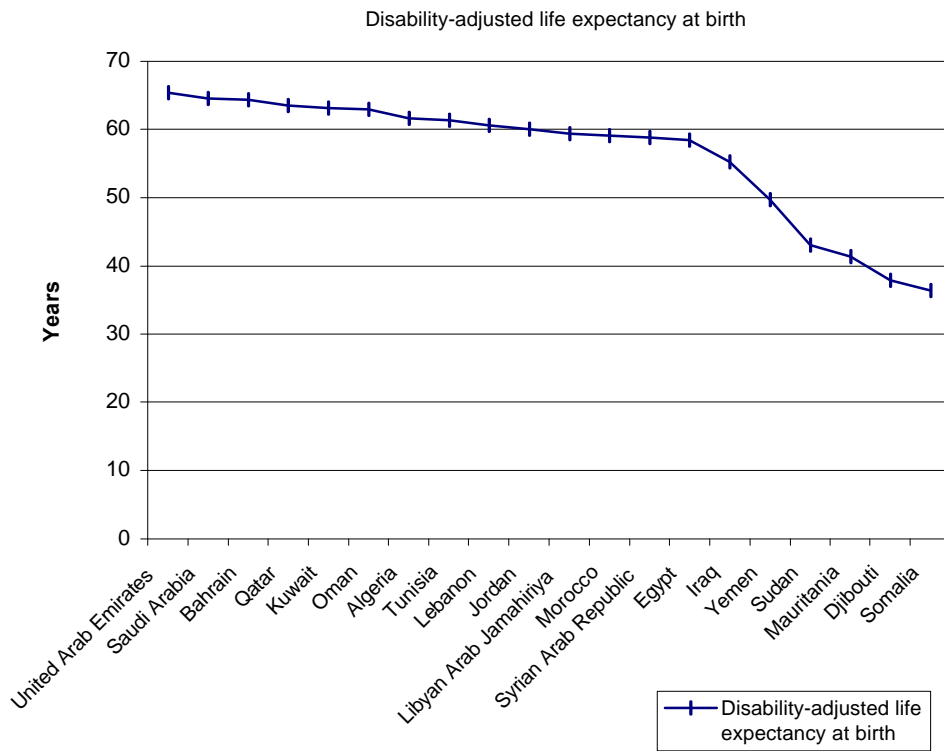
Source: United Nations Population Division, 1998 World Population Prospects

Figure 6  
Jordan's Changing Age Distribution



Source: United Nations Population Division, 1998 World Population Prospects

Figure 7. Disability-adjusted life expectancy at birth in Arab countries



Source: The World Health Report 2000

Table 1. Countries Included in Regression.

Algeria	Honduras	Philippines
Argentina	Hong Kong, China	Portugal
Australia	India	Senegal
Austria	Indonesia	Sierra Leone
Bangladesh	Ireland	Singapore
Belgium	Israel	South Africa
Bolivia	Italy	Spain
Brazil	Jamaica	Sri Lanka
Cameroon	Japan	Sweden
Canada	Jordan	Switzerland
Chile	Kenya	Syrian Arab Republic
Colombia	Korea, Rep.	Thailand
Costa Rica	Malawi	Togo
Denmark	Malaysia	Trinidad and Tobago
Dominican Republic	Mali	Tunisia
Ecuador	Mexico	Turkey
El Salvador	Mozambique	Uganda
Finland	Netherlands	United Kingdom
France	New Zealand	United States
Gambia	Nicaragua	Uruguay
Germany	Norway	Venezuela
Ghana	Pakistan	Zambia
Greece	Papua New Guinea	Zimbabwe
Guatemala	Paraguay	
Guinea-Bissau	Peru	

Table 2. Summary of Country Characteristics

Variable	Mean	St. Dev.	Min	Max
Per capita GDP, 1965 (1985 US\$)	\$3,338	\$2,965	\$412	\$11,649
Per capita GDP growth, 1965-1990	1.9%	1.8%	-2.2%	7.4%
% of country area in tropics	53%	48%	0%	100%
Average years of secondary school among adults, 1965	0.78	0.76	0.01	3.51
Life expectancy, 1965	58.2	11.7	33.5	74.1
% Years of open economy, 1965-1990	44%	45%	0%	100%
Quality of institutions, 1980	6.0	2.4	2.3	10.0
Difference between growth rates of working-age and total population, 1965-1990	0.25%	0.33%	-0.38%	1.23%

Table 3. Cross-Country Growth Regressions

Variable <sup>†</sup>	Coefficient (Std. Err.)	
	(1)	(2)
Log per capita GDP (in 1985 US\$), 1965	-2.368 (0.308)**	-2.231 (0.313)**
Area in tropics <sup>‡</sup> (%)	-1.13 (0.32)**	-1.28 (0.327)**
Log average years of secondary schooling among adults, 1965	0.461 (0.151)**	0.435 (0.15)**
Log life expectancy, 1965	3.81 (1.286)**	4.24 (1.294)**
% Years of open economy, 1965-1990	1.577 (0.374)**	0.919 (0.503)
Quality of institutions, 1980	0.235 (0.084)**	0.187 (0.087)*
Difference between growth rates of working-age population and total population (gpopdif), 1965-1990	1.627 (0.559)**	0.668 (0.743)
Interaction term: gpopdif * openness		2.082 (1.073)
Constant	3.312 (4.104)	1.082 (4.229)
Number of observations	73	73
R-squared	0.788	0.795

\*significant at 5% level; \*\*significant at 1% level.

<sup>†</sup>All independent variables are used as instrumental variables, as well as the following:

Log of infant mortality in 1965, log of the fertility rate in 1965, youth share of the population in 1965, growth rate of the total population from 1960 to 1965, growth rate of the working age population from 60 to 65.

<sup>‡</sup>Area between the Tropic of Cancer and the Tropic of Capricorn

Table 4. Comparisons of Predicted and Actual Economic Growth for Jordan

Variable	1965-1990		1990-2015
	predicted	actual	predicted
Growth in per capita GDP	2.3%	2.4%	5.6%
Per capita GDP at end of period (1985 US\$)	\$2,861	\$2,919	\$11,731

Table 5. Contributions to Predicted Economic Growth for Jordan

Variable	1965	1990	Variable's contribution to increased growth rate in 1990-2015
Difference between growth rates of working-age and total population	-0.12% (1965-1990)	0.87% (1990-2015)	<b>2.7%</b>
Life expectancy, years	51.7	68.6	<b>1.2%</b>
Average years of secondary school among adults	0.4	1.9	<b>0.7%</b>
Per capita GDP (1985 US\$)	\$1,604	\$2,919	<b>-1.3%</b>
% Years of open economy, 1965-1990		100%	-
Quality of institutions, 1980		4.1	-
Growth in per capita GDP, predicted	<b>2.3%</b> (1965-1990)	<b>5.6%</b> (1990-2015)	

Table 6. Comparative Economic Growth Scenarios for Jordan, 1990-2015

Variable	Baseline Prediction for Jordan	Substituting Life Expectancy of Chile	Substituting Institutional Quality of Chile	Substituting Educational Level of US	Substituting Institutional Quality of US	Substituting Demographic Transition of US
Life expectancy, 1990	68.6	<b>74.2</b>				
Quality of institutions	4.1		<b>6.3</b>		<b>9.8</b>	
Average years of secondary school among adults, 1990	1.9			<b>4.8</b>		
Difference between growth rates of working-age population and total population, 1990-2015	0.87%					<b>0.14%</b>
Predicted per capita GDP growth rate, 1990-2015	5.6%	5.9%	6.0%	6.0%	6.6%	3.5%
Change in per capita GDP growth rate		0.3%	0.4%	0.4%	1.1%	-2.0%
Predicted per capita GDP, 2015 (1985 US\$)	\$11,731	\$12,746	\$13,025	\$12,989	\$15,322	\$7,082

Table 7. Comparison of Openness to Trade, 1990

	Jordan	Egypt	Lebanon	Israel	South Korea	United States
% years open by Sachs-Warner index, 1965-1990	100%	0%	.	23%	88%	100%
Ratio of exports to GDP	<b>26%</b>	11%	4%	28%	23%	12%
Non-tariff barrier coverage ratio	<b>10.9%</b>	24.7%	.	.	10.0%	12.3%
Import share weighted average tariff rate	<b>18.7%</b>	10.4%	.	.	13.7%	2.0%

Source: Barro R. and J. Lee, "International Comparisons of Educational Attainment," NBER Working Paper, 1993.