



# Economic Policy and Economic Growth

*A critical examination of the relative roles of culture, technological advances, and economic policies*

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Does economic policy affect the long-run growth rate of nations, and if so, then how? This sweeping question has fascinated economists at least since Adam Smith published "The Wealth of Nations" in 1776. The existence of a large number of poor non-industrial nations—which contain most of the world's population—confirms the question's obvious importance today. If economic policy strongly affects the long-run rate of growth, then the cumulative implications of such policy for human welfare are such as to dwarf most other economic issues. This article argues that per capita growth will take place only if the after-tax productivity of capital and the rate of saving are high enough to keep up with population growth. Since capital productivity is affected by economic policy, policy determines not only the level of growth, but whether growth takes place at all.

Although it is conventional to speak of all non-industrial countries as "developing," less than half of these countries show clear evidence of consistent per capita GDP growth over the past three or four decades. The table classifies countries according to whether they have positive or negative per capita growth rates, and also whether their growth rates are "significant" in the statistical sense. "Significant" growth means that the underlying trend is sufficiently stronger than the year-to-year variation to allow one to confidently identify an upward trend. We find that only 41 out of 87 developing countries had significant positive per capita growth in the post-war period (by contrast, all Organization for Economic Co-operation and Development countries were found to have significant positive per capita growth over this period).

The implications of zero or negative per capita growth are ominous. Some African

countries have per capita incomes below those that existed at independence nearly three decades ago. The daily calorie supply per capita declined over 1965–87 in 16 of the 37 low-income countries. Ten countries—all in Sub-Saharan Africa—have average levels of consumption below the poverty line suggested by the *World Development Report 1990*. Many Latin American countries are in the grip of the decade-long debt crisis, during which per capita growth has been negative. The average per capita growth rate of all developing countries in the 1980s was 0.1 percent. Comparing the performance of these countries to the booming economies of East Asia, one wonders whether economic policy could have made a difference to these sad outcomes.

An influential recent trend in the economics literature—the so-called "new growth literature"—has been to argue that indeed policy does have an important impact on growth. This strikes some as obvious. Yet, the claim is more profound than it may appear, because there are at least two good reasons—closely interrelated—why it may not be true. First, growth may be determined mainly by factors that do not respond to economic policies, such as culture. Second, the nature of economic production may be such that sustained growth is not possible without such non-economic factors as technological advances.

## The role of culture

The idea that growth (and relative income levels) depends mainly on culture has a strong hold on popular conceptions. Certainly many have noticed the strong correlation between growth performance or income level and non-economic characteristics of nations, such as a temperate climate, European ethnic

origin, or a Protestant religious establishment. With the recent success of East Asian nations, the list of cultural characteristics supposedly favorable to growth has been broadened to include a Confucian ethical system. A more elaborate version of the cultural hypothesis is put forward by Michael Porter of the Harvard Business School, who argues that an array of business practices, corporate attitudes, geographic accidents, societal and institutional characteristics, and government behavior all determine the "competitive advantage of nations."

Facile generalizations about culture and growth are suspect on several grounds. First, the correlation between cultural characteristics and income levels implies little more than the obvious fact that industrialization has been geographically concentrated. Naturally, geographic neighbors share many cultural characteristics. There are good economic reasons why industrialization has been an uneven phenomenon. Industrial production will tend to congregate in certain zones if there are benefits to industrial producers of locating where other producers already exist. Differences in economic policy may determine where these clusters form. After the fact, an observer would notice the cultural characteristics of the industrialized zones and erroneously conclude that culture determined growth.

Culture is also suspect as the driving force behind growth because we observe great differences over time in a given country's growth. The Republic of Korea hardly grew in per capita terms over 1913-50, but grew over 4 percent per capita over 1950-89. Culture is very slow to change but growth performance is not—the correlation coefficient of growth rates across subsequent five-year periods is very low in the postwar period. In addition, culturally similar countries with distinct policies show very different growth rates, such as the two Koreas. Policies themselves could also be determined by culture. But the same problem remains—there is far more variability over time in policy than there could plausibly be in culture.

### Technology and economic growth

The best-known traditional growth model—that of Nobel laureate Robert Solow—argues that economic growth is determined by technological change, which depends on non-economic factors such as scientific discovery rather than economic policy. The logic is compelling. In Solow's approach, total production depends on labor and capital. Labor supply is determined by the rate of population growth, which is assumed not to respond to economic factors. Output can also be increased by in-

vesting in capital. However, faster capital accumulation cannot be a permanent source of growth, because as the ratio of capital to labor rises, less and less output is yielded by each additional unit of capital. Most economists find this plausible—if an office worker's productivity is raised by one computer, and a little more by a second computer, it is unlikely to be raised still further when the tenth computer arrives. Eventually, the additional production yielded by additional investment will be so low that per capita growth will approach zero.

Since healthy per capita growth is in fact observed in many countries over long periods, Solow proposed that technological change is

the source of the continual increase in per capita incomes. Higher or more efficient investment would cause a one-time increase in output (and thus a temporary growth acceleration), but it could not raise permanently the rate of growth. Since the level and efficiency of investment is the only factor that responds to economic policy, this implies that policies have only a one-time effect on output, and not on the rate of growth.

Why should technological change not be responsive to policy? Again, the logic of Solow's approach is unavoidable. If technological change were responsive to policy, this would imply that it could be increased by greater economic inputs. But as these inputs increase relative to labor, the additional output they yield also falls to zero, so accumulation of these inputs could not be a source of per capita growth. Economic policy thus cannot affect technological change and overall growth.

The constraint posed by the limited supply of labor on economic growth is similar to that posed by another input that has long preoccupied economists: natural resources. Since the days of Thomas Malthus, doubts have been expressed about the long-run feasibility of continuous growth in view of the limited supply of resources such as agricultural land and hydrocarbon fuels. Analysis in the tradition of Solow has suggested that this constraint has been avoided through technological change (still unrelated to economic policy) that increases the productivity of land and other natural resources.

The "new growth literature" has reinstated an important role for policy by challenging the view that investment cannot be a source of growth. According to this view, external benefits and spillovers are associated with investment, which offsets the natural tendency of the productivity of capital to fall as the ratio of capital to labor rises. Paul Romer of the University of California at Berkeley points out the importance of goods such as technological blueprints that can be used an unlimited number of times once the initial investment is made. Romer has also suggested that the technological knowledge gained in the course of making an investment raises the productivity of capital. This argument was originally suggested by Nobel Laureate Kenneth Arrow, who called it "learning-by-doing." Robert Lucas of the University of Chicago has proposed that the benefit to the general level of knowledge from individual expenditures on education and training more than makes up for the diminishing productivity of capital as more and more is invested.

A more general view is that the accumulation of all of the inputs to production can be

### Per capita growth performance of developing economies and territories, 1950-85

Negative growth	Positive but insignificant growth	Positive and significant growth
Afghanistan	Argentina	Algeria
Angola	Bangladesh	Barbados
Benin	Chile	Botswana
Bolivia	Congo	Brazil
Burundi	Côte d'Ivoire	Burkina Faso
Central African Republic	El Salvador	Cameroon
Chad	Ethiopia	China
Ghana	Fiji	Colombia
Guinea	Guatemala	Costa Rica
Guyana	Haiti	Cyprus
Madagascar	Honduras	Dominican Republic
Mali	Jamaica	Ecuador
Mozambique	Kenya	Egypt
Senegal	Liberia	Gabon
Somalia	Mauritania	Hong Kong
Sudan	Mauritius	India
Zaire	Nepal	Indonesia
Zambia	Nicaragua	Jordan
	Nigeria	Korea
	Papua New Guinea	Lesotho
	Peru	Malawi
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		Singapore
		South Africa
		Sri Lanka
		Suriname
		Swaziland
		Syria
		Taiwan Prov. of China
		Tanzania
		Thailand
		Tunisia
		Turkey
		Zimbabwe
18	28	41

Source: Summers and Heston data set, *Review of Income and Wealth*, March 1988.

influenced by policy. Although the rate of population growth typically varies only within a narrow range, the productive contribution of labor can be raised virtually without limit through investment in education, training, and health. Investment in this kind of "human capital" is conceptually no different from investment in "physical capital," such as plant and machinery. Moreover, the kind of technological knowledge that is treated as impervious to economic incentives in traditional growth analysis can also be thought of as "capital" that can be accumulated through investment in research and development. Although developing countries may use mainly technologies from industrialized countries, they must still invest in adaptation of foreign technology to local conditions, a process whose costs are often underestimated. Finally, the effective contribution of natural resources can be increased through investments in improving their productivity (such as land improvement), or manufactured products can be substituted for them. This view of growth implies that, far from being limited by "non-economic" factors such as population growth, natural resource availability, or technological progress, growth responds permanently to the quantity and quality of investments made in each country.

### How policy influences growth

Given the focus on technology and human capital in the new views of growth, governments may be tempted to identify and subsidize the right kinds of investment—those they think have extra "learning-by-doing" payoffs for technological progress or labor productivity. Unfortunately, there is usually little prior information about what kinds of investments will produce large technological or productivity benefits. Technological advances and the adaptation of foreign technology are notoriously characterized by surprises—advances are made where they are least expected, while highly touted technologies too often prove disappointing. Governments often make things worse by spending resources—resources that must be raised from taxes on private initiative—on artificially favoring "high technology."

Governments can play a more positive role by creating an atmosphere where private investors, both domestic and foreign, have the incentive to invest in increasing productive capacity. Such an atmosphere is one where individuals can keep most of the rewards from their investment in new productive capacity, whether it be their own education, the adaptation of a new technology, the improvement of their land, or traditional investment in plant and equipment. This requires clearly defined

property rights, low marginal tax rates on income, market-determined prices, and a stable macroeconomic environment.

In such an environment, the private sector will be able to respond to rapidly changing productive opportunities. A healthy level of investment will itself generate new investment opportunities, as investors learn about new technologies during the process of investment. The technological advances that are so spawned will tend to relax the constraints imposed by labor and land, as technological advances economize on the use of such fixed inputs. For example, the Green Revolution in the developing countries occurred as farmers responded to incentives to adopt new and highly productive technologies that economized on the use of land.

Conversely, high implicit or explicit taxes on the rewards from making new investment can severely depress the amount of investment that takes place. With low investment, there is little opportunity for learning about or adapting advanced technologies. Low investment can also worsen the problem of environmental degradation. If there is not sufficient incentive for investing in advanced land-saving technologies, primitive technologies will lead to deforestation and soil erosion. Those developing countries where per capita growth is absent—mostly in Sub-Saharan Africa—are generally those where political instability and traditional ownership systems imply high uncertainty about property rights, and marginal tax rates (sometimes implicit rather than explicit) in the modern sector are high. Many of these same countries are also experiencing severe deforestation.

However, the new growth theory also raises the interesting possibility that a country's development depends in part on where it starts. There may be large "start-up costs" to building a market infrastructure and forming an educated entrepreneurial elite or educated labor force. Poor countries—such as those in Sub-Saharan Africa—may stay poor because they are unable to bear these start-up costs.



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To get out of such a trap may require foreign assistance, but even this assistance is unlikely to be effective unless policies are favorable to growth, as described earlier. Even then, initial progress may be slow because of the initial low level of education and infrastructure, and the low propensity to save at low incomes. Over 1960–89, there were 25 decade-long episodes of national per capita growth over 5 percent, but none of them began at per capita incomes below \$500 (in 1985 prices).

Governments can also play a positive role by themselves investing in capital that is unlikely to be provided by the private sector in a market economy, such as legal systems, basic health and education, roads, water supply, and electrical distribution systems. Such investments raise the productivity of private capital and thus increase the incentive for private investors. Public investment in railways and highways was instrumental in the development of many countries, from the United States in the 19th century to Mexico and Colombia in the 20th. The lack of such transportation investments is said to have severely hampered development in countries like Myanmar (formerly known as Burma). Similarly, the lack of sufficient public infrastructure in Nigeria has lowered private capital productivity, because firms are forced to invest in their own inefficient electrical generators and water treatment plants.

### Efficiency and growth

As mentioned earlier, policies that cause inefficiency—less output for a given amount of inputs—have been traditionally thought to lead to a one-time loss of output, but not to a permanently lower rate of growth. Calculations of this one-time loss seldom exceed 2 percent of GDP. On these grounds, many have argued that inefficient policies—such as controls on prices and interest rates, high import tariffs or restrictive import quotas, and differential tax rates for different activities—are not particularly critical to a country's long-run prospects. However, this view is incorrect, according to some of the new perspectives on growth. Less output for a given amount of inputs implies that there is less left over to reinvest in further accumulation of inputs, if all inputs can indeed be increased by investment. The drop in the amount available for investment permanently lowers the growth rate. The losses due to inefficient policies are compounded over time until the sacrifice of a country's long-run welfare becomes very serious indeed.

Inefficient policies such as subsidies, price controls, and trade intervention imply that some investment will be directed into activities that have a low economic return, lowering

the average productivity of investment. With a rapidly growing labor force, as in many developing countries, low productivity of investment may imply an increase in income just sufficient to keep up with the increase of the population. Insufficient income is left over for increased capital accumulation, so the economy would remain stuck at a low income level. Conversely, efficient policies foster investments in activities with the highest returns. With high productivity of investment, income growth can exceed that of population sufficiently to allow part of the additional income to be reinvested, establishing a virtuous circle of growth.

A particular type of inefficiency common in developing countries reflects policies that add to the diversion of resources to a parallel or underground economy. These include high taxes in the formal sector that tend to drive production underground where it can escape taxes. Quantitative allocation of inputs at subsidized prices causes resources to be invested in lobbying for these inputs. Controls on the financial system combined with macroeco-

nom ic instability tends to attract resources into unproductive financial engineering and speculation. The only good news about the response of the informal or traditional economy is that it can limit the damage resulting from misdirected government policies by evading them, even if the damage still will be great. For example, the interventionist government of Idi Amin caused formal sector output in Uganda to fall at 2 percent per year over 1970–78, but the traditional sector continued to muddle along with 3.4 percent growth per year. A similar example is Peru in the last two decades, where Hernando de Soto in *The Other Path* has documented a thriving underground economy in the face of complex controls over the modern economic sector.

The evidence that inefficient policies have permanent effects on growth is substantial. Numerous studies have found that trade intervention tends to lower growth. For example, Argentina grew rapidly in its neutral, outward-oriented phase prior to 1930; it has stagnated as it turned inward. Outward-oriented Thailand and Malaysia have outperformed in-

ward-looking India and Myanmar in Asia. Growth in Brazil and Colombia accelerated with opening in the 1960s. Many studies have found that higher government consumption—implying higher taxes, spent for unproductive purposes—is associated with lower growth. Other studies have found that measures of macro instability, such as high and variable inflation, are associated with lower growth. Finally, there have also been findings that political repression or instability tends to lead to lower growth, perhaps because of the implied uncertainty about keeping the rewards to one's investment.

The responsiveness of growth to economic policies suggests there is hope for reversing the poor growth performance experienced by most developing countries in the 1980s. Multilateral institutions such as the World Bank and IMF can contribute to the revival of growth by providing capital to help cover "start-up costs" and by providing support for reform of inefficient government policies, the achievement of macroeconomic stability, and the creation of essential public infrastructure. ■

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