CHAPTER 2

Reinvigorating Universities in an Entrepreneurial Age

Carl Schramm

INTRODUCTION

The global economy stands at a moment of extraordinary potential. The last three decades have produced steep gains in worldwide economic growth, led by a surge of innovative, entrepreneurial activity rooted in advanced science and technology. Nations around the world have an opportunity to capitalize on efficiencies and optimize economic potential on a global scale, thereby building wealth and spreading its benefits as never before.

Recent history has proven the far-reaching benefits of economic growth. The creation of wealth has improved global living standards, alleviated poverty and contributed to the eradication of disease. The market forces that accompany growth have reinforced the essential role of free individuals in directing resources to their best uses.

Though the precise formula for economic growth differs from nation to nation, the most successful economies have shown that innovation and entrepreneurship are essential to expanding the potential for economic output — allowing people to extract greater output from any given level of input. But how can nations accelerate the pace of innovation and entrepreneurial activity in their economies? While there are a variety of methods, we know that higher education plays an integral role. As centres of innovation and research, and producers of human and intellectual capital, institutions of higher education have helped to build the foundation on which worldwide economic growth rests. And universities have generally been eager to support economic growth, seeing it as complementary to their philosophical mission of improving the overall welfare of mankind.

There is troubling evidence, however, that universities in the developed world are failing to adapt to the needs of the modern global economy. As the pace of economic change accelerates, and the need for graduates who are skilled in wealth creation and technological innovation grows, universities are erecting roadblocks to innovation and producing graduates who are better prepared for careers in wealth administration than in wealth creation. Furthermore, far from being centres of pro-growth theory, many top universities have developed into centres of anti-growth ideology, perpetuating a belief that economic growth is somehow inimical to human welfare. The unfortunate result is that other actors in the economy are beginning to distance themselves from universities, locating research and searching for talent elsewhere. If universities remain estranged from the broader economy, nations will not be able to maximize their potential for economic growth.

Interestingly, this trend appears not to have infected universities in the developing world — those nations which stand to benefit the most from increased global economic growth — where higher education institutions are fast becoming international centres of research, innovation and scientific advance. Yet the responsibility for worldwide economic growth does not rest exclusively (or even primarily) with the developing world. Given the importance of economic growth to global living standards, the need for universities in first-tier economies to contribute to the acceleration of growth has never been more urgent. Universities must respond to this challenge by shedding relatively recent habits and practices that prevent them from contributing to economic growth and renewing their traditional mission of producing the human capital, research and innovation, and philosophical leadership that make growth possible.

In short, universities need to adopt many of the entrepreneurial, innovative practices that have transformed economies — particularly the economy of the United States — into engines of growth over the last 25 years. Only when universities fully participate in the effort to generate economic growth will the global economy achieve its potential to improve livelihoods around the world.

THE DYNAMIC NATURE OF CAPITALISM

The importance of globalization and worldwide economic growth today is rooted in the end of the Cold War, which saw capitalism emerge as the prevalent system of economic organization throughout most of the world. Rather than settling the question of how economies should be organized to maximize growth, the end of the Cold War shifted the question. Instead of asking whether capitalism was best, nations asked how to make capitalism function best in their own societies, with their own political systems. The result has been a patchwork of capitalist models at work in countries around the world.

In our recent book, *Good Capitalism, Bad Capitalism*, William Baumol, Robert Litan and I describe four main models of capitalism — oligarchic capitalism, state-directed capitalism, big-firm capitalism, and entrepreneurial capitalism — and determine that some forms of capitalism are better than others at generating economic growth, promoting freedom and individual rights, maintaining predictability and contributing to world stability.

Oligarchic capitalism is the system that reigns in Russia and many third-world economies today. This is the most negative form of capitalism in the sense that it depresses the probability of individual risk-taking. A system that channels wealth into the hands of a few disincentivizes the individual, stunting further growth.

State-directed capitalism is the system in which we place modern China. One of the things that China teaches is how liberalization and freer markets can help achieve what has been a long-time worldwide goal: the alleviation of poverty. In the last 25 years, figures indicate that global poverty has been reduced by at least 20%, and most of that reduction has been in China. Unfortunately, few economists cite China's achievement as laudable. Instead, in foreign policy and academic circles the achievement is given polite nods with the presumption that economic growth and the reduction of poverty cannot happen.

Big-firm capitalism characterizes almost all of western Europe and also characterized the United States throughout much of the 20th century. Three major players emerge in a big-firm capitalist system: large companies, which are responsible for most of the economic activity and job creation in the economy; government, which provides certain guarantees and protections that insulate the big firms from competition; and unions, which collaborate with the other two players to produce maximum job stability. The key flaw in this system is that by focusing on stability — the stability of the major companies on which the nation depends for jobs and income, the stability of the labour market — the system becomes bureaucratic and resistant to change, sacrificing growth in the process.

Entrepreneurial capitalism characterizes the US economy since roughly the mid-1980s and with its focus on risk-taking, lightly regulated markets (including the labour market), and encouragement of business formation and wealth creation, it seems best-suited to driving innovation, efficiency and productivity. These qualities have become increasingly important given the nature of global competition today.

The choice we made to look at capitalism was not a political choice, and it brought to light two overarching perspectives that help us consider the university's role in the new global market ecosystem. The first is that wealth is achievable around the world. Today that sounds like a pedestrian observation. But 25 years ago, the presumption was that growth was the province of the

west. In fact, it may have been a particularly western myopia, but it was presumed that several countries that have since taught the rest of the world about growth could not in fact produce growth.

For example, the presumption in the early 1980s was that India's contest over population was such that growth would never take central position. It was inconceivable to imagine India as a net food exporter, as it has been for a decade. Today, India continues to impress the world with its economic growth and its development as a global high-tech centre.

China also was considered a country with limited growth potential. The presumption in the west was that the existence of a Confucian culture that was antithetical to individual enterprise would prevent growth in China apart from the socialist system that prevailed. Today, rapid growth in China has lifted hundreds of millions in that country out of poverty.

The second overarching observation in *Good Capitalism, Bad Capitalism* is that the variants of capitalism we have identified do not represent the end of the story. Ours is not a taxonomy that is necessarily stable. In fact, we argue that it will be dynamic and it is likely to be dynamic at an increasing rate. Nor do we presume that the American system — even with its substantial benefits in an innovation-driven global economy — will somehow be triumphant. Indeed, many of the lessons of this taxonomy suggest the fragility of the relationship between US-style liberal democracy and capitalism.

But it is important to note that the US entrepreneurial system boasts the best record of producing wealth at a pace that yields tangible benefits on a global scale. The contributions the US economy has made to global growth and poverty-reduction are something of a surprise in the sense that the evolution of America's entrepreneurial economy was quite accidental. Over 70 years ago, the US economy organized itself around Keynesian principles (associated with the big-firm capitalist model). Big government, big unions and big business co-managed an economy where interests were balanced and regulated in pursuit of equilibrium (avoidance of recession) and predictable growth. This system, described by economist Joseph Schumpeter and others as bureaucratic capitalism and celebrated by Harvard economist John Kenneth Galbraith in *The New Industrial State*, failed in the late 1970s and early 1980s. At that time, two phenomena emerged that had been thought to be antithetical — high unemployment and high inflation.

Several actions by the US Congress (including pension reform, deregulation of several industries as well as capital markets, and the privatization of ownership of government-sponsored research), unexpectedly set in place an economic revolution. In the 1980s the flow of venture capital increased, labour mobility expanded rapidly, the cost of business risk assumed by individuals was attenuated, and the expense of converting technological innovation into commercial applications fell significantly.

The resulting explosion of entrepreneurial activity has transformed the US economy, and the fruits of this transformation extend beyond America's borders. The United States has set the pace for economic growth and productivity increases. It is persuasively argued that China grows at 9% per year because the United States grows at 3%. Even areas that have experienced less growth than hoped for – Africa, for example – have begun to be transformed by technology and stand poised, given the right conditions, to access the wealth of global markets. At the same time, the tremendous wealth produced by private-sector enterprises has made possible unprecedented commitments of aid to underdeveloped regions of the world.

Having witnessed the example of US economic growth, other nations — notably Ireland and Israel — have reshaped their economies to focus on entrepreneurial activity and have realized strong growth. Ireland has become Europe's economic pacesetter; Israel has more companies listed on the NASDAQ than any country except the United States. And Nicolas Sarkozy was elected President of France in 2007 on a platform of introducing more flexibility and even unpredictability (key markers of entrepreneurial economies) into France's static economy.

UNIVERSITIES' CHANGING RELATIONSHIP TO ECONOMIC GROWTH

The US transformation toward an entrepreneurial economy would not have happened without the modern university playing a central role. While the challenge of supporting growth from a university perspective affects nations around the world, the US experience offers a helpful overview of how universities can contribute to growth and how they have been falling short of the mark.

For much of the nation's history, American universities recognized that their existence and success were intertwined with the economic fortunes of the nation. Scholarly study and discovery can only occur systematically in an expanding economic environment. Economic growth, in turn, has been inexorably tied to the increase of new knowledge and an educated population. To that end, American universities have historically framed their role as a pragmatic one, helping to facilitate wealth creation in the interest of knowledge and discovery, and adapting to the changing economic and social conditions of the country.

In 1824 Steven Van Rensselaer developed a new template for the creation of an institution: personal endowment. The polytechnic school that bears his name became the US's first university focused on engineering and science. And in forming the university that bears his son's name, Leland Stanford attempted to imbue a liberal arts education with explicit commercial and

engineering purposes. "I attach great importance to general literature for the enlargement of the mind and for growing business capacity," he said. "A man will never construct anything he cannot conceive."

Celebrated entrepreneurs (e.g., Hopkins, Rockefeller, Eastman, Cornell, Carnegie, Mellon, Duke) who saw the practical importance of education created many of America's private research universities. Public land-grant universities also had as their vision both practical and scholarly contributions to the nation. And whether the institutions were public or private, one founding intent was everywhere: universities were expected to be *useful*, to provide the necessary human capital and essential research support for the country, including the expansion of the American economy.

Closely related to their efforts to promote economic growth, US universities traditionally advanced liberal democratic ideals — free thought, free speech, individual rights — as the foundation for market-oriented growth and thus a main contributor to US economic success. This was especially so when the nation was locked in ideological struggle with communism in the post-World War II era.

In the decades prior to the 1980s American universities collaborated with US government scientists and corporate researchers in the quest for technological breakthroughs, while also educating workers who possessed strong critical thinking skills and were well-versed in the important connection between innovation and economic growth. Thus, when the US economy shifted in a more market-oriented, competition-driven direction in the 1980s, the human and intellectual resources were in place to launch an entrepreneurial revolution.

Today, however, American universities are underperforming the central role they must play: 1. providing flexible, inventive talent trained and skilled at innovation; 2. conducting advanced research vital to the expansion and enrichment of life and civilization; and 3. promoting the liberal democratic values that direct capitalism to its best ends and produce its best results, namely raising standards of living through growth and productivity.

NEGLECTING HUMAN CAPITAL

The question of what college students should study will likely always be with us. Nonetheless, today this issue takes on a different cast because of the astoundingly wide chasm between what growth-oriented economies need students to learn and the new alternatives universities provide. In this way, today's educational shortcomings differ from those in the past. When William Whyte wrote in 1956 of a "generation of bureaucrats", he fretted that business degrees were crowding out the liberal arts. Those students who studied business, however, were precisely what the American economy (and thus American society) needed at the time — this was the era of large firms that required managers

skilled in financial administration and analysis. As before in an industrial age, universities established specialized graduate schools in a wide variety of sciences and engineering, readying generations of graduates for innovative roles where they could expand the nation's technological capacity and economy.

Such adaptation in response to the social and economic needs of the country appears to be the exception today. America's future standard of living depends on not only professions such as computer science and geophysics, but also the generalists who, economist Edward Lazear has argued, are crucial for entrepreneurial expansion. Unfortunately, the nation's universities now offer an astounding array of vocational fields of study that meet neither of these needs. Examples include parks and leisure studies, talent management, sports medicine and entire disciplines focused on schooling students in the finer points of government regulation (e.g., forensic accounting, a post-Sarbanes-Oxley development).

At the same time, the productivity of the US education establishment is in decline: as American schools produce less, they cost more. In the period 1993 to 2004, 30 of the United States' leading research universities experienced budget growth of over 70%. In the same institutions, the number of students during the period was only 8% greater, with five of the schools experiencing a decline in their student populations.

In an analysis of the composition of rising costs in universities, data for the period 1976 to 2003 show that the growth in non-instructional employees in universities far outpaced either the growth of students or faculty. Non-faculty professional staff alone (lawyers, compliance officers, budget personnel, development staff) grew nearly 250%.

This bureaucratic growth stands in sharp contrast to other sectors of the economy. In the US private sector we find that while the top 25 corporations account for a larger percentage of GDP than they did 30 years ago, they do it with 40% fewer workers. These firms have realized tremendous productivity gains and demonstrated a very highly conscious attempt to expel bureaucratic culture.

DECLINE OF RESEARCH PRODUCTIVITY

Research productivity presents a yet more troubling problem. Despite an enormous expansion in research support, mostly from the US federal government, the generation of breakthrough ideas likely to produce practical applications leading to faster economic growth, longer life, safer products, cheaper energy or healthier foods appears to be slowing.

Over the past 25 years the United States has seen a dispersion of academic research and development funding, away from the concentration in a handful of elite institutions, as in the two decades following World War II. Yet, at the

same time, output of patents and licences in many fields has remained concentrated in a handful of schools. Moreover, despite the increase in academic R&D, the growth of patents has recently slowed. Similarly, the National Science Board has noted a "flattening in the output of US S&E [science and engineering] publications" (academic institutions account for three-quarters of American S&E article output). And over the past two decades America's share of the top 1% of highly cited S&E articles has dropped.

One reason may be classified as a failure of good intentions. The newly developing interest among universities in formally transferring discoveries into commercial applications has, in many instances, dampened innovation. During the last decade, more than 200 universities have established offices to manage "technology transfer", a process by which the university seeks to enrich itself by controlling intellectual property developed by faculty. These bureaucracies too often slow the commercialization process, setting unrealistic values on their intellectual property that result in long and frequently fruitless negotiations. Consequences have included several titanic struggles between universities and industry arising in cases where a company has supported specific research over which the university later asserted ownership. The problem lies not in attempts to commercialize academic discoveries (these often enhance human welfare), but the bureaucracy universities have built around the process.

The uncertainty and cost accompanying this bureaucratic build-up have helped encourage the migration of research to commercial laboratories. Over the last 50 years, industry-funded basic research in universities generally kept pace with all categories of research and development, even outpacing industry's own performance of basic research. In the mid-1990s, with the explosion of trans-disciplinary fields such as biotechnology, corporations began funding university-performed basic research at a blistering pace: such investment grew 45% from 1995 to 2000, much faster than the growth of total R&D funding. In 2000, however, industry abruptly reversed course, funding more basic research in its own laboratories than in universities. Commercially-funded research in universities, a vital piece of American economic success, has steadily declined since the beginning of the century.

ERODING SUPPORT FOR LIBERAL DEMOCRATIC VALUES

Finally, quite in opposition to their traditional role as advocates of liberal democracy, American universities today seem to be the epicentre for anti-growth theory for the rest of the world. Many academics speak about growth, capitalism and liberal values almost as if they are unconscious of what the words mean to the rest of the world. Listening to conversations about hyper-protection of the environment, anti-globalism and anti-growth, it is as if

American and many European academics believe that, in the name of preserving the environment, it would be best if developed nations didn't grow anymore at all and others didn't grow much either. Growth is rarely associated with its potential to reduce poverty. The United States has a bipolar debate about growth versus redistribution, and in the academic community the redistributionists far outnumber the proponents of growth.

*
* *

Taken together, these three factors — the decline in output of human capital prepared for the modern global economy; the fall-off in university-sponsored research leading to market innovations; and academia's increasing hostility toward economic growth — have diminished the ability of universities to contribute to global growth. In fact, it may be said that today's American universities offer a model of how *not* to behave in an increasingly competitive, entrepreneurial economy. As a result, the US government and private industry have begun isolating universities, attempting to work around their defects rather than draw on their strengths.

RESTORING THE LINK BETWEEN UNIVERSITIES AND ECONOMIC GROWTH

Given the importance of the US economy to growth throughout the world, it is imperative that the United States re-establish the link the between universities and the wider economy that contributed to economic growth through much of the 20th century. In the 1950s, for example, a number of universities, such as the Massachusetts Institute of Technology (MIT), pursued pioneering research and development that planted the seeds for later economic growth. If the United States can establish an effective model for creating more entrepreneurial, market-connected universities, this model will not only stimulate growth, but also serve as a template for universities in other nations.

Reform will be a complex process, and several areas of action should receive high priority. Above all, universities should impose on themselves the discipline American corporations did in response to increasing global competition in the 1980s. Companies underwent a painful process of restructuring, which involved reshaping their products, processes and labour forces. In many ways they reinvented themselves from the inside out. Among other transformations, they became singularly focused on improving quality and reducing costs.

Better educational quality at the university level will require in many, perhaps most, institutions a fundamental refocusing of the curriculum. At exactly the moment when we should see growth in the number of students ready to

engage in wealth creation, we are watching the proliferation of courses aimed at wealth consumption. In place of such narrow programmes, universities should encourage students to undertake courses that prepare them for highly mobile careers, giving them the capacity to respond to shifts in the dynamic world economy. Critical thinking skills (which emerge from courses such as history and literature) coupled with empirical knowledge that form such fields as mathematics, the physical sciences, economics and business, which result in broadly trained generalists, should be required everywhere.

To provide better educational value for students (in the United States) and taxpayers (primarily in Europe), ancillary services and activities should be eliminated, excessive overhead reduced, and management empowered to develop new models of delivering instruction and research. Because universities operate insulated from market forces, pressure for reform must be instigated externally as well as created internally through the efforts of trustees, presidents and students.

Competition, the prime motivator of most of the world's successful enterprises, is a word unfamiliar to most universities, except as it relates to capturing students through admissions. Greater competition among universities on the basis of their outputs — including the strength of graduate performance and the significance of research contributions — would help differentiate schools on the basis of measures central to economic growth, thereby providing an incentive for universities to engage in education and research activities that demonstrate clear utility to the larger economy.

WHO'S GETTING IT RIGHT?

Some nations are already taking action that the US and Europe would do well to emulate. Universities in the Asian Rim, among other places, have no confusion about their mission. They see themselves providing highly qualified graduates to take up the task of innovation and discovery within an explicit context of making valuable new commercial advances. In the space of a generation, Chinese universities established since the Cultural Revolution have produced much larger numbers of science and technology graduates than the United States. Moreover, these schools also seek to build strong liberal arts curricula to complement their science programmes to produce the generalists needed for an entrepreneurial economy. This remarkable expansion of university graduates reflects official policy based on the premise that the emergence of successful modern, market-based economies relies on the productivity of each country's higher education establishment.

Institutions that emphasize innovation-centred economic growth are reaping dividends. American and foreign companies that once supported advanced research in US universities have created robust partnerships with universities

in England, India, Russia, and China. Many of these offer not only lower costs but also fewer bureaucratic disputes over intellectual property. As a result, a survey last year found that most global firms anticipate their expansion of R&D to take place in China and India: by the end of this year, 31% of R&D employees worldwide will work in one of these two countries. In 2004, the percentage was 19%.

This is notable not because of any perceived competition between the United States and emerging Asia, though surely that exists, but rather because it illustrates how nations can be effective in achieving a closer union between universities and economic growth. As the United States has watched its universities slip further from economic relevance, other countries have been more ambitious about establishing the vital link between university research, student education, and economic growth.

CONCLUSION

Historically, universities have been critically important to the growth of entrepreneurial capitalism in the United States, and developing countries properly place enormous hope on the contribution that their universities will make to the growth rates of their economies — particularly in the development of human capital and discovery. Whereas economists once sought neatness in the US economic system, the reality today is that the US has a profoundly messy economy, but one that has produced record-setting rates of annualized growth and productivity, and propagated waves of economic growth that have raised living standards around the world. There is no better recommendation for entrepreneurial, innovative capitalism than the visible results it has produced.

In the effort to continue the extraordinary progress made in reducing global poverty over the last two decades, the United States and Europe must make economic growth a centrepiece of their national and international agendas. In a global economy, the actions of every nation and every institution are crucial to achieving widespread growth. The role of educated people who see clearly how economies and values operate together, and how they are accelerated by discovery and critical thinking, is central to the achievements that await us in the development of humankind. We need all available resources, including universities, to work collaboratively to achieve what is at once a very simple and profound goal: to increase the rate at which the world's economy grows, so that all people benefit.