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SECTION 2. Management in firms and organizations

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Job creation in the post-modern economy

Abstract

The conventional prescription for job creation ascribes pivotal importance to developing manufacturing and exports of manufactures. This paper discusses neoclassical reasons for this prescription and then argues that greater potential exists in the services sectors of many countries, and that the role of the services sector in creating jobs needs to be included more prominently in the conventional prescription. The argument then focuses on the institutional framework of countries wishing to create new jobs and new businesses. Reforms to the national financial system, and their possible beneficial effects, are discussed. Then four broad categories of promising activities are listed, along with the possible synergies among those activities. Finally, the paper presents a numerical scenario calculating how much investment would be required to create enough new jobs so that the entire world can reach full employment. This macro scenario illustrates that the world's annual savings, if applied to create jobs, could create enough jobs, not only to bridge the existing employment gap, but also to reach a steady state in which new entrants to the world's labor force would fill jobs being vacated by workers reaching retirement age. The scenario computes two extreme time horizons for reaching full employment. The optimistic time frame, assuming that the new jobs are in labor-intensive services, is 1.9 years. The pessimistic scenario is 30.4 years.

Keywords: job creation, venture capital, financial reform, initial public offerings, industrialization, full employment.

JEL Classification: J21, O14, O23, M13.

Introduction

The burning question. The questions are always about how to create jobs. The questions are remarkably similar whether the country is rich or middle income. Local experts ask the visiting foreign professor for ideas about how to jump-start their sluggish local job markets. The discussion quickly moves beyond the conventional steps the local experts have already taken. Then the questions become probing, to elicit the visitor's suggestions and to glean every grain of insight the visitor brings.

The questions are so pointed and urgent because recent upheavals have triggered alarming job losses across a broad swath of countries and industry sectors. Jobs that used to be safe are being lost in large numbers, even in countries that previously had been able to assure job security for large parts of their workforce. Before the world financial crisis of 2008-2010 jobs were already a sensitive issue, and then the crisis hit and made the need more acute.

We present here the broad outlines of a solution to the job creation problem, an assessment of what the solution would cost, a scenario in which the world reaches full employment, and a brief discussion of the impediments to that happy outcome.

National financial systems and national growth strategy. Prior to the world financial crisis, local experts in many countries considered the local financial system a side issue. The consensus view of economic development did not attach primary causative impetus to the services sector, and also understated the dynamic potential of financial services. Production of goods, as measured by productivity at

the level of factories, mattered much more than the financial system. The services sector, including the finance sector, would grow or decline in parallel with production of goods. That view held sway because production of goods had been the mainspring of economic growth for centuries. The services sector prospered only as a passenger on the locomotive force of the core activities.

As the financial crisis engulfed so many businesses and spread to sectors that had no obvious links to the finance sector, local experts expressed dismay and self-doubt. There had been external shocks before and local experts had learned to stay focused on the long-term objective of raising productivity in the goods sector.

Previous recessions and crises had shaken the convictions of local experts, but they had always regained their faith in the consensus view that their pre-industrial economies were going to grow the way the industrial countries had grown in the past. Specifically, their countries were going to develop the way the Asian Tigers grew from 1960 until the Asian Crisis of 1997. The strategy was to export, and to export an increasingly sophisticated mix of goods. Before the financial crisis of 2008-2010, local experts sought advice from the visiting foreign professor about detailed ways of implementing the Asian Tiger strategy in their own countries. They did not ask the foreign professor about job creation in specific. They had faith that if they could replicate the success of the Asian Tigers, jobs would be created.

The trauma of the financial crisis was so severe that local experts lost their faith in several of their most fundamental beliefs. They suffered bouts of self-doubt and had to contend with harsh criticism. They

searched for palliative remedies but at the same time struggled to regain their mental equilibrium. They continued to believe in free enterprise but were no longer sure that the world economy would be stable enough for their long-term strategies to work.

As job losses mounted, local experts questioned the axiomatic tenets of the consensus view. They considered abandoning the tried-and-true policies they had been applying. They continued to believe that economic growth creates jobs but they doubted that the jobs would be the right sort. They also doubted that their countries would spontaneously create new industries of the right sort.

Their doubts are well founded. Economic growth creates jobs but not many of the kind that are wanted. And new industries of the right sort do not arise spontaneously in all parts of the world. There are deeply unsettling trends in job creation and new business creation. These trends do not point toward a full recovery that will satisfy the hopes and needs of the world's workforce. These trends, and what can be done to ramp them up, deserve a careful and thoughtful debate.

The outlook for jobs and economic growth is both brighter and scarier than recent assessments indicate¹. There will be millions of new jobs and tens of thousands of new businesses. What is disturbing is that many, if not most, of the new jobs will be in activities that are outside the core sectors of the economy. The new jobs will be in activities that do not seem to generate the linkages that economists wish for. To experts who embrace the neoclassical view, job creation that bypasses the core activities of the growing economy does not energize the self-reinforcing dynamic that gave us the Industrial Revolution. There is, for that reason, a question mark over the postmodern growth process. Economic growth built on ancillary activities seems an unsound vision. Nevertheless, many of the new jobs will be in types of activity that earlier generations of economists would have considered marginal or inessential. These activities are remunerative but insubstantial. Many of them depend on the preferences of wealthy, capricious consumers; or they involve producing services that people do not really need. Economic growth based on activities like that seems unsatisfying, a flimsy structure dependent on unstable demand, or yet another bubble. But that is the kind of economic growth the postmodern economy delivers.

Two other disturbing trends are worth noting. One is that most of the new businesses will be created in a small number of countries. Competition among countries has broadened and countries now seek to

¹ Two influential recent assessments appeared in *Foreign Affairs* July-August 2009. These are "Globalization in Retreat" by Roger C. Altman and "Tamed Tigers, Distressed Dragon" by Brian P. Klein and Kenneth Neil Cukier.

create favorable conditions for entrepreneurial startups. They encourage native-born entrepreneurs and they also seek to attract entrepreneurs from other countries, who start businesses after arriving in their adopted countries. And a final disturbing point is that most of the new jobs will lack permanence, security, and benefits.

Jobs and good jobs. The best jobs pay well, use one's skills, provide economic security, and are psychologically fulfilling. The worst jobs are dangerous, degrading, mind-numbing, temporary, and poorly paid. No country creates enough of the first type. Ideally each country would find its distinctive niche and develop its endowments so that its workforce would fit snugly and harmoniously into the world economy. This is the Holy Grail of economic policy and has always been difficult to achieve. In the postmodern economic environment it is harder than ever. The world financial crisis revealed the magnitude of the challenge. In the U.S., total job losses in 2008-2010 were more than 8.5 million². For the entire world, including jobs in the informal economy, job losses must have been ten to twenty times that number³. People lost jobs that were hardly good enough to have been called jobs, and higher-status people lost jobs that paid good salaries and had been considered secure.

The policy response to the job losses is occurring in stages. The first priority has been to stem the financial crisis. Now that the financial system is recovering, policymakers are rolling out programs directed to creating jobs. These programs are still in their early stages. When the implementation stage begins in earnest, it will become obvious that stable, high-paying jobs are difficult to create. Meanwhile, lower-quality jobs appear spontaneously, as people who used to have better jobs find ways of earning a living. People with better qualifications displace less qualified people, competing for and taking jobs that normally they would not have sought. As the economic malaise continues, university graduates take a series of temporary contract jobs, hoping that one of the contracts will turn into a more permanent position.

The long-run policy response will need to acknowledge that the composition of final consumer demand has changed, and so has the composition of spending power. These changes have implications for the kinds of production that will be profitable in the future.

² Total Civilian Employment monthly data series published by the Federal Reserve Bank of St. Louis Data Base. <http://research.stlouisfed.org/fred2/series/CE16OV/downloaddata?cid=12>.

³ Job loss data from the International Labor Office of the United Nations indicate a number in that range, but methods of reporting and comparing employment data vary across countries, so it is difficult to arrive at a more precise figure for total jobs lost.

Creating new businesses. Every policymaker knows that national economies need to create new businesses to replace the ones that fail, and to accelerate the renewal of their economies. They all assert that they are working to foster creativity, innovation, and risk-taking. They understand the need for venture capital financing and describe what their countries are doing to increase that type of financing. They criticize their national education systems harshly for stifling creativity, for inadequate training in science and for heavy reliance on memorization.

Regrettably policymakers in many countries focus excessively on creating new businesses in the goods-producing sector¹. The ideal new businesses, in their view, produce high technology goods – for example, semiconductors or pharmaceuticals. New businesses in those sectors, according to the dominant view, would create high paying jobs and linkages that would create jobs in other less sophisticated sectors, and also jobs in support services for less qualified workers. Until recently local experts often stated that if their countries could create enough new businesses that produce and export high technology goods, their economies would generate enough jobs so that everyone would have one. The new jobs would employ graduates of local universities and secondary schools and validate the investment made in educating the workforce.

The cloud over this scenario is that the world market is adequately supplied with goods – not only goods like umbrellas and blue jeans, but also goods like flat-screen televisions and semiconductor chips. The production of goods has increased so much that the relative price of manufactures has declined. The decline was sharp and was also not the first decline that has ever happened. According to metrics developed by ECLA, the United Nations entity where Raul Prebisch spent most of his career, the terms of trade of commodity exports strengthened between 25% and 78% from 2002 to 2008². For earlier time frames, Kravis and Lipsey found no consistent pattern of price rises in favor of

manufactured goods³. These carefully conducted studies cast doubt on one of the major premises of the strategy of industrialization. Nevertheless, in many middle-income countries the dream of becoming the next Singapore or the next Taiwan still has a grip on the thinking of local experts. In private conversations they acknowledge that their countries will need to adopt new variations of the Asian Tiger strategy, but they also acknowledge that they have not yet devised those new variations. Meanwhile in their public pronouncements they continue to espouse the Asian Tiger strategy as the most reliable way to create jobs and reach full employment⁴.

The neoclassical paradigm meets the postmodern economy. Why is full employment so difficult to attain? Full employment has been an elusive goal since mankind progressed beyond bare subsistence. As soon as societies were advanced enough to produce surpluses, there were idle people. Some of the idle people had roles that legitimized their idleness. The others were unemployed.

In the era of flexible prices and wages, classical theory argued that full employment would occur automatically. If there was a surplus of labor in the market, wages would fall and the unemployed would find jobs.

That theory had its heyday when the alternative to working was penury. It was scuttled when the Great Depression lingered too long. Two or three decades later, work was expected to be fulfilling or at least interesting. The aspirational view of work, jobs, and full employment is now making people more demanding. And today's young, highly trained workers are willing to consider emigrating if another country can offer better job prospects.

Emigration and immigration have always had a place in economic models. In classical economic theory, labor would move to countries where land was more abundant⁵. In the postmodern economy it is necessary to distinguish between unskilled economic migrants, who emigrate on their own initiative, and highly qualified workers, who emigrate after being recruited to fill specific job vacancies in richer countries. The motivations of both these types of workers are similar but the effect

¹ In 2009, a committee in Chile tasked with allocating capital to new businesses was composed entirely of scientists. That is surprising and discouraging because that well-managed economy has been devoting effort and resources to creating new businesses and has made new business creation one of its top four priorities. The committee dismissed a proposal for a business that would have provided a sophisticated non-scientific service. This information comes from an anonymous source and must be weighed against other efforts the Chilean government is making. Nevertheless, it is worth noting that foreign visitors are often taken to the Fundacion Chile, a think tank and research center that has enjoyed government support, and that advocates new initiatives to produce high tech goods.

² Computed from data prepared by ECLA, the Economic Commission for Latin America (Spanish acronym CEPAL) and published in its on-line data bank. That entity is affiliated with the United Nations.

³ Kravis, Irving B. and Lipsey, Robert E. "Prices and Terms of Trade for Developed-Country Exports of Manufactured Goods" (January 1, 1985). NBER Working Paper No. W0774.

⁴ Coloma, Fernando and Rojas, Patricio. "Evolucion del Mercado Laboral en Chile" Chapter 12, p. 19.

⁵ Samuelson described how the prices of factors of production would equalize, or fail to equalize, in two famous articles published in the Economic Journal 1948 and 1949. The articles are Samuelson, Paul A. 1948. "International Trade and the Equalization of Factor Prices", *Economic Journal* 58, (June), pp. 163-184. and Samuelson, Paul A. 1949. "International Factor-Price Equalisation Once Again", *Economic Journal* 59, (June), pp. 181-197.

on the countries that lose these workers is not. A country with a surplus of unskilled workers can lose a small percentage of its labor force, and the macroeconomic effect may be beneficial or at least not very harmful. But if a country loses a large portion of its highly trained workers, for example, medical doctors or nurses, the health of its population will suffer.

Another difference in the postmodern economy is that jobs have come into existence in sectors that previously were much smaller parts of total economic activity. Environmental conservation and historical preservation, for example, were not large categories in the minds of economic planners during the heyday of the industrialization strategy. But recently those sectors have been growing rapidly. Environmental conservation has given rise to many jobs, and has combined synergistically with historical preservation to attract international tourism. That non-core activity has been growing rapidly, at an average annual compound rate of 4.18% from 1989-2008. Revenue from tourism has validated strategies to preserve historical sites and to make local environmental conditions less destructive to historical monuments. Tourism might seem an unsound basis for a national economy but it is rapidly becoming a mainstay in many countries. Countries in Sub-Saharan Africa were able to increase tourism arrivals by 9.4% in 2006¹. Peru has been exceptionally successful in attracting international tourists: arrivals were 937,010 in 2005 and rose to 1,463,358 in 2008². As of 2006, tourism accounted for 5.9% of Peru's GDP³. Commenting on the dynamic economic effects of tourism, an industry source wrote, "Tourism has a decisive function, among the instruments of combating poverty, and becomes a primary lever for sustainable development⁴.

In the neoclassical model of economic growth, service activities were not thought to generate such strong linkages or synergistic benefits to other parts of the economy⁵. In the postmodern economy, these activities generate synergies, foster sustainable development, and are remunerative in their own right. Jobs in tourism are not highly paid on average, but are resistant to foreign competition,

because they are located near the natural or cultural wonders that the tourists want to see.

Hints pointing toward a solution. The bits comprising a solution are emerging piecemeal. Countries are stumbling onto some of the correct strategies. Meanwhile a few countries are persisting with their unsuccessful strategies. The successful strategies range from minor pragmatic changes in laws and practices to major departures from what countries have done before. Many of the strategies, before being adopted, need to be thrashed out in public debate, because fully implementing them will require political will and collective initiative. The strategies might seem a departure from orthodoxy but at this time the public debate is receptive to a full range of suggestions.

The solution proposed here consists of recommendations that can be grouped under four headings. Countries are not adopting all four sets of recommendations at once and many are still debating the recommendations as they gain local adherents. The pattern has been that a country chooses an activity of the sort recommended here, and that choice gives rise to a strong upwelling of economic activity. The local economic upwelling quickly attracts local support. In that fashion the kinds of activities recommended here are gaining ground. Over time they have tilted the thinking in some countries but there has been no official acknowledgement of the change in strategy.

Several of the recommendations presented here are that countries should make technical revisions to a few laws and practices. Those revisions would not seem to make much difference and would not face much local opposition. Those are the easiest to implement and have had surprisingly beneficial effects in the countries that have implemented them.

Before stating the recommendations it is useful to review relevant economic relationships and dominant paradigms. The following section does that.

1. Preconditions for the solution

1.1. Productivity. Every discussion of job creation must start by acknowledging the importance of productivity. Krugman states the point categorically⁶. One reason for the ingrained preference for manufacturing has been that productivity increases have been easier to achieve in manufacturing. For the discussion to give full and equal consideration to all types of economic activity, it is important to recognize that productivity can increase

¹ Data from BADATUR – Banco de Datos Turísticos del Perú (Databank for Peruvian Tourism statistics).

² Data from BADATUR – Banco de Datos Turísticos del Perú (Databank for Peruvian Tourism statistics).

³ Data from presentation given by Katherine Foster.

⁴ Quote from news article in Guiarte.com, data collected by World Tourism Organization. Article originally in Spanish. Translation by the authors.

⁵ See, for example, Steenblik et al., "Synergies between trade in environmental services and trade in environmental goods", OECD Trade and Environment Working Paper No. 2005-01. The authors feel the need to assert that environmental services generate synergies through linkages to other economic activities.

⁶ Krugman is quoted as saying Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker. http://findarticles.com/p/articles/mi_qn5305/is_20060904/ai_n24915085/.

in sectors other than manufacturing, mining, and agriculture¹. Productivity in services is harder to measure and is also considered harder to improve². Nevertheless, services are the predominant economic activity in the world. The OECD found that in 2005 services accounted for over 70% of employment and value added in its member countries, and almost all employment growth in those countries³. Those findings require that full consideration be given to policies aimed at developing service businesses.

Jobs in services businesses can pay high salaries and can have other favorable attributes. Services businesses can achieve improvements in productivity and can innovate⁴. Services businesses can develop competitive advantages that give varying amounts of protection from international competition.

Services jobs can create competitive advantage. Government services, often dismissed as unproductive, can create the institutional bulwarks that private actors need in order to operate. A good example of government services that protect and enable private initiative is securities regulation. Securities regulators perform a role and if they do it well they can help their countries attract capital. They apply their knowledge in ways that benefit the collective welfare. Securities regulators have to be paid well so that they will choose to work in that activity and will perform their duties diligently. To be a securities regulator it is necessary to have academic training, practical experience, and local knowledge. A person who was successful as a securities regulator in France, for example, would not be able to protect investors or detect market manipulation as successfully in Turkey, Bulgaria, or Peru. The principles are the same, but the local rules are not, and knowing local elites and power relationships is essential.

So productivity must include productivity in services, and must include productivity in maintaining the proper institutional framework for a

modern economy. And productivity must also impute value to the contributions made by people who are proficient in maintaining and monitoring local institutions, conventions and protocols that underpin good business practices.

1.2. The appeal of manufacturing. Generations of experts have embraced the idea that a country needs to develop its manufacturing sector as it climbs step by step up the ladder of economic success. Six decades ago this view became a doctrine⁵. Developing the manufacturing sector was viewed as prerequisite for a country to become economically developed.

Over time the need to develop manufacturing morphed into the need to develop manufactured exports. Manufacturing for domestic markets did not achieve all that was hoped. In some countries it drove a wedge into the traditional economic patterns and broke the entrenched cycle of poverty but in others it did not. Exporting manufactured goods then became the way forward. Exporting broke the constraints imposed by small domestic markets, and allowed manufacturing ventures to take full advantage of economies of scale. Exporting also validated the exporting country as a full-fledged competitor on the world stage. The arguments fit together neatly to create a powerful case for industrialization⁶.

The emphasis on exporting manufactured goods dates from the early 1970s. By that time the policy of manufacturing for small, protected domestic markets had reached an impasse. Manufacturing would be more beneficial, in the words of the president of the World Bank, if it would be able to compete in world markets⁷. The new successful countries were the ones that became exporters of manufactures. Many of those were in Asia and they became known as Tigers. That view dominated the thinking of local experts until the Asian crisis of 1997. Then the unmatched track records of the Asian Tigers fell apart. Their stellar economic performance became harder to maintain.

1.3. The reappraisal of manufacturing. In recent decades, the case for manufacturing has become somewhat muddled. Many of the arguments still have force, but there are now some nagging doubts about the ways for a country to achieve economic development.

The first scintilla of doubt arose because evidence of overproduction appeared – at first sporadically, then almost continuously. World markets became

¹ In the parlance used in the Spanish and French speaking countries, the manufacturing, mining and agricultural sectors are collectively called the “productive sector”. The implication is that the other sectors of the economy, including the services sector, are not “productive”. That unfortunate convention of terminology exacerbates the bias in favor of manufacturing, because agriculture and mining are classified as “primary”. Of course “primary” products are what underdeveloped countries produce and export, or used to export. One of the aims of economic development is to reduce the dependence on “primary” product exports, so there is a stigma associated with producing “primary” products. If the “productive” sector includes only manufacturing and mining and agriculture, and if mining and agriculture are in disfavor, then productivity gains should be sought in manufacturing. The terminology implies that the manufacturing sector is the most promising domain for achieving productivity gains.

² Anita Woefl, <http://ideas.repec.org/a/sls/ipmsls/v8y20047.html>

³ <http://www.oecd.org/dataoecd/58/52/34749412.pdf>

⁴ Ivor Morgan and Jay Rao. “Making Routine Customer Experiences Fun”, Sloan Management Review, October 2003. http://harvardbusinessonline.hbsp.harvard.edu/b02/en/common/item_detail.jhtml?id=SMR123&_request_id=105052

⁵ Hans Singer, Raul Prebisch and W.W. Rostow are the authors most involved in establishing this doctrine.

⁶ W.W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960).

⁷ Robert McNamara, Address to the Board of Governors of the World Bank, September 1, 1975.

saturated with manufactured goods, at least during periods of recession. A primary strength of manufacturing is that output can be increased rapidly. As long as the market will absorb more output, additional factories can be built and output can increase geometrically. That generates employment and wage income quickly. The dilemma is that rapid increases in output need to be accompanied by rapid increases in consumer purchasing power and demand. Price data from the U.S., a primary target for manufactured exports, indicate that oversupply depressed prices there during the years from 1997 to 2008. Data for producer prices (wholesale prices) in the U.S. reveal that prices of finished consumer goods excluding fuel and food rose 57% during that time frame. During the same time interval, producer prices of all commodities rose 62%. That is a relative decline of over 3% to the detriment of manufactured consumer goods. At the level of consumer prices, apparel registered a 9% decline during that time interval, while consumer prices of medical services rose 55%. That is a relative decline of 41% in the price of apparel during the twelve years following the Asian Crisis¹.

Another mark against manufacturing is that as people become richer they consume more services and relatively fewer goods. Kravis, Heston, and Summers found that, as early as 1975, the share of services in consumers' expenditure rises with income. What is worse, they found that the share of services rises even in poor countries. "The upshot is that, in real terms, the low-income countries tend to consume services in at least the same proportions as the high-income countries – indeed, in the case of the lowest-income countries, in a higher proportion"². That finding was discouraging, because the hope had been that lower income countries would demand manufactured goods in greater proportion.

The result has been a loss of faith in the strategy of manufacturing-led economic development. China's success was so great that it pre-empted the niches that other countries might have filled. Now local experts have no completely satisfactory reformulation of the role of manufacturing in economic development. A few countries, such as Brazil, had large domestic markets and were able to create viable manufacturing sectors via import substitution and export promotion. Many other countries continue trying to replicate the success of the Asian Tigers, though they have not had

much success so far, and keep trying because they have not found a convincing alternative.

A convincing alternative is to foster development of four types of activity. These are described next.

2. Four types of activity that foster job growth

2.1. Reform and reactivate national financial systems. The 2008-2010 financial crisis created an opening for a thorough examination of national financial systems. The first part of that examination is to identify the weak points in the existing institutional design. That part is underway. What is also needed is a reappraisal of what national financial systems should do, compared to what they have been doing. That reappraisal has begun, but should not be conflated with the ideological debate pitting free markets against state intervention.

National financial systems are supposed to gather local savings and allocate those savings to the most productive and promising uses. That task is hard to do well. The few countries that do it well often become complacent or careless and go through periods when they do it poorly. Most countries, including some that are able to do other complicated tasks adeptly, do it poorly.

A big reason why so many countries allocate capital poorly is that financial institutions are designed incorrectly. The centerpiece of many national financial systems is an organization that has existed in Europe since 1100 or earlier. This is the commercial bank. It was designed to finance commerce, not innovation. It could adapt to financing manufacturing but has struggled to finance companies that produce sophisticated services like software. Countries have sought ways of financing the businesses that are not "bankable" but few have succeeded.

The task of providing financing for promising ventures has become a crucial requirement for competitiveness. Young, highly educated people are increasingly willing and able to emigrate to another country to obtain financing for their new enterprises if they cannot get financing at home. For that reason it is important for countries to scrutinize the workings of their national financial systems, and to be willing to implement major changes to those systems.

A stringent but revealing test of a country's financial system is to ask whether young entrepreneurs were able to obtain venture capital financing for their ventures. That, in turn, depends on a further stringent test, which is whether their growing companies were able to launch an initial offering of common stock on the local stock exchange. That two-stage test is stringent because it requires a sophisticated set of institutions. Many countries have fostered the creation of venture

¹ Data computed from time series prepared by the Bureau of Labor Statistics and published by the Federal Reserve Bank of St. Louis Economic Data Bank (FRED).

² Kravis, Heston and Summers, "The Share of Services in Economic Growth". Chapter 10, Global Econometrics Essays in Honor of Lawrence R. Klein Edited by F. Gerard Adams and Bert G. Hickman.

capital funds. Several countries have been able to activate the local markets for initial public offerings of common stocks. But only a very few countries have been able to complete the whole sequence. If they can do it, they would then be able to finance local entrepreneurs to the full reach of their potential.

For a country to develop that thoroughly modern and catalyzing set of financial institutions, there are at least four prerequisites. Each one is a departure from traditional practice and some of the departures are disturbing. These four are as follows.

The first reform that is needed is to modernize the bankruptcy laws. A concomitant reform is to create a mechanism for forgiving debt, especially debt incurred in an entrepreneurial venture. Entrepreneurs are risk takers but they can be deterred from taking risk. If the consequences of failure are too severe, they will set their dreams aside. If they do not see enough potential in their home countries they will emigrate to countries where the penalty for failure is less daunting.

The second reform that is needed is to strengthen the rights of minority shareholders. In many countries the law gives too much clout to the majority shareholders. That sounds innocuous but has the effect of making investors reluctant to buy shares. For stock markets to work properly, investors need to be willing to buy small amounts of shares. They will do that only if they have enough power vis-à-vis the majority shareholders.

One reform that strengthens the rights of minority shareholders and has been widely implemented is “tag-along” rights. Under the old rules, to buy control of a company it was customary to bid for 51% of the shares and never buy the other 49%. That practice perpetuated the dispossession of minority shareholders. It is now required in many countries that the buyer who seeks to acquire control has to buy all 100% of the shares and pay the same price for all the shares. That way the minority shareholders participate fully when the company is taken over.

The treatment of minority shareholders improved in many countries and at the same time pension funds engaged in steady monthly purchases of stocks. Their buying gave a strong undertone to the national stock markets and gave them liquidity, even during periods of time when investors were wary of buying common stocks.

The improved treatment of minority shareholders and the steady buying of local pension funds did not consistently inject life into local markets for initial public offerings (IPOs) of common stock. The market for IPOs, even in countries where it has been viable for decades, is notoriously intermittent. There are periods of time, like 1999-2000 in the U.S., when the investing public’s appetite for IPOs is insatiable. And there are periods, like 2002-2008 in Brazil, when a country that

had a long-dormant market for IPOs was able to jump-start its market, welcoming over 50 IPOs in eighteen months. But there are also periods of time, like July 2008-February 2009 in the U.S., when the market for IPOs completely dried up. And there are countries like Panama and Thailand, which have never had very active IPO markets.

The third reform is to give incentives so that venture capital companies are profitable enough. This is necessary because the average rates of return in the venture capital business have to be high enough to compensate for the failures, i.e., the venture capital firm’s risky ventures that do not pay off.

The fourth reform is to give incentives to encourage initial public offerings of shares in companies that are in the stage of rapid growth. That is essential because the returns to investors who buy initial public offerings are notoriously volatile and sometimes not high enough. It might seem that a rapidly growing company can continue to grow without making an initial public offering but that overlooks two facts. One is that companies cannot rely entirely on debt financing. The other is that the venture capital firms need to “harvest” the gains from their successful investments, and when one of the companies they financed goes public, the venture capital firm receives some of the cash. That allows the venture capital firms to recycle their portfolios, and finance more new ventures.

Each of these four reforms is difficult to enact because of opposition from people with traditional views. In particular, many people balk at the idea of forgiving debt. Also they balk at giving incentives to venture capitalists and to investors who buy shares of initial public offerings. For that reason many countries have created public enterprises that finance promising ventures. South Korea found a way, and in more recent years Brazil has had some success with BNDES, a national development bank. Brazil also developed the Novo Mercado, a way of making initial public offerings more appealing to investors.

Reforming national financial systems will create jobs, and probably a great many jobs, but it is difficult to predict how many. The reforms would empower entrepreneurship and open up new vistas for young, energetic people. In countries where the reforms have already been implemented, the results have been impressive.

2.2. Invest in infrastructure projects. The need to create jobs is so pressing that countries are launching their own versions of the New Deal. Breaking ground for high-profile infrastructure projects signals that a country has made job creation a top priority. A big project, if it is well designed and enjoys local support, can dispel the fatalism and cynicism that grip the unskilled labor forces of many countries. Big projects

can create linkages to peripheral regions and can make new activities viable. The Keynesian idea of “pump priming” can initiate a cycle of job creation and wealth effects. The wealth effects can attract inflows of capital and skilled immigrants.

The idea of launching big infrastructure projects is easier to sell politically than the proposed reforms to national financial systems. Big infrastructure projects always create jobs, and the jobs are easier to understand because construction is familiar and visible. The projects can be rushed through the approval process and staffed quickly so they can generate immediate flurries of activity. The projects can be ill-conceived or inappropriately located and still create thousands of jobs, even if the projects create no lasting benefit and even if they divert resources away from other investments that would have been more productive. Reforming the financial systems will help weed out ill-conceived infrastructure projects, and will also help finance the good infrastructure projects. So reforming national financial systems will have synergistic benefits. The reforms that are difficult to sell to local traditional elites will help countries to finance the projects that are easy to sell to those same elites, and even easier to sell to the broad swath of voters. Thus, if countries reform their financial systems and launch infrastructure projects, they will create jobs quickly and more of the jobs will be permanent.

It is convenient to group several types of new projects under the heading of infrastructure because that term connotes the creation of public goods. The types of investment advocated here will do more than create public goods; they will also facilitate and catalyze private investment projects.

The first sort of projects recommended here would be public works to upgrade the crumbling roads and bridges and build new ones. Many countries need investments in their roads and bridge networks. Many countries also need improvements to their electric grids. These investments connect markets and create jobs in regions that previously could not specialize for lack of good roads. Investments of this sort link people to the national economy and can also increase tax revenues to central governments. People who have resisted joining the formal economy may reconsider after they are more linked. And when a government builds a road or a bridge, all citizens see that their government is taking proactive steps, and that awareness builds a sense of common destiny.

With the government creating jobs, taxing the income from those jobs is easy. Payroll taxes are hard to evade when a government audit accompanies contracts awarded to construction companies. Payroll taxes will cover part of the cost of these projects, and another part of the cost will be paid by taxes collected from

local retailers, wholesalers and service providers. Tax revenue, however, will not rise automatically. Local citizens will need to insist that taxes be collected. If part of the financing for these projects is private, experts in the national financial systems can insist on proper accounting and disclosure. Taxpayer watchdog groups will be needed, so that there will be local advocates insisting on transparency and impartial audits, if countries are to recover a high percentage of the costs of these projects.

2.3. Prioritize energy efficiency and alternate energy. Another promising way to create jobs is to invest in making energy use more efficient. Every country can improve its energy efficiency, if only by implementing simple remedies like replacing incandescent light bulbs. More ambitious energy initiatives, like bio-diesel or ethanol from sugar cane or from cellulose, are worth investigating in some countries. Infrastructure projects require using heavy machinery, which runs on diesel fuel. Depending on the available sources of biomass, countries may be able to produce enough bio-fuels to use in the infrastructure projects. This opens up the possibility of a synergistic link between job creation in infrastructure and job creation in alternate energy. Converting a diesel engine to run on bio-diesel is rather simple. The more difficult task for creating this synergy is to find viable supplies of bio-diesel to feed a rolling fleet of construction equipment and an army of construction workers.

Ethanol from cellulose and crop residues is another possibility for job creation and for synergies within a national economy. Ethanol from cost-effective sources is still an issue and modifying existing engines to burn it efficiently is more expensive.

Wind, solar and bio-fuels have advantages over fossil fuels with respect to creating local jobs. First they can be produced locally in many countries; that reduces dependence on imported fuels, and dependence on trading partners. Local production also reduces vulnerability to the vagaries of the international financial system. Many countries have chronic trade deficits or national currencies that have little or no purchasing power abroad, so improvements in trade balances are valuable to them. A second benefit is that countries can acquire expertise in producing bio-fuels. This would give them a degree of security that they do not have now. A third benefit is that bio-fuels production employs people in agriculture and industry, and would also stimulate investment in transportation. A final benefit is that countries might earn environmental credits that reward them for cutting use of fossil fuels.

The combination of investing in infrastructure and bio-fuels may be more beneficial to a country than

either one by itself. The two types of investment can, in theory, have mutually reinforcing benefits. Each type of investment can stimulate demand for the other, so it is possible that they might be profitable in tandem while each one by itself might not be economically justified. The benefits can also spill over into the rest of the economy.

Spillover benefits of several sorts have been a theme in economic literature. Over half a century ago W. Arthur Lewis argued that in developing countries there is a “dual economy” with a cohort of workers who are chronically unemployed or underemployed¹. These laborers can be hired to work on projects that are labor intensive, and they can add much more value working on these projects than they were adding in their previous occupations. They might have been working before but were not producing much, and were not earning much and not spending much. They also may have been living in regions that were not tied into the mainstream economy of the country. Lewis’s argument subsumes ideas put forward earlier by Keynes, Ricardo and Adam Smith. Putting underemployed or unemployed workers on payrolls diverts them from subsistence agriculture or other low-paying activities and gives them purchasing power to spend on day-to-day necessities including food and local goods and services.

A typical spillover benefit would be to create employment for mechanics who would maintain the construction equipment and for workers in local machine shops. Mechanics would need replacement parts and local machine shops could make some of those replacement parts.

There would be additional spillover benefits and some of them are difficult to identify and estimate. Bio-fuels plants can be large and sophisticated, requiring highly skilled labor to build and operate. The job programs described here in bio-fuel production would stimulate demand for highly educated people. Those people would then stay in the country instead of emigrating, and they might achieve technological progress in their home countries instead of achieving it elsewhere.

The combination of investing in infrastructure and in producing bio-fuel is a new way for countries to industrialize. The combination can be competitive while it is in its initial stages. The infrastructure projects can attract private financing and the bio-fuel projects can also. Both types of projects would have to meet conventional commercial criteria, but private investors would be able to see synergies if they really are there. Countries would be able to ramp up their industrial activity while importing growing amounts of capital goods.

The proposed combination of new activities will increase demand for local financial services. Financing will be required and it will be more stable if it comes from local sources. Borrowing abroad was the approach in the past and often triggered currency crises. Relying on multilateral agencies like the World Bank has well-known limitations. And local government-sponsored banks have too often become honey-pots for well-connected apparatchiks. So again attention needs to be directed to the local financial services sectors. If properly set up, local financial services can catalyze waves of job creation.

2.4. Consider services. The most promising prospects for job creation are in the services sectors. The services sector is the largest part of almost any country’s economy. Nevertheless, it has been assigned second-class status in the conventional thinking about economic growth and employment creation. In many countries jobs are being created in services spontaneously. With properly designed incentives many more jobs in services can be created.

It is useful to divide services into classifications and then consider each one separately. The first classification is traded versus non-traded. Some services are delivered across national boundaries – for example, software. Other services are only delivered locally – for example, haircuts. This is an important distinction because providers of traded services have to compete with providers in other countries; in contrast, providers of non-traded services only have to compete locally. The best barber in a town can charge more for a haircut but the best computer programmer in that town cannot charge more for writing software unless local customers need a one-off bit of coding that is technically difficult to write and too elaborate to outsource.

The second classification is services requiring specialized training or professional certifications versus services that unskilled workers can deliver. These classifications do not overlap completely. Lawyers, for example, can move from country to country but the differences in legal systems and the licensing requirements prevent them from working in another country in the same way they would work in the country where they acquired their training.

These classifications are broad and simple and are only the first steps in thinking analytically about the services sector. Nevertheless, they are of great help in thinking about how jobs can be created in services and what the macroeconomic effects would be of creating jobs in services. People who have immersed themselves in the literature of economic development may instinctively focus on services requiring sophisticated training – like engineering, architecture and medicine. They might worry that in each country there is a limited number of workers with such training. Then they might ask how job creation in

¹ W. Arthur Lewis, “Economic Development with Unlimited Supplies of Labor” Manchester School of Economic and Social Studies, Vol. 22, pp. 139-91.

those sophisticated activities will generate jobs for the larger mass of semi-skilled and unskilled workers. By raising that question, they make a big first step toward finding a surprisingly encouraging answer.

To see the answer that their questions reveal, consider that workers with sophisticated training can almost always find some remunerative work in their home country. The work that they find sometimes does not use their specialized training, and if it does, it often does not pay as well as the same work would pay in another country. One often hears of Ph.D.s driving taxicabs, or trained accountants working as night watchmen.

When a Ph.D. works as a taxicab driver, the Ph.D. does not earn as much money as his or her labor would command in a job requiring more specialized training. There would be an economic gain if the Ph.D. could find more highly paid work. The direct gain comes from the higher reward to the highly trained worker him or herself.

But there would be indirect gains also. Consider also that highly trained workers, when they earn high salaries, hire less skilled workers directly or indirectly to do many tasks for them. The obvious examples are that the medical doctor does not change the patient's bandages, and the engineer does not make copies of the final drawings to be distributed to all the users of the drawings.

What is less obvious is that highly trained workers provide employment for a broad array of other workers besides the ones that work in direct proximity to the highly trained worker. For example, highly trained workers who are earning high salaries do not do their own laundry. They do not cook unless they enjoy cooking. They do not manage their own portfolios and they do not draft their own wills and many of them do not prepare their own tax returns.

These preliminary observations lead to a scenario depicting how the world can make progress toward reaching full employment.

3. A path toward full employment

3.1. A new look at demographic patterns. When considering the prospects for achieving full employment it is important to forecast the size of the workforce. That implies examining population composition and trends. For almost half a century the conventional wisdom has been that world population is growing so fast that there is little hope of creating jobs for all the people who will be entering the workforce. That view now needs to be updated. World population is growing more slowly and patterns are emerging that are different from the “population explosion” depiction that characterized

the period of 1968-1972, when world population growth exceeded 2% per year¹.

World population is still a crisis but not precisely a crisis of births exceeding deaths. World population growth is now a more nuanced panorama. Population is declining in many countries and continuing to increase in many others. The figure for world population growth gives an excessively simplified impression because there are very few countries growing at the world average. Moreover, the declines are not happening only in rich countries and the increases are not happening only in poor countries. In some countries a newborn is a cherished national asset. In many other countries a newborn is a burden but is mostly a local burden. A key point which this analysis emphasizes is that in a disturbingly large number of countries a newborn will turn out to have been a burden because the newborn will consume resources while growing to adulthood and while acquiring education, and then will emigrate to another country. In the country that successfully attracts the immigrant, the investment in human capital will add to its pool of talent and will increase its output.

In many “baby bust” countries such as Italy, long-range trends are starting to revert toward the mean. That is, the native-born populations of Europe are still projected to decline, but not as quickly as previously thought². Immigrant populations in Europe and in the U.S. are still having slightly more children than native-born cohorts but the lurid xenophobic forecasts now appear overstated. In the poor countries, population growth is slowing, with only a few countries growing faster than 2% per year and many growing between 0.5% and 1% per year.

Examining the composition of world population reveals that there are many cohorts that can be expected to consume more services in the future. On average, families with fewer children will have more discretionary income to spend on services. There are now 106 of 224 countries with total fertility rates of 2.2 per woman or less³. The population of those countries is still growing, but is projected to decline to zero in the near future. Also, households with people over 64 years of age will consume more services if they have enough discretionary income. In the U.S., households headed by a person over 50 now account for almost half of all consumer spending, and an increasing portion of that is on services. The relative importance of the Baby Boomer generation consumers is projected to keep increasing. The size

¹ U.S. Census Bureau, Estimated World Population 1950-2050. <http://www.census.gov/ipc/www/idb/worldpop.php>

² Population Research Bureau of the United Nations. “New Fertility Rates for Europe”, 2007.

³ Nation Master.com “Total Fertility Rate (Most Recent) by Country” http://www.nationmaster.com/graph/peo_tot_fer_rat-people-total-fertility-rate

of the cohort aged 50 to 75 is projected to increase 15.9% between 2009 and 2015, and an additional 108% between 2016 and 2025¹. As of 2008 already over one-third of the countries in the world had 10% of the population or more over 65 years of age².

This summary of demographic patterns shows that problem of job creation is a short-term problem that will be followed by a long-term problem of a very different and less severe nature. The short-term problem is to create jobs for the existing economically active population. If that can be accomplished, the long-term problem is to match workers entering the world labor force to the jobs that older workers will be exiting. That is a much less daunting challenge.

This view of the job creation problem contrasts with the conventional view that every year millions of new jobs have to be created. It is true that millions of young people will be entering the labor force every year, but it is also true that millions of older workers will be exiting the labor force. The world labor force is not growing as fast as it used to, and its growth will cease and then go negative. The demographic pyramid is gradually turning into a rectangle. That transition is happening at different rates in different parts of the world, but in the aggregate is happening rather more rapidly than conventional thinking acknowledges.

This optimistic assessment needs to be tempered because there are national differences in capability to create jobs. The rich countries as a group are more able to create jobs because they have the savings and the capital markets needed to finance the investments that create jobs. In the aggregate, the poorer countries have neither the savings nor the financial institutions to foster job creation. This problem is severe but is not as intractable as it used to be because many emerging countries have reformed their national financial systems and have also experienced slower rates of population growth. Many emerging countries are in a position to launch national campaigns to foster job creation. The old pattern was that emerging countries could not create enough jobs but now there are emerging countries that are attracting immigrants from other emerging countries. The countries suffering out-migration are unable to launch programs to retain their home-grown skilled workers. Their most highly educated and mobile citizens will have opportunities to emigrate and many of them have already left. If more of them leave, the

unemployment problem in the countries they leave becomes less severe, but the economic growth prospects of the countries they leave also suffer.

3.2. Projections of job creation needed and the growth and composition of new jobs to be created. This section presents an assessment of the investment required to create the number and composition of jobs that are needed for the world to reach full employment. To begin, we develop an estimate of the number of jobs needed. This estimate is high but serves to bracket the dollar amount of investment needed to reach the goal.

As of mid 2009 world population was 6.8 billion³. The economically active population was approximately 4.41 billion⁴. Using the broadest measure of unemployment and underemployment, as many as 20% of the economically active population needs a job. It is important to note that these people are already engaging in economic activity, so the jobs they need are better than what they now have. The figure we use here is 880 million jobs needed.

The next question is how much investment is needed to create 880 million jobs. There is evidence that capital investment in the range of \$125,000 and \$400,000 is needed to create a job in the capital-intensive sectors including manufacturing⁵. In the services sector the figure can be much lower, as low as \$25,000. This lower figure predisposes this calculation to favor creating services jobs. But it is important to note that jobs in services require the individual to possess human capital, i.e., education, so investment in education should be taken into account. In this analysis we limit ourselves to capital investment because the data we use are for world investment comes from conventional GDP data.

To create 880 million jobs, the world would need to invest an aggregate figure as large as \$400,000 per job created if the jobs are to be in capital-intensive manufacturing. The amount of investment needed would be \$352 trillion, or approximately 6 times the value of world output in 2009⁶. To create 880 million jobs for unskilled or semi-skilled workers in the service sector, the amount of investment needed would be \$22 trillion, equal to only 40% of world output in 2009. For the world, the annual savings available for investments of all types are approximately 20% of annual output.

¹ Nation Master.com “Age Structure 65 years and over (most recent) by country”

http://www.nationmaster.com/graph/peo_age_str_65_yea_and_ove-age-structure-65-years-over.

² Nation Master.com “Age Structure 65 years and over (most recent) by country”

http://www.nationmaster.com/graph/peo_age_str_65_yea_and_ove-age-structure-65-years-over.

³ Population Research Bureau: 2009 World Population Data Sheet. http://prb.org/pdf09/09wpds_eng.pdf

⁴ Ibid.

⁵ Annual Performance Report on New York State’s Industrial Development Agencies for Fiscal year 2007. <http://www.osc.state.ny.us/localgov/pubs/research/idaperformreport.pdf>

⁶ The value of world economic output is from IMF data published in the Statistical Appendix of the Global Financial Stability Report. The figure for 2008 is US\$ 60.9 trillion. <http://www.imf.org/External/Pubs/FT/GFSR/2009/02/pdf/statappx.pdf>

With these approximate magnitudes we can compute how many years it would take the world to reach full employment. If the entire amount of world savings were directed toward investments that create jobs, the amount of time needed to reach full employment would be between 1.9 and 30.4 years.

This wide range shows that the job creation challenge is daunting but tractable. The figure of 1.9 years assumes that all the jobs to be created would be in services, and does not take into account the jobs that will be created as the world recovers from the recession of 2008-10. The figure of 1.9 years is low enough to justify a detailed country-by-country analysis. The calculation illustrates that full employment for the world's labor force, or at least a quantum improvement in employment, is not a utopian dream. A huge effort would be required and many countries would have to reorient their efforts but success is within the realm of the possible.

3.3. Projections of job growth. The scenario presented here depends on the composition of future demand. Will consumers with disposable income choose to spend it on goods, or on services? Trends indicate a shift toward services, but that might be due to rising prices of education and medical services. A recent survey indicated that as U.S. consumers grow older, their propensity to consume services increases¹. The buying power of older consumers will be higher than their incomes because they spend their savings. So their demand for services might be large enough to support a wave of new job creation.

It will be important to predict what sorts of services consumers will demand. That will indicate what the demand will be for skilled workers in the services sector and will also indicate how many high quality jobs will be created, as compared to low quality jobs.

The results of a country-by-country analysis might indicate that many countries can do well if they focus on developing sophisticated services, like online medical diagnosis, and services that use larger numbers of semi-skilled workers like tourism.

3.4. Competition across borders. This encouraging panorama intentionally overlooks impediments that will slow down the job creation process. One is that the countries with the savings and the reformed financial institutions are not, in the aggregate, the countries with growing labor forces. The job creation process will need to operate across national boundaries if it is to remedy the world's job shortage.

That fact draws attention to another impediment. The quality of local institutions is uneven. To have a well-functioning national financial system, a country needs to have a solid foundation of institutions and many countries have been unable to create that bedrock layer of institutions. In consequence, there are many countries that would benefit from investment in job creation but are unable to attract the investment. Some are unable to gather the savings of their local populations. Instead those savings are diverted to countries with safe financial institutions, or are converted into inert forms like gold and then are hoarded.

The more profoundly damaging consequence of an inadequate national financial system is that countries with inadequate financial institutions are unable to retain the most enterprising young people who are born, raised and educated there. Instead those young people emigrate. Many countries in history suffered massive emigration because of famine or war. The modern economically motivated pattern of emigration is less horrific but is more insidious. The effect is hard for the people who remain behind to see. They would need to envision economic activity that they never had. They can feel its absence but cannot imagine the forms it might have taken.

The uneven quality of national institutions has not been an insuperable impediment to job creation. Businesses and individuals have found ways of circumventing the impediments, but the uneven quality of institutions has made the world a harsher place, with wide disparities in job opportunities. It has also given rise to makeshift ways of overcoming the impediments. Outsourcing is the best-known way of circumventing institutional disparities. It profits from disparities in wage rates. It deters emigration by bringing work to the workers. Outsourcing is not a completely satisfactory solution and does not completely deter emigration because the number of workers who want jobs is sometimes greater than the number absorbed by outsourcing.

Competition across borders, in an ideal world, would pressure countries to reform their local institutions. They would try to become the ones attracting skilled immigrants, and cease being the ones that lose their young, enterprising workers. Economic opportunities would arise everywhere in the world, not so lopsidedly in a handful of countries.

A sobering possibility, however, is that the pressure to reform is weaker, or operates more slowly, than the other forces at work in the world economy. Reforming a country's financial system takes time, and then more time has to pass before its citizens will feel confident keeping their life savings there. During that same time interval, countries that already have well-functioning financial systems attract workers from the country

¹ <http://medicine.jrank.org/pages/367/Consumption-Age.html>>Consumption and Age – Theoretical Framework, Diversity Among Older Persons, Overview Of Household Spending, Differences In Consumption Among Older Persons.

that reformed too slowly. So it is possible, and indeed likely, that the countries that are ahead will widen their lead over the ones that lagged behind.

A young person in an economically stagnant country can hardly be blamed for leaving. The effects of any individual's actions are tiny for the country but huge for the individual. But when a large enough portion of the young people exits a country, its decline is foretold. For that reason the competition across boundaries today is not only in the market for goods and services, but is also, more tellingly and more ominously, in the market for young, energetic, educated people.

A high-profile illustration of the competition across borders is recruitment of medical professionals. Doctors, nurses, and pharmacists have been attracted to jobs in other countries¹. Their recruitment has been a topic of heated public debate. But there are less controversial kinds of cross-border recruiting. For many decades, Jamaicans have come to New England to pick apples, and then have returned home after the harvest². Eastern Europeans come to the tourist areas of New England to work during the peak summer period³. These migrations are a convenient way of balancing labor supply between regions with shortages and regions with oversupply.

Cross-border competition for skilled workers can be expected to become more intense. The proposals put forward here can help countries to regain the initiative but can also indicate what might happen to the countries that do not react promptly and constructively to the new competitive environment.

Conclusion

Jobs are the pressing problem now but if the world can create enough jobs to reach full employment, the need to create tens of millions of new jobs each year will gradually disappear. The world labor force will reach a peak and then stabilize. After the world labor force reaches that peak level, new entrants to the labor force will find that there are enough vacant positions because older workers will be retiring. At that time the question will be whether the skill composition of the workforce will be suited to match the vacancies.

That point might be reached within one or two decades, depending on the patterns that emerge in the workforce and on the composition of jobs that will be created as the world economy recovers.

The scenario presented here indicates that it is feasible to create enough jobs for the portion of the labor force that is unemployed or underemployed. It is more feasible to create the jobs in sectors that do not require large amounts of capital investment for each new worker. The sectors that are most promising include many that have been considered peripheral. The most feasible way of reaching full employment might not involve building up "core" activities.

After enough jobs have been created, and labor force growth has slowed, the quality of jobs will become a pressing issue. And after the number of jobs has increased enough and the quality of jobs has improved, there will still remain the problem that jobs will be geographically concentrated. There are poles of growth and the trends discussed here will probably make those poles continue to grow. There are also regions of stagnation and many of those regions will continue to stagnate or decline further.

Countries will compete to retain their young economically active people and to attract skilled immigrants or retirees. This competition is already going on and will intensify. The factors which will determine whether countries are successful in this competition are different from the factors that were dominant in the past. The traditional factors of resource endowments and high wage rates will continue to exert influence, but in addition there will be the question of opportunities to obtain financing and to create new businesses.

¹ Celia W. Dugger. "U.S. Plan to Lure Nurses May Hurt Poor Nations" New York Times, May 24, 2006. <http://www.nytimes.com/2006/05/24/world/americas/24nurses.html>

² "Rich Harvest: Jamaican Apple Pickers in New England" *The Palm Beach Post*, October 9, 1981.

³ Ravana, Anne. "Maine tourism-related businesses struggle to find seasonal workers", Bangor Daily News, June 3, 2008.

References

1. Altman, Roger C. "Globalization in Retreat", *Foreign Affairs*, July 2009.
2. Annual Performance Report on New York State's Industrial Development Agencies for Fiscal year 2007. <http://www.osc.state.ny.us/localgov/pubs/research/idaperformreport.pdf>.
3. Banco de Datos Turisticos del Peru (Databank for Peruvian Tourism statistics).
4. Barrons, October 9, 2009.
5. Coloma, Fernando and Rojas, Patricio. "Evolucion del Mercado Laboral en Chile", Chapter 12, p. 19.
6. Consumption and Age – Theoretical Framework, Diversity Among Older Persons, Overview Of Household Spending, Differences In Consumption Among Older Persons. <http://medicine.jrank.org/pages/367/Consumption-Age.html>.
7. Economic Commission for Latin America Statistical Annuals http://www.cepal.org/cgi-bin/getProd.asp?xml=/deype/agrupadores_xml/aes250.xml&xsl=/agrupadores_xml/agrupa_listado.xsl.
8. Edlin, Bob. "Why to Prize Productivity" New Zealand Management, Sept. 4, 2006.
9. Federal Reserve Bank of St. Louis Data Base. <http://research.stlouisfed.org/fred2/series/CE16OV/downloaddata?cid=12>.
10. International Labor Office of the United Nations website Statistics and Databases http://www.ilo.org/global/What_we_do/Statistics/lang--en/index.htm.
11. International Monetary Fund. Statistical Appendix to the Global Financial Stability Report of October 2009. <http://www.imf.org/External/Pubs/FT/GFSR/2009/02/pdf/statappx.pdf>.
12. Interview with Alejandro Canete, Chilean businessman, January 26, 2010.
13. Klein, Brian P. and Cukins, Kenneth Neil. "Tamed Tigers, Distressed Dragon" *Foreign Affairs*, July 2009.
14. Kravis, Irving B. and Lipsey, Robert E. "Prices and Terms of Trade for Developed-Country Exports of Manufactured Goods" (January 1, 1985). NBER Working Paper No. W0774.
15. Kravis, Heston and Summers. "The Share of Services in Economic Growth." Chapter 10, Global Econometrics Essays in Honor of Lawrence R. Klein Edited by F. Gerard Adams and Bert G. Hickman.
16. Lewis, W. Arthur. "Economic Development with Unlimited Supplies of Labor", Manchester School of Economic and Social Studies, Vol. 22, pp. 139-91 (1954).
17. McNamara, Robert. Address to the Board of Governors of the World Bank, September 1, 1975.
18. Morgan, Ivor and Rao, Jay. "Making Routine Customer Experiences Fun", *Sloan Management Review*, October 2003.
19. Nation Master.com "Age Structure 65 years and over (most recent) by country" http://www.nationmaster.com/graph/peo_age_str_65_yea_and_ove-age-structure-65-years-over.
20. Nation Master.com "Total Fertility Rate (Most Recent) by Country" http://www.nationmaster.com/graph/peo_tot_fer_rat-people-total-fertility-rate.
21. OECD Statistics Portal http://www.oecd.org/statsportal/0,3352,en_2825_293564_1_1_1_1_1,00.html.
22. Population Research Bureau of the United Nations. "New Fertility Rates for Europe", 2007.
23. Prebisch, Raul. *The Economic Development of Latin America and Its Principal Problems* (New York: United Nations, 1950).
24. Ravana, Anne. "Maine tourism-related businesses struggle to find seasonal workers" Bangor Daily News, June 3, 2008.
25. "Rich Harvest: Jamaican Apple Pickers in New England", The Palm Beach Post, October 9, 1981.
26. W.W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960).
27. Samuelson, Paul A., 1948. "International Trade and the Equalization of Factor Prices", *Economic Journal* 58, (June), pp. 163-184.
28. Samuelson, Paul A., 1949. "International Factor-Price Equalization Once Again", *Economic Journal* 59, (June), pp. 181-197.
29. Singer, Hans Wolfgang. "Terms of trade controversy and the evolution of soft financing: Early years in the UN, 1947-1951" (Discussion paper). United Nations, 1984.
30. Steenblik et al., "Synergies between trade in environmental services and trade in environmental goods", OECD Trade and Environment Working Paper, No. 2005-01.
31. United States Census Bureau, Estimated World Population 1950-2050. <http://www.census.gov/ipc/www/idb/worldpop.php>.
32. Woelfl, Anita. "Productivity Growth in Services Industries: Is There a Role for Measurement?" IDEAS, <http://ideas.repec.org/a/sls/ipmsls/v8y20047.html>.
33. World Tourism Organization Statistical Service website <http://www.unwto.org/statistics/index.htm>.