

Understanding the Offshoring Challenge

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Almost overnight, concern over the issue of offshoring has swept the country. In February, White House economist Gregory Mankiw was forced to recant after saying offshoring is good for our economy. A few weeks later, an embarrassed Bush administration retracted its appointment of a new manufacturing tsar, an industrialist who, it turned out, had moved some of his factory operations to China. Federal and state lawmakers, meanwhile, have introduced a slew of bills purporting to slow the movement of U.S. jobs overseas.

The number of service sector jobs that have gone overseas is actually relatively small. But the fears engendered by offshoring have a valid basis. Since January 2001, the U.S. economy has lost almost 2 million jobs. Even now, with the economy (GDP) growing at over 3 percent a year, job creation has been surprisingly weak this far past the recession.¹

The trade liberalizations of the 1990s, coupled with the explosive growth of Internet capacity worldwide, have made it possible to move many information processing and business service jobs offshore to low-wage but increasingly higher-skill countries, like China and India. This has exposed a whole new swath of our labor market to global competition, including high-wage, high-value-added jobs in fields such as software programming and accounting.

During the optimistic 1990s, U.S. workers were told that it did not matter if the United States lost lower-skill manufacturing jobs, as long as we replaced them with better paying jobs in new sectors like information technology (IT), and as long as workers upgraded their skills so they could qualify for the new jobs. But with slow job growth and offshoring, the impact of international trade and investment no longer seems so benign. Improving one's skills is a necessary but no longer sufficient condition for economic success. Working Americans

wonder whether any job will be safe in the fiercely competitive global marketplace.

The debate over outsourcing and offshoring has been characterized by a confusion of terms. We define "outsourcing" as the process by which a company contracts with another to conduct specific business tasks (e.g., payroll, customer relations). Companies can outsource work to companies located in the United States or in other nations. When people complain about outsourcing, what they really mean is offshoring, which occurs when U.S. companies move a branch of their company overseas. For purposes of this paper, "offshoring" will refer to any process whereby work is moved outside this nation. While this can include both goods and services, this paper focuses on IT-enabled services.

It is unclear how many jobs have been lost due to offshoring. The Progressive Policy Institute has estimated that around 840,000 manufacturing jobs have been lost since the beginning of 2001 due to increased imports and decreased exports.² Because the data are less robust, it is more difficult to estimate the number of jobs lost to services offshoring; however, some place the number at around 300,000 jobs during this period.

How many and what kinds of jobs are at risk? PPI estimates that the new digital economy is enabling as many as 12 million information-based jobs—once considered relatively immobile—to potentially be located virtually anywhere across the globe.³ While forecasting the number of jobs actually to be moved offshore in the next decade is difficult, a reasonable estimate comes from Forrester Research, which estimates that American companies will move 3.4 million jobs offshore by 2015.⁴ We calculate that 54 percent of these jobs pay more than the median wage of \$28,580, and almost 33 percent pay in the top wage quintile (\$46,000 and up).

There are three factors driving this trend. First, when an increasing share of work can be digitized or conducted by telephone, a place like Bangalore, India, is now functionally as close as the neighborhood bank or insurance office. Second, many low-wage developing nations have developed the infrastructure, skilled workforces, and business climates to become attractive locations for this work. Finally, wages in low-cost developing nations that on average are 20 percent of U.S. rates mean that companies can reduce their costs, often significantly, by moving work offshore.⁵

Is offshoring good or bad for America? The answer depends in part on where one sits. Those who see economic welfare as synonymous with consumer welfare view offshoring in a more positive light because it lowers prices and boosts competition. Likewise, those who see investor interests as paramount, as many in the Bush administration do, view offshoring as an unalloyed plus.⁶ In contrast, those who equate economic welfare with the welfare of workers see offshoring as lowering wages and boosting economic churning and job loss.

Offshoring has the potential to help the U.S. economy by allowing producers to lower prices and, in turn, raise living standards. But that textbook result only works if the country is close to full employment, if most of the offshored jobs are not higher-wage, higher-skill jobs, and if the United States continues to move up the ladder to higher valued-added work.

And while there is no doubt that offshoring, like trade in general, benefits everyone by lowering prices on a wide array of services, it is also true that it threatens particular workers, and in some cases entire communities. If most of the jobs lost due to offshoring are low-skill, low-wage jobs, the United States will benefit, as laid-off workers move up to higher wage, higher-skilled jobs—especially if they receive necessary supports and retraining. Only the most hard core market fundamentalist, however, will argue that offshoring high-wage industries like aerospace, software, biotech, investment banking, and the movie and music industries to low wage nations would be in the national interest.

But the real threat posed by offshoring is that it could worsen an already alarming erosion of middle-class jobs. Jobs that pay middle-class wages are growing more slowly than higher-paid “knowledge” jobs at the top and lower-paid “service” jobs at the bottom. From 1999 to 2002, the

lowest wage quintile gained 660,000 jobs and the first and second highest quintiles gained 820,000 jobs (see Figure 2). In contrast, job growth in the middle quintile was virtually flat, and the fourth wage quintile saw a jobs loss of 157,600. Moreover, wages for occupations in the top quintile grew three to four times faster than wages for jobs in the bottom two wage quintiles. Bureau of Labor Statistics (BLS) projections suggest that this bifurcation of the U.S. labor market is likely to continue (see Figure 3). While not the only source of a middle-class job squeeze, offshoring could exacerbate this trend because the very jobs that are most amenable to offshoring—manufacturing jobs and information-based services—support middle-class families.

Offshoring is opening up a significant share of our services sector to trade and in some ways is making the U.S. economy more like a big state. When a state loses a job in manufacturing or any other sector to out-of-state residents, the multiplier effect in terms of additional lost income and jobs can be significant. As a greater share of the U.S. economy is traded, this means that changes in exports or imports will have a larger short-term effect on income and jobs than before. While it is true that the United States loses many more jobs to automation and other kinds of domestic churning than to trade, the multiplier from these jobs is much less since the activity is taking place within the U.S. economy. This does not mean that offshoring does not provide benefits, but it does suggest that the adjustments, for workers and regions, are not automatic or necessarily quick, especially if national economic policy ignores the problem.

Today, Americans are more anxious about trade because it is harder for them to envision where the next wave of goods jobs will come from to replace the ones lost to offshoring. It is always much easier to anticipate the employment losses from trade and technology than to predict where the new jobs will develop. An economist would say that the new jobs will come from where they always come from: the demand from 8 million businesses and 290 million Americans. As prices fall from productivity and trade, Americans do not put the savings under their mattresses. Lower prices mean consumers have more money to spend on vacations, cars, entertainment, and the like, and businesses have more to invest in research and new machinery. If the United States keeps innovating, we can be fairly confident that the country will continue to develop new and interesting work.

We can, however, make educated guesses about which sectors are likely to generate new jobs. As cited above, the BLS projects that, in terms of percentage growth, nine of the top 10 fastest growing occupations over the next decade will likely be either in the IT field (network systems and data communications analysts, up 57 percent) or health care (medical assistants up 58 percent). Of the twenty fastest growing occupational categories eleven are health-related, five are IT related, and three are in education.⁷

Finally, what is to be done about offshoring? Opinions vary wildly, but four basic camps are emerging:

- ▶ **Ignore and Do Nothing:** Laissez-faire conservatives, including some in the Bush administration, see offshoring not as a challenge for our economy, but as an opportunity. They take the Panglossian attitude that the market will ensure that all works out for the best. PPI is less confident that, absent public policy, offshoring will be a net benefit for the U.S. economy, particularly in the short run. Likewise, while trade normally boosts global prosperity, it does not always boost a nation's prosperity, particularly if it is subject to significant distortions as currently exist in both services and goods trade. By minimizing the problem, the Bush administration is eroding Americans' confidence in our ability to succeed in the global economy and thus unwittingly fueling protectionist sentiments.
- ▶ **Reject and Protect:** Some on the left demand an end to "sending American jobs overseas." Anti-globalization activists call for laws that would prevent or heavily penalize offshoring. Such steps are probably doomed to failure for no other reason than because the new information and communications technologies make global production inevitable. Moreover, since America is the beneficiary of considerable "insourcing"—foreign investment that creates good jobs here—we should be wary of the risk that protectionism could trigger a destructive trade war.
- ▶ **Subsidize and Hand-Out:** Some in the corporate community clamor for tax cuts and regulatory relief in the belief that such subsidies will enable U.S. industry to compete with companies in low-wage countries. Such a rear-guard strategy designed to reduce labor cost differentials

through subsidies is simply the flip-side of protectionism.⁸ It might make companies marginally more competitive, but it would also lower our standard of living as taxpayers would have to pay higher taxes (or receive reduced government services) and/or face a more polluted and less safe environment. The goal of economic policy should not simply be to compete—that is a means, rather than an end. The goal instead should be to foster a high standard of living for Americans, and transferring money from one group to another with the intention of reducing corporate costs does not achieve it.

- ▶ **Adapt and Innovate:** If, as PPI believes, America cannot secede from the global economy, then we have no choice but to craft new public policies that help our firms become more productive and our workers become more skilled and agile. The proper response to outsourcing is to enhance our nation's ability to specialize in innovative, high-valued-added work, and fight more vigorously to end distortions in trade, while boosting aid to workers and communities hurt by global competition. On top of this, policy needs to facilitate a return to the kind of robust job creation the nation enjoyed during the Clinton administration.

This report does not purport to "solve" the complex problem of offshoring. It intends rather to describe the phenomenon, put it in proper perspective, and define the economic stakes for Americans and for policymakers. In a subsequent report, we will propose a comprehensive, "adapt and innovate" strategy. It has three key elements: A national competitiveness policy that feeds innovation, a commitment to tougher enforcement of global trade rules, and a plan to equip working Americans with new tools for economic success.

The Offshoring Trend

While government data on offshoring is limited, other evidence suggests that offshoring of both IT functions (e.g., software) and IT-enabled business services (e.g., call centers, back-office processing) is growing.

Services offshoring emerged in the late 1980s and 1990s. For example, Ireland was a popular destination for U.S. offshored services and now employs nearly 40,000 people in customer relationship jobs.⁹ However, as costs there have

gone up and the Irish economy has migrated to higher value-added activities, lower-skill services work is shifting to other countries with English-speaking populations, including India and the Philippines. In addition, countries in other regions are also emerging as offshore sites, in part because Indian costs have increased somewhat.¹⁰ Eastern European nations like Romania, Hungary, and the Czech Republic—with well-educated workforces willing to work at very low-wages—are gaining market share, particularly for offshored work from higher-income European nations. China's labor market is growing in areas like software development, where strong English skills are not needed. Others like Costa Rica, Malaysia, South Africa, and Sri Lanka are also trying to get into the game, and some French companies are looking to offshore service jobs to African francophone countries such as Mauritius and Morocco.

While a number of countries are actively seeking offshored work, India has had the most success. According to the Indian computer services trade association NASSCOM, offshored business process employment increased from 106,000 jobs in 2002 to 171,500 in 2003.¹¹ Indian software exports grew from \$747 million in 1996 to \$9.5 billion in 2003.¹² Indian companies like Infosys, Tata, and Wipro are doing an increasing share of IT services work.

According to NASSCOM, the number of U.S. Fortune 500 companies offshoring work to India increased from 125 in 2000 to 285 in 2003.¹³ GE Capital employs approximately 11,000 people in its Indian operations, and plans to increase that number to 20,000.¹⁴ American Express has call centers in Gurgaon and Delhi employing more than 2,000 people.¹⁵ The database firm Oracle Corp. announced plans to double its Indian workforce to 6,000. Daimler Chrysler plans to outsource a large share of its IT work to Indian companies over the next five years. Amazon.com relies on workers near New Delhi to provide some of its email customer service.¹⁶ Reuters plans to move its content division to India. ADP Wilco, a wholly-owned subsidiary of the payroll company ADP, plans to double the number of its employees in India, by adding 400 engineers. A host of other companies, including Aetna, ATT Wireless, Bank of New York, Burlington Northern Railway, Computer Science Corporation, Consec, Delta Airlines, Deloitte Consulting, Earthlink, GMAC Commercial Mortgage, and Southwestern Bell, have plans to offshore work to India. But, India is not the

only destination. Metropolitan Life Insurance outsourced much of its claims processing to Affiliated Computer Services, a company that scans the documents and sends the data by satellite to processing facilities in Ghana, Mexico, China, the Caribbean, and Guatemala, where the data is key entered. Nor is offshoring confined to the private sector. New York City processes its parking tickets by shipping the work to Ghana.¹⁷ Some of the World Bank's back-office operations are conducted in India.

In spite of all the high-profile examples of U.S. companies offshoring work, however, a study by America's Forrester Research found that at least to date, more than 60 percent of Fortune 1,000 companies are doing no offshore outsourcing, or very little.¹⁸

While the offshoring trend is most pronounced in the United States, other developed nations are taking advantage of the new opportunities. British Airways employs 2,400 people in India who manage passenger accounting and frequent flyer mail tracking. British Telecom announced plans to create 2,200 customer service jobs in India. Retailer Tesco recently announced it was moving 30 call center jobs to India. British banking giant HSBC moved 5,000 jobs to the Subcontinent and Malaysia for support, call center, and back office work.

A key question is: What kind of services work is being offshored? To date, offshored work has been work that requires little or no face-to-face customer service, is information-based, and is able to be segmented into components that can be digitized and transported over telecommunications networks. Software development constitutes a moderate share of offshored work. One study found that 90 percent of U.S. software companies surveyed have offshored work or plan to do so within the next year.¹⁹ Offshored work also includes a wide range of IT-enabled services, including accounting, bookkeeping, tax preparation,²⁰ auditing, and payroll services; telemedicine, particularly x-ray reading; billing; transcription, including medical transcription;²¹ customer relationship management, including call and email centers and telemarketing; claims processing; document management;²² and digitization of information, including data entry, production of shop drawings for architectural firms,²³ and mapping.²⁴

It is hard to assess the extent of offshoring. One indicator suggests that, so far, the numbers have not been that high. According to BLS data on mass layoffs (those of more than 50 persons at one facility),

around 24,100 jobs were lost in mass layoffs in 2003 because of import competition, and another 13,000 were lost due to overseas relocation.²⁵ Moreover, in both categories, job loss levels resulting from overseas relocation increased each year from 1999 (5,700) to 2002 (17,100), but fell slightly in 2003 (13,000). However, it is important to note that these BLS series do not measure all layoffs from offshoring, since the cause may be listed as other factors—such as completion of a contract—that are actually related to offshoring (e.g., the next contract is done offshore). Moreover, the government appears to be undercounting offshored imports and, by extensions, jobs. For example, the U.S. Department of Commerce reports that in 1992 Americans paid \$209 million for business services to unaffiliated companies in India. But according to *Business Week*, five large Indian companies alone report that their sales to North America that year were \$2.4 billion.²⁶ Likewise, the Bureau of Economic Analysis reported that the United States imported \$76 million in software from India in 2002, when Nasscom reported that they exported \$2.8 billion worth of software to the United States.²⁷

While we do not have a good handle on how many jobs have been offshored, we are on even shakier ground when it comes to predicting future losses. In order to assess the share of jobs that could be offshored, it is important to consider two factors: 1) the degree to which functions can be cost-effectively transformed into electronic flows facilitated by telecommunications; and 2) the degree to which these new activities still require spatial proximity to suppliers, customers, competitors, or other units in the firm.

First, many jobs cannot be digitized. Most personal service workers, such as nurses and teachers, need to have personal contact with the client. Likewise, many occupations involved in handling physical items—such as transportation workers, cooks, auto mechanics, and construction workers—must do the work domestically. Finally, many jobs that contain a mix of functions are not likely to move, even if some of the work is routine and IT-enabled.²⁸

Second, some economic functions that could be moved are unlikely to be because of what economists call agglomeration economies—the economic gains companies get from the concentration of activity. Economic geographers Edward Leamer and Michael Storper point to the “double-edged geography of the Internet age, with its tendencies toward specialization and

agglomeration, on the one hand, and spreading out on the other.”²⁹ **In the new knowledge economy, two activities are taking place simultaneously. On the one hand, more routine work is either being automated or offshored. On the other hand, more jobs are being created in more complex functions that need to be near each other to thrive, adapt, and innovate.** Although information technology is increasingly being used in these activities, it supplements rather substitutes for close physical proximity or face-to-face contact, due to the complex and highly varied nature of the interactions and information being transferred. These higher-order activities require more than education: They require creativity, risk taking, and tacit knowledge, often found in clusters and “being in the loop.” As a result, while the routine economy may be dispersing, the innovation economy remains concentrated—particularly in less routine activities undertaken by managers, professionals, and executives in industries such as accounting, law, consulting—and functions that take place in corporate and regional headquarters offices.

Accurately predicting the growth of offshoring is difficult, in part because many companies are reluctant to share their offshoring plans and because existing data is so spotty. This has not stopped a variety of groups from attempting to forecast trends. The leading forecast—so widely quoted that it has become the prevailing wisdom—is by Forrester, an IT analyst firm.³⁰ Forrester now projects that 3.4 million U.S. jobs, 473,000 of them IT occupations (e.g., computer programmers), will be offshored between 2000 and 2015. They recently increased their forecast from 3.3 million and estimated that approximately 830,000 U.S. service sector jobs (more than the 588,00 jobs they previously estimated) would be moved offshore by the end of 2005. NASSCOM predicts that Indian software exports could hit \$50 billion by 2008, up from \$8.5 billion in 2003, and that India’s revenue from IT-enabled services (ITES) will rise more than 20 times to \$16.9 billion by 2008, capturing more than 10 percent of the global ITES market.³¹ They also predict that business processing services will contribute to 30 percent of India’s foreign exchange inflows in 2008, up from 8 percent today, and that employment in the Indian ITES industry could reach 1.1 million by 2008. The market research firm Giga Information Group estimates that business process offshoring (BPO) growth in India will grow by at least 65 percent this year, from \$1.5 billion in 2001. Future offshoring growth appears to be more concentrated

Table 1: Offshoring Forecasts for U.S. Jobs

Jobs	Value	Destination Country	Sector	Time Frame	Forecasting
3.4 million		All	Services	2015	Forrester
850,000/15 % of total		S.E. Asia	Financial Services	2008	Deloitte ³²
	\$98 billion	India	Services	2010	Evalueserve
10%	\$24 billion	All	IT Jobs	2005	Gartner

Sources: Forrester Report, November 11, 2002; Deloitte Research, 2003; Evalueserve, October 2003; Gartner Research, January 12, 2004.

among larger firms. A survey of CEO’s of 956 mid-size U.S. companies found that nearly 80 percent do not see offshoring IT services as a priority now or in the next four years.³³

While IT-enabled offshoring creates the possibility for many jobs to go offshore, there are factors working against large-scale migration. In particular, moving offshore is not without risk. For example, in a Gartner survey, companies not planning to move offshore cited concerns over security, the viability of providers, and service quality.³⁴ The quality and security of work offshore can be problematic.³⁵ There are also political risks in terms of instability in foreign nations and market risks of a consumer backlash against offshoring companies. In addition, infrastructure is not always reliable. Firms in sectors that place a premium on customer service for attraction and retention of business may be hesitant to place these functions overseas because potential problems with accents, cultural attitudes, and skills would make it harder to establish a rapport with customers. Some companies have already moved some call center jobs back to the United States from India after concerns about declining quality. The insurance firm Consec, for instance, moved 800 such jobs to India in the first half of 2001 only to bring many of them back in 2004.³⁶

Going the low-cost route can cut firms off from the ability to innovate and learn domestically. Other risks include hidden costs, diminished quality of services, contractual disputes, and loss of organizational competencies.³⁷ Indeed, depending on the extent of the processes offshored, companies are at risk of losing key proprietary knowledge to would-be competitors. Privacy concerns, particularly over the handling of sensitive financial

and medical data, may lead some firms to resist going offshore. Finally, there are national security issues associated with the migration of some work overseas, including defense software applications.³⁸ As a result of all of these factors, organizations are likely to keep a share of their back-office operations in the United States to avoid becoming beholden to outsourcers and to prepare for disaster situations.

There is another factor that suggests that the higher-end forecasts could be too high: **The jobs most at risk of being offshored are also most at risk of being eliminated by automation.** We are already seeing this trend. In the 1980s and 1990s, much of the manual processing of grocery store coupons was conducted in Mexico. However, with bar coding that allows coupons to be scanned and the information to be sent electronically to the manufacturer for reimbursement, many data entry jobs have been eliminated. Similarly, with the emergence of ticketless travel, many of the jobs that American Airlines created in Barbados after moving its ticket-processing center from Tulsa have been eliminated. Further digitization and automation is inevitable. Easier-to-use and more reliable software—which software companies are fervently working on—will reduce employment at help desks. Software automation tools could lead the production of low-end software to be mechanized. Interactive voice response and Internet-based delivery channels will reduce call center employment. Voice recognition software will eliminate medical transcription jobs. Most data entry jobs will be eliminated as a wide share of information now recorded on paper is entered initially in digital form. As a result, many low-wage nations are getting in on the tail end of the product cycle, gaining mobile

jobs in the final stage before their elimination by technology.

Finally, it is important to remember that the United States is still a destination for foreign company “outsourcing,” although much of that serves the U.S. market. Companies do this for a number of different reasons. For example, foreign automakers want to be near the market—Honda increased their U.S. manufacturing employment by 15 percent last year. Some technology companies want to be at the center of global innovation—the pharmaceutical company Novartis moved its worldwide R&D facility from Switzerland to Massachusetts, and Samsung is investing \$500 million in its Texas semiconductor plant where it will employ over 1,200 people. This insourcing—investment by foreign companies in the United States—exceeded investment by U.S. companies in foreign countries every year from 1996 to 2001. However, in part because of the uncertain U.S. economy and the large increase in the budget deficit under Bush (which gives foreign nations a safe haven to recycle U.S. dollars gained from running trade surplus with America), inward FDI (Foreign Direct Investment) declined by almost 90 percent (to \$30 billion) in 2002. While it recovered somewhat in 2003 (\$72 billion), outward FDI by American companies is almost twice as much as inward FDI. It will be important to track inward FDI over the next few years to see if it increases as the U.S. economy recovers.

What’s Behind the Increase in Offshoring?

Movement of jobs to low-wage regions is not new. For much of the post-war period, manufacturing firms in the North and Midwest moved to low-cost regions in the South and West. In the 1980s and 1990s, back-office service functions moved from high-cost metropolitan areas to lower-cost places like Tampa and Tulsa, while many lower- and moderate-skilled manufacturing jobs moved to developing nations. What is new is that companies are now able to organize work so that it can be centralized far from the customer.

In the post-war period, many companies established decentralized organizations to be close to the customer and minimize the distances that paper and people had to travel. Moreover, information in most offices was on paper and transferred physically, requiring filing clerks,

messengers, and even sometimes operators of pneumatic tubes to shift paper around in large offices. Now, digital electronic technologies permit information in myriad forms to be generated, routed, and transmitted cheaply, nearly instantaneously, and at high volumes virtually anywhere. Many of the early applications of information technology improved internal operations (e.g., mainframe and desk top computing) and often created “islands of automation” with little interconnection between components. In the last few years, however, information technologies have created closer connections between economic activities, enabling them to be physically farther apart yet functionally close.³⁹ Because companies are transporting bits not atoms, physical distance places almost no limits on trade in information-based services.⁴⁰

By the end of the 1990s, information technologies—including computers and optical scanners—had gotten cheap, powerful, and pervasive enough that they transformed information-based industries.⁴¹ The telecommunications system gained new powers as switching and routing technologies allowed information, including telephone calls, to be easily routed around the globe.⁴² With the deployment of global fiber optic networks and reform of the telecom sectors in many nations, the costs of transmitting information plunged while quality increased.⁴³ A host of other IT developments also enabled the new mobility of service work. The proliferation of standard software packages, like SAP and Siebel Systems, enable firms offering outsourcing services to work from a limited number of software packages, not hundreds of customized ones. Standardization of data formats and networking protocols make it easy to transfer large data sets between dispersed information systems. Software help desk workers rely on computer-enabled decision trees that are relatively easy to learn. Also, in contrast to popular perceptions, IT security is getting better (e.g., better encryption, firewalls, etc), making transport of sensitive data safer. New collaboration tools, such as instant messaging and shared text-writing “whiteboards,” make it easier for clients to stay in touch with suppliers, even if they are across the globe.⁴⁴ Further developments will only make remote work easier and cheaper. Consolidation in the IT software and services industry may mean that companies work

on one of a small number of integrated IT platforms, making it easier to outsource IT work to large IT systems companies. The deployment of Internet telephony (voice over Internet protocol or VOIP) will lower international telephone rates significantly. Indeed, VOIP may be the “container ship” of the information age.

Because a growing share of the economy consists of information transactions—be they stock trades, insurance forms, or point-of-sale data—information technologies hold great potential to reshape where companies locate work. But IT does not just make back-office jobs more mobile. It also enables industries that required frequent face-to-face contact (for example, architects in design teams) to meet many communication needs electronically through email, video conferencing, and easy-to-use data transfer protocols. As more of the economy is conducted digitally, old patterns of location based on minimizing distance and maximizing communication become less important. As a result, a host of jobs that we once thought were tied to a local community, or even a nation, are footloose. People can buy goods online from stores 5,000 miles away. Local business functions like banking, insurance, and securities brokering are now conducted by phone and over the Internet. A whole array of professional services—including legal services, accounting, and even education—can be conducted online. Companies can more easily buy services, like payroll, accounting, and human resources, produced internationally. This new technology system is creating an ever-more spatially dispersed economy, which in turn is causing an increasing share of employment to be mobile.

While technology enables the outsourcing and mobility of a growing share of services employment, it is low wages that drive it offshore. The cost differential between the United States and developing nations can be significant. University of California, Berkeley Professor Martin Kenney estimates that the total annual costs per call center employee in India is \$10,354, compared to \$55,598 in the United States.⁴⁵ The typical salary range for computer programmers is \$5,000 to \$9,000 per year in China and \$6,000 to \$10,000 in India, compared to \$60,000 to \$90,000 in the United States. It is important, however, to note that many of the U.S. cost figures are based on costs for facilities in larger and more expensive metropolitan areas. The cost differential between smaller towns or rural areas and offshore locations is less.

Offshoring can provide companies with additional advantages. One is the ability to operate on a 24-7 basis. For example, some companies develop software 24 hours a day, with teams handing off work to other teams across the globe in different time zones. Offshoring also allows companies to structure work differently. For example, offshore companies can afford to overstaff so that they can easily meet peak loads. They can also afford to manually review forms and applications for errors, tasks that cannot be done in a higher-cost location.⁴⁶ In some instances, the quality of the work appears to be higher.⁴⁷

It is important, however, to note that companies incur additional costs by outsourcing and offshoring. Telecommunications costs are higher since voice and data traffic must be routed much longer distances.⁴⁸ There are also travel costs for U.S. managers to visit the facilities, and costs associated with selecting a vendor and bringing foreign workers to visit U.S. facilities for training and an introduction to the U.S. company’s systems. Morale and productivity of U.S. workers not laid off can decline. In addition, while wages are lower for offshore workers, their productivity is often lower, too, in part because they have less understanding of the business, and in part because of communication difficulties. Finally, companies incur costs managing offshore contracts. When all these costs are accounted for, there is usually still a cost advantage for offshoring, though not as significant as many companies initially believe.⁴⁹ The estimates of the total cost savings vary, with some claiming savings as high as 50 percent and others as low as 15 percent.

Other nations have not been sitting idly by hoping multinational companies will select them for investment. Many countries have rejected earlier strategies of looking inward and closing their borders and instead have been actively employing industrial strategies to attract IT-enabled industries. For example, the Indian state of Andhra Pradesh and its capital city, Hyderabad, have emerged as leading sites for IT-enabled service work. In the 1990s, the state developed a strategy to attract these jobs. A key step was the creation of the Agency for Promoting and Facilitating Investment in Remote Services and Technology (APFirst) organization. APFirst’s mission is “to make Andhra Pradesh the world’s preferred Business Process Outsourcing/ Information Technology Enabled Services (BPO/ITES) destination.” APFirst’s strategies include ensuring easy availability of trained manpower,

supporting the BPO industry through regulatory changes, and assisting the development of infrastructure such as telecommunications and office space.

Andhra Pradesh was the first state in India to provide free right-of-way land for laying fiber optic cable, something state and local governments in the United States have not done.⁵⁰ The city of Hyderabad donated a 55,000 square-foot campus-style office facility to encourage IT firms to locate there.⁵¹ The park boasts uninterrupted power, thanks partly to diesel generator back-up. They also provide direct financial incentives. In 1999, the state created a new IT incentive policy that provided 25 percent discounts for electric power used by IT firms, exempted software from sales taxes, and provided a rebate on the cost of land up to 20,000 rupees per job.⁵² Leaders have also focused on making sure that Hyderabad has a supply of trained workers. In 2001, the Indian School of Business located in the city.⁵³ The state also created the Indian Institute of Information Technology to train workers for the burgeoning industry. In addition, it launched an Information Technology Enabled Services training institute. The training program has two tiers, the first focused on improving students' basic English language capability, and the second tier concentrated on specialized skills for IT-enabled services, with elective courses in areas such as HR training, payroll processing, and insurance processing.

Other nations have taken similar steps. While many of these steps represent legitimate efforts to grow their economies not all that different than what U.S. states do to grow theirs, some regions appear to be following "low-road" strategies that purposely keep living standards low as a way to attract investment. Most notably, in many places, workers who organize to form labor unions are repressed. In others, workers are simply prohibited from joining unions. For example, **the state of Andhra Pradesh recently declared the IT-enabled services industry an "essential service"—meaning that its workers, like those in industries such as milk production and water supply, do not have the ability to strike.**⁵⁴

There are two other reasons why service offshoring is dramatically increasing, particularly in the United States and Britain.⁵⁵ First, competitive pressures in the United States are so intense that they force companies to relentlessly find ways to cut costs. Such pressures appear to be less extreme in continental Europe and Japan in part because their equities markets are less focused on short-term

performance. Moreover, there appears to be more resistance to offshoring in these regions, especially Japan. Second, the large number of English speakers in nations like India, the Philippines, and South Africa mean that it is relatively easy to offshore jobs that require English language proficiency.⁵⁶ Germans are offshoring some work to regions in Eastern Europe with German speakers. In contrast, there are few low-cost nations with large numbers of citizens fluent in languages like Dutch, Swedish, Finnish, and Japanese. Even if these nations wanted to offshore call centers, for example, they would have a hard time finding the workers who spoke the language.⁵⁷

Is Offshoring Destroying Good Middle-Class Jobs?

One of the reasons the offshoring debate is now so heated, especially compared to when manufacturing jobs were being sent offshore in the 1980s and 1990s, is because we were told that as the nation shed manufacturing jobs, we would move into high-wage knowledge jobs. Now, however, we appear to be losing even these. People want to know what jobs we are supposed to move into now.

One can make a compelling case that offshoring lower-wage, lower-skill service jobs—like call centers, data entry, and basic computer programming—to low-cost locations will help both our economy and developing nations' economies, just as the movement of low-wage, low-skill manufacturing jobs offshore during the last 30 years has. American consumers enjoy lower prices, and the occupational structure of the U.S. economy has shifted to higher valued-added work. A look at the loss of high-skill, high-wage jobs, however, presents a different story.

Are we losing good jobs due to offshoring? It appears that many jobs lost to offshoring have been lower- and moderate-skilled, more routine jobs: manning call centers, transcribing text or voice, processing forms, and the like. However, some jobs, particularly in the area of software, are at the higher end of the wage scale. Software job migration in particular has sparked fears that we are losing good jobs. Indeed, the Indian software hub Bangalore has become the poster child of high-end job loss. There is no doubt that IT-services employment is much more likely to be offshored than many other kinds of service jobs, in part because those jobs can easily

be done remotely and because countries like India and China produce large numbers of qualified software workers. So far, however, most of the work appears to involve lower-end functions, including applications development, testing and maintenance, and migration from legacy applications. This is not to say that the Indians are not working aggressively to move up the software value chain, and with an education system that turns out large numbers of software engineers, they will certainly succeed to some degree.

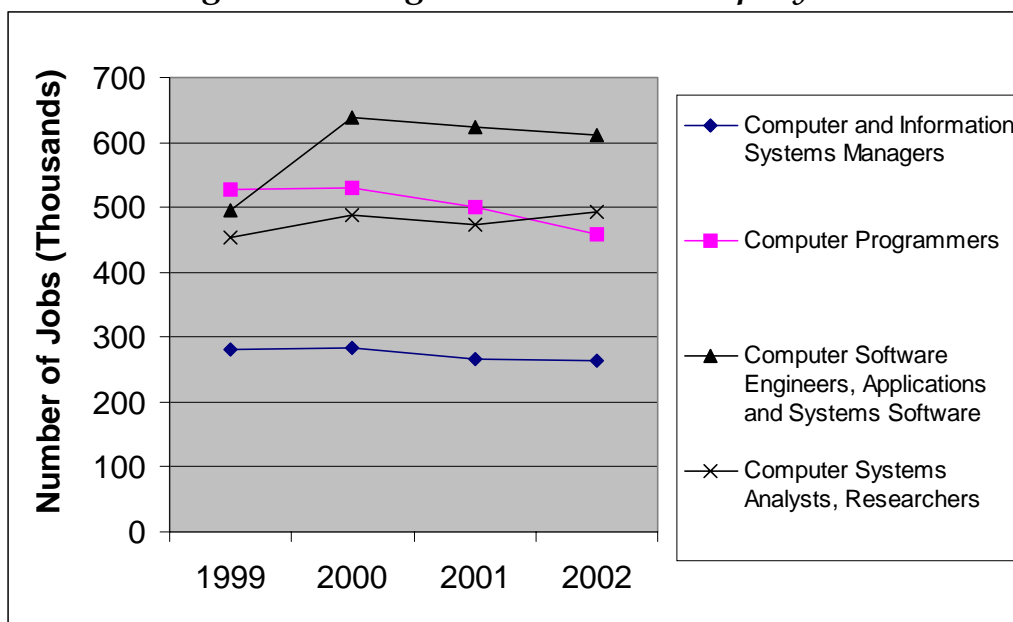
This does not however, signal the end of the U.S. dominance of the software industry, or the decline of software employment in the United States. Sorting through what has happened to software employment in the last few years is difficult. Some analysts look at job growth from 1999 to 2002, when employment growth was robust, largely due to the peak in tech spending in 1999 and 2000. Other analysts use 2000 as a base year, in which case the trend in jobs is downward. Because so much of the change in tech employment has been tied to the tech boom and decline of the last few years, it is impossible to determine just how much of the employment change was due to offshoring. While 2003 occupational data from the BLS survey is not available, it is available from the Census Bureau's household survey, although this series may not be as accurate (see Figure 1).⁵⁸ According to the Census Bureau's series, IT jobs grew by 77,000

in 2001, declined by 193,000 in 2002, and grew by 33,000 in 2003. However, given that software investment by companies was up by 9 percent in 2003 over 2002, while employment rebounded just 1 percent, the suggested pattern is, at least, not consistent with the explanation that some of these jobs are being offshored. Finally, BLS projects that all these IT occupations will grow (although it is important to note that these projections were made without taking the threat of offshoring into account).

As in software, a similar pattern is occurring with engineering. Between 1999 and 2000, the number of employed engineers and engineering technicians increased by 4.3 percent, but then fell by around 2.9 percent each of the next two years. Moreover, the Census household survey finds a continued engineering job loss of 3.5 percent in 2003.

One reason there is concern over the loss of U.S. competitiveness in scientific and technical fields is that, for first time in history, low-wage nations have trained large numbers of scientists, engineers, and computer programmers and are investing in research.⁵⁹ While other nations are developing R&D capabilities, however, they are still relatively low compared to the United States. For example, in 2001, R&D as a share of GDP was less than 1 percent in India⁶⁰ and a little over 1 percent in China, compared to 2.02 percent in the United States. While India spends \$19 billion on

Figure 1: Change In IT Services Employment



Source: Bureau of Labor Statistics: Occupational Employment Statistics

R&D and China spends \$60 billion, the United States spends \$282 billion.⁶¹ Moreover, in the late 1990s, there were almost no patents awarded in these nations, and more than one-third of domestic inventions in China and almost one-half in India were owned by foreigners.⁶² Still, these and other nations are producing large numbers of scientists and engineering graduates, although there is dispute about whether their quality is up to U.S. standards.⁶³

It is not, however, as if the demand for good jobs—including scientific and technology jobs—is fixed: If the Indians get one job, the United States does not necessarily lose one. Consider software, for example. The demand for software is anything but fixed⁶⁴—in economic terms, it is actually quite elastic. Lower wages for IT workers in developing nations will raise the demand for software, not just here but in the rest of the world. Likewise, as the global economy continues on its inexorable trend toward full digitization, the demand for IT services will also grow. The increased wealth of developing nations will also raise the demand. That is one reason why global software sales are expected to increase from around \$131 billion in 2002 to \$148 billion in 2004.⁶⁵ IT service firm revenue is expected to grow modestly in the next year, by approximately 4.8 percent. It is unlikely that the United States will maintain its share of IT service jobs. But, because the overall number is likely to continue to grow significantly, U.S. jobs will grow, particularly in the higher-end, more-skilled segments. In fact, the BLS projects that U.S. IT jobs will grow from 3.27 million in 2003 to 4.42 million in 2012. These projections could be slightly optimistic, as they were made before much of the concern with offshoring emerged, but the basic direction of the job growth is surely correct. The same could be true with other advanced services. As developing nations grow, leading in turn to a much larger global economy, advanced regions such as Japan, Europe, and the United States will specialize even more in higher value-added processes.⁶⁶

It is important to also note that much of the threat to upper-level jobs has more to do with automation and competition than with trade. **High-end occupations that for many years were essentially safe are now threatened by competition and automation. But because it is more visible, offshoring gets blamed.** For example, the rise of online commerce has contributed to the closure of up to 30 percent of the nation's travel agencies in the last three years. New online stock trading systems, coupled with the potential rise of electronic

exchanges, threaten tens of thousands of high paid broker and trader jobs. Software enabled legal services threatens legal jobs.⁶⁷

What types of jobs are at risk from offshoring during the next decade? While prediction is difficult, one study by Forrester Research classified them, and using this data, PPI calculated the extent to which high- and low-wage jobs were at risk. (Table 2) Using the Forester projections, 54 percent of jobs likely to be offshored pay less than the U.S. median wage of \$28,580. Almost one-third of the jobs pay in the top-wage quintile.⁶⁸ These include a projected 343,000 customer service representatives, 155,000 computer programmers, 50,000 financial managers, and 18,000 human resource managers (See Table 3). Thirty-six percent of the highest paid jobs likely to be offshored are in software. It is also important to note, however, that even though high-wage occupations are most at risk of being offshored, the Bureau of Labor Statistics projects that, as a group, these occupations are expected to also grow the fastest of the five occupational quintiles.

As discussed below, shifts in trade patterns—with rising import competition in labor-intensive manufacturing and sharply falling exports—have contributed to the weak job performance of the Bush administration. In the moderate- and longer-term, however, the United States can gain jobs by employing the right policies. The real threat to offshoring is that it could alter the occupational distribution of the economy and, in particular, squeeze the middle class. Recent trends suggest that there is increasing bifurcation of the labor market with middle-income jobs shrinking. As Figure 2 shows, from 1999 to 2002, the lowest wage quintile gained 660,000 jobs and the first and second highest quintiles gained 720,000 jobs. In contrast, job growth in the middle quintile was virtually flat while the fourth wage quintile saw 157,600 jobs lost. Bureau of Labor Statistics employment projections suggest that such labor market bifurcation is likely to continue. As Figure 3 illustrates, between 2002 and 2012, jobs in the top two wage quintiles and lowest are forecast to grow fastest, with jobs in the third and fourth quintiles growing much more slowly. As a result, there is a real risk that the U.S. economy will increasingly be made up of a growing group of higher-wage knowledge workers on the one hand and lower-wage service workers on the other, with fewer middle-wage opportunities. If this is true, there could be major implications for our nation's social stability, absent significant changes

in public policies.

Is It Deja Vu All Over Again?

There are two issues driving the anxiety over offshoring: the loss of particular jobs and its impact on specific individuals, and the weak nature of the U.S. employment market, which makes finding a new job even harder. Many voicing concern over the jobless recovery argue that something is now structurally different, particularly the rise of offshoring and robust productivity rates. While the past is never fully prologue, it is worth noting that our economy has faced similar kinds of challenges, and experienced similar kinds of reactions in the past.

Whenever recoveries take longer than normal, claims that something has structurally changed are perennial. In 1941, a report of Congress' Temporary National Economic Committee stated, "... there is unmistakable evidence of a change in kind as well as severity in the unemployment of the last depression. This change is characterized by the widespread use of electrical power and mass production methods which have shown a capacity to increase industrial activity on the upturn of the business cycle without a corresponding ability to absorb unemployed labor."⁶⁹

Similar fears appeared in the late 1950s and early 1960s, a period similar to today in that it followed a decade in which a new kind of economy had emerged. In the 1950s, business and the popular press spoke of the possibility of fully automated factories.⁷⁰ Labor leaders expressed concern over whether growth could keep pace with technological advances. Congress held hearings in the late 1950s

on the issue. When President John Kennedy created an Office of Automation and Manpower in U.S. Department of Labor in 1961, he identified "the major domestic challenge of the Sixties—to maintain full employment at a time when automation, of course, is replacing men." In 1965, President Lyndon Johnson appointed a National Commission on Technology, Automation, and Economic Progress to respond to the relatively high unemployment rates of the late 1950s and early 1960s. However, as the economy soared in the mid-1960s, the fear receded and the issue was forgotten.

Moreover, it is important to remember that the "new economy" of the 1950s and 1960s faced its own "globalization" challenge, only this time companies were not moving to low-cost Southeast Asia, they were moving to the low-cost southeastern United States. After WWII, the completion of the Interstate Highway System—coupled with the mass adoption of air conditioning and electrification—opened up the low-wage South as a viable branch plant location. Like today, there were large income differentials between the North and the South, making relocation to the South an attractive way to cut costs.⁷¹ As a result, northern industries flocked to the South, leaving behind shuttered factories, devastated communities, and unemployed workers. For example, the Northeast's share of textile employment fell from 40.5 percent in 1950 to 22 percent in 1970, while New York and Pennsylvania's share of apparel employment fell from 47 percent to 24 percent. Then as now, unions sought to harmonize labor costs and standards. Operation Dixie was a massive, failed effort to unionize Southern factories in the 1950s and tie the companies

Table 2: Income Distribution of the 3.2 Million Jobs Expected to be Offshored by 2015 in 249 Occupations⁷²

Income Quintiles	Number of Jobs to Be Offshored	Share of Jobs Offshored	Projected U.S. Job Growth in the 249 Occupations
\$46,050 and above	1,095,400	34.5%	21.3%
\$33,500 to \$46,050	426,200	13.4%	16.1%
\$25 to \$33,500	1,059,900	33.4%	8.4%
\$20,600 to \$25,000	584,200	18.4%	9.0%
\$14,900 to \$20,600	10,600	0.3%	-0.3%
Total	3,176,300	100%	14.7%

Source: Analysis by Progressive Policy Institute using BLS data and Forester offshoring projections

Table 3: Occupations with the Largest Estimated Job Loss Due to Offshoring by 2015

Customer Service Representatives	343,000
Bookkeeping, Accounting, and Auditing Clerks	300,000
Office Clerks, General	214,000
Computer Programmers	155,000
Accountants and Auditors	138,000
Computer Software Engineers	97,000

Source: Forrester Research

to national wage-setting in order to eliminate the wage differential. Like now, low-wage regions established economic development programs and offered substantial incentives to lure industry to their borders.

In spite of all these advantages, not all industries moved south, many were less cost sensitive, and more were tied to local markets or to the advantages (skilled workers, better infrastructure, clusters of innovative firms) the North still possessed. Just as importantly, the North did not just stand still, its entrepreneurial energies led to the creation of whole new industries.

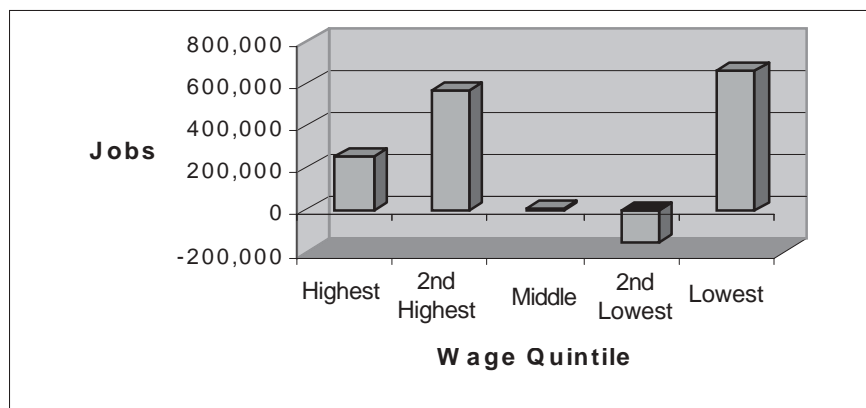
How Not to Think About Offshoring

To understand the impact of offshoring and develop the right policy responses, it is important to engage in reasoned analysis and not simply default to theological arguments about the merits of free

trade or scare tactics over the apocalyptic threats from trade. Unfortunately, in the heated and often ideological debate about offshoring, both optimists and pessimists have made many claims and arguments based on erroneous assumptions and faulty analysis. On one side are those who generally oppose all offshoring and on the other those who generally see all offshoring as a plus. One side focuses solely on the interests of workers, the other consumers. One side wants to close our borders, while the other places little focus on trying to eliminate distortions in trade, including currency manipulation. One side argues almost as a matter of faith that growing trade competition cannot lead to job loss, even in the short term, and the other contends that it leads to massive and irreparable job loss. Such a “black and white” approach to this issue is a mistake. There is a Third Way in this debate that is based on a recognition of the complexity of the issue.

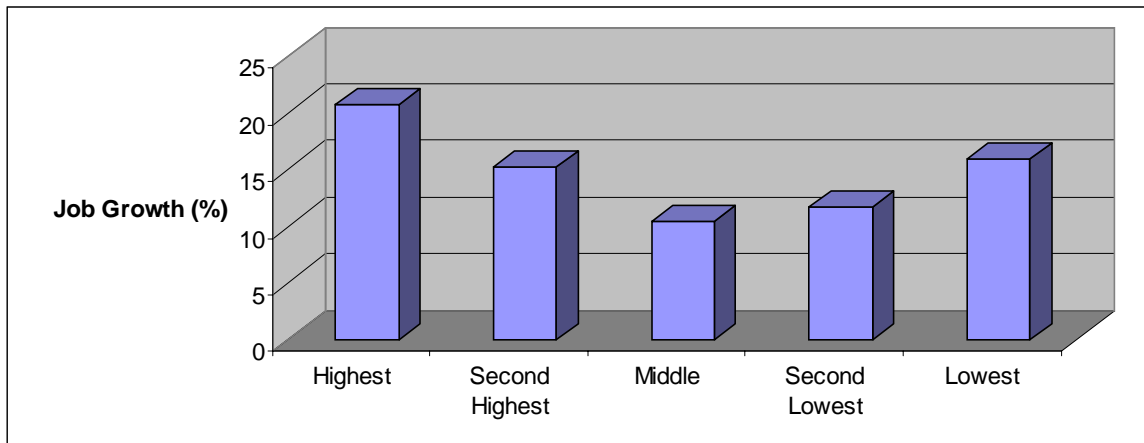
Pessimists’ Myths About Offshoring

Figure 2: Employment Change by Wage Quintile 1999-2002



Source: Bureau of Labor Statistics, Occupational Employment Statistics

Figure 3: Projected Job Growth by Wage Quintile: 2002 to 2012



Source: Bureau of Labor Statistics, Occupational Employment Statistics.

Offshoring pessimists make a number of arguments against it. Some of their concerns and arguments deserve a careful hearing, but others are based on faulty analysis.

Myth 1: Offshoring will lead to lower wages

Many pessimists fear that offshoring will exert downward pressure on wages and our standard of living. Some worry that in the new global economy, the factory worker in provincial China sets the wage level on which all other wages are based. They worry that because it is now easy for low-wage workers in

developing countries to produce goods and services for the United States, a result will be the lowering of wages of U.S. workers to their level.⁷³

The problem with this argument is that it confuses wage levels with real output and consumption. Consider the following thought experiment: Assume Congress passes legislation requiring all companies to cut their employees’ wages and salaries in half. Are we now half as wealthy? Of course not, anymore than we would be 5 percent wealthier if inflation raised wages 5 percent. If wages are cut in half, prices would likewise fall. Our standard of living is not determined by wages, but by output—how many

Table 4: Three Views of Offshoring

	Pessimists	Third Way Pragmatists	Optimists
View of Offshoring	All of it is bad	The real risk to the U.S. economy comes from the loss of good high-wage, high-skill jobs moving offshore.	All of it is good
Focus on Concern	Workers	Both Workers and Consumers	Consumers
Approach to Trade	Protection	Open markets, get tough about reducing trade distortions, and provide TAA support for dislocated services workers	No focus on reducing distortions other than to open up markets, and oppose TAA for services workers
Number of Jobs Lost from Trade Since 2001	Many	Moderate	None or Minimal

cars, haircuts, movies, or checking accounts we produce each year. That is determined in large part by productivity. Wage levels are simply how we allocate the gross national economic output in a certain way, with doctors getting more than clerks, for example. When companies offshore services to low-wage nations, they are able to cut costs and reduce prices. Therefore, while increased competition with low-wage nations may affect the wage levels of some occupations most exposed to trade (for example, trade has been one factor in the relative decline of wages in lower-skill manufacturing occupations), it does not reduce overall standards of living.

A second thought experiment also demonstrates the flaw in the wage argument. Assume that Indian workers donated their services and we could import them at no cost. Some jobs would be lost in the industries forced to compete with free labor, but we would also be getting all sorts of goods and services at little cost. There would be costs imposed on the global economy due to the misallocation of resources, but American consumers would benefit.

At the end of the day, our incomes depend on only one thing: our productivity. As a result, there is no reason for our wages to converge with low-wage nations unless the productivity of workers converge, and for this to happen the productivity of foreign workers will have to increase significantly. If and when that happens, their wages will rise to converge with ours, rather than the reverse.

Myth 2: Offshoring will lead to fewer jobs, not just in the short-term, but in the moderate- and long-term, too

Will offshoring lead to fewer jobs, not just in the short run, but in the long run, too?⁷⁴ In the moderate- and long-term, it will not, and here is why: Like other forms of imports and overseas investment, offshoring can cost jobs, at least in the short run if the trade deficit is growing. However, with the right fiscal and monetary policies to help spin job creation in the United States—which the Bush administration has failed to provide—as well as transitional assistance to equip dislocated workers with the tools to find new jobs, there is no reason why workers who lose their jobs from offshoring should not be able to be reemployed at some point producing other goods and services.

Another reason why offshoring does not necessarily lead to fewer jobs in the long-term is that market adjustments occur. To understand this concept, it is worth looking at historical parallels. When the southern

United States opened up as a low-cost production site in the post-WWII period, the North and Midwest's share of national employment declined, but largely because the adjustment process consisted of unemployed workers moving to the South and West where jobs were being created. In a global economy, however, labor mobility is more limited. Few unemployed American workers will move to India to get a call center job.⁷⁵ Yet, by its very nature, a market economy almost always produces compensating market adjustments. In this case, the market adjustment process is not labor mobility, but currency valuation readjustment. **If the United States loses large numbers of jobs to developing nations and runs up a large trade deficit, with all else being equal, the value of the dollar should fall. The falling dollar would make imports more expensive and exports cheaper, and reduce global trade imbalances by creating export-related jobs to offset those lost due to import competition.**⁷⁶

Some opponents argue that it is different this time because India and China have such large pools of untapped labor, which can only create a drag on U.S. employment. Former Reagan Treasury official Paul Craig Roberts writes, "The enormous untapped labor pools in China, India, Indonesia and the Philippines exceed in size the U.S. population. They are sufficiently large to hold down living standards and wages in those countries until all U.S. manufacturing and information technology jobs have been outsourced in order to boost corporate profits."⁷⁷ The problem with this logic is that it ignores the fact that an extremely large labor force can also be an extremely large consumer group. The reality is that while big countries can be big exporters to the United States, they can also be big importers of U.S. goods and services, particularly if we are willing to address mercantilist policies and trade barriers these countries may erect.

Myth 3: Offshoring overthrows conventional trade theory

Some now argue that conventional theories of trade do not apply to offshoring because offshoring allows companies to easily relocate capital and production overseas.⁷⁸ This group argues that offshoring invalidates the notion of

comparative advantage which is at the heart of economists' claims that trade is beneficial. The notion of comparative advantage holds that countries specialize in what they are good at and trade in what they are not (we sell computers to Colombia and they sell coffee to us).⁷⁹ Yet, classical trade theory was never based on the notion that countries would only trade in things, in which they had some kind of *comparative* advantage. It recognized that countries could also trade in things in which they had a *competitive* advantage (e.g., we are good at making airplanes, but not principally because our weather is conducive to flying). Moreover, conventional trade theory has always recognized that nations could benefit from trade even if one nation had an absolute cost advantage in all products. The country with the cost advantage would specialize

in the product or service in which its cost advantage was greatest, and because of currency adjustment, the higher-cost nation would be able to compete in the product or service where its cost disadvantage was less. The reality is that even if factors of production flow to places that have an absolute cost advantage, currency revaluation—if allowed to work (see below) and not structurally offset by falling savings rates—should bring a new equilibrium with wages based on the economy's productivity. In other words, even if a country like India had an absolute cost advantage in almost all traded goods and services (they do not), a market-based increase in the value of the rupee relative to the dollar would allow the United States to be competitive in the sectors in which it has the least cost disadvantage.

Productivity, Offshoring, and Good Jobs

In response to the challenge of offshoring and trade competition in general, one common answer is to adopt policies that help companies boost productivity so they can lower their costs. This can work well in sectors such as manufacturing, where there is considerable potential for productivity improvement. For many of the activities being offshored, however, the opportunities for productivity are either not high (e.g., call centers) or are relatively as easy to replicate in offshore locations as they are domestically (largely because they are embedded in software).⁸⁰

As a result, for a wide array of routine information-based services at risk of being offshored, the likely next phase in implementing technology is not to just marginally improve efficiency, it is to completely do away with the need for humans to do the work in the first place. This has already happened in some cases, such as in the travel industry, where jobs were lost when airlines switched primarily to paperless tickets.⁸¹ Unlike earlier forms of automation that made work processes more efficient, the IT revolution does not just work more efficient, it replaces it altogether, particularly in the information-processing sector. Take the securities trading industry, for example. Significant future gains in productivity of these high-salary jobs are unlikely—after all, most of what stockbrokers do is labor intensive. Yet, the rise of Internet stock trading through companies such as E-trade and Charles Schwab means that the price of stock trading has declined significantly—not by automating what brokers do, but by completely bypassing it. The development of electronic communication networks (ECNs) has the potential to automate an even larger share of stock trading jobs. Likewise, in banking, productivity gain in check processing are limited by the fact that the technology has already squeezed most of the inefficiency out of the process. Yet, it is likely that within 15 years, paper checks will have been entirely replaced by electronic forms of cash (e.g., credit and debit cards, electronic bill payment). When this happens, there will be a need for significantly fewer data entry clerks and tellers. Other technologies could automate the very jobs being offshored today. For example, better voice recognition software could radically reduce the number of jobs involved in medical transcription.

It is true that both offshoring and automation can eliminate domestic jobs. However, automation yields a better result in terms of both the U.S. economy and the world's. First, automation makes the global economy more productive. In contrast, offshoring does not boost productivity, and in some cases, because wages are so low, may actually reduce productivity by leading companies to substitute labor for capital. Second, the U.S. economy is able to reap the benefits of automation (low costs) and pay American producers rather than foreign countries for those benefits. As a result, Congress and the administration should develop an R&D agenda that is explicitly focused on developing the core technologies that will help automate work that is most at risk of being offshored.

Optimists Myths

Offshoring optimists make a number of accurate arguments about how offshoring can benefit the U.S. economy. In their zeal to make the most compelling case for offshoring, however, some use faulty analyses to minimize the risks and overstate the benefits.

Myth 4: Offshoring provides us with a free lunch

One widely quoted study of outsourcing is by McKinsey Global Consulting.⁸² McKinsey claims that for every dollar of offshored activity, the U.S. benefits by \$1.12 to \$1.14. While it is true that offshoring can benefit the economy, the assumptions the McKinsey report makes about offshoring are flawed. The report states, “While still receiving services that employees were previously engaged in, the economy could now generate additional output (and thus income) when these workers take new jobs. Thus offshoring not only captures every bit of economic value, dollar for dollar, that exists in the U.S. economy prior to the decision to offshore, but it also creates a net additional value for the U.S. economy that did not exist before.”⁸³

While this sounds great, there is one problem with it. The McKinsey report assumes that without offshoring, the Indian workers would not be working, while with offshoring, the American worker is working. They count all the income from Indian workers as a global benefit, yet it is likely that they would still be employed without the work being offshored to India. Moreover, McKinsey counts both the benefits of the consumption of added imports to the U.S. economy as well as the output of the reemployed worker.⁸⁴ However, if they count imported services as a benefit, they should also count the exports needed to pay for them as costs, since we must work to produce these goods and services, yet do not consume them. Traditional trade theory still holds, and trade does not magically create new, extra value from the imports. If a country provides us with goods or services, we must provide them with something of equal value; that is why we say “trade” and not “donate.” While trade increases competition, which forces companies to become more innovative and efficient, and can allow us to specialize in the types of activities we do best, it does not magically create low-cost imports that do not have to be paid for with real goods and services.⁸⁵

Myth 5: We need offshoring to address a “looming” worker shortage

A key argument made by a wide range of offshoring optimists is that our economy needs offshoring if we are to cope with an impending labor shortage.⁸⁶ We will need all those Indian and Chinese workers to produce for us, they argue, since our labor force will grow more slowly than in past decades, while growth in demand for goods, services, and labor will not slow. Optimists cite labor economist Tony Carnevale’s forecast that a U.S. worker gap will start to appear in 2005 and grow to 5.3 million workers by 2010 and 14 million by 2020.⁸⁷ Carnevale states, “the shortage won’t just be about having to cut an extra shift. It will be about not being able to fill the first and second shift too.”

To understand why the claim of an impending labor shortage is incorrect, we need to look at the reasoning behind it. Advocates make this prediction based on the fact that, as baby boomers retire, the number of workers will grow very slowly. So far so good. However, they go on to argue that the demand for workers will continue to go up at its historical rate. This would be true only if demand for goods and services grew at the same pace as expected.⁸⁸ However, demand for goods and services is largely a function of the supply of workers. If relatively fewer people are working, there will be relatively less demand for goods and services. Baby boomers who retire in the coming decade do not maintain the levels of consumption they enjoyed while they were working. Moreover, as an increasing share of national income goes to transfer payments to retirees (Social Security and other retirement income), the share of income going to workers will by necessity decline by an equivalent amount. Put both together, and it is clear that demand for goods and services—hence demand for labor—will not grow any faster than the supply of labor.

This is not to say that we could have shortages of particular skills, as some occupations grow faster than the number of workers with the needed skills. **As a worker shortage by definition implies a negative unemployment rate, it is simply not possible to have an overall labor shortage.** It is possible, and in fact likely, that we will have a growing skills shortage as some occupations grow faster than the number of workers with the needed skills. Indeed, much of the reason for the increase in H1B visas issued in the late 1990s was because of the shortage of skilled IT workers.

Myth 6: Offshoring cannot lead to job loss, even in the short-term

Some free-market conservatives and neo-classical economists are convinced almost as a matter of faith that trade cannot lead to net job loss. There is no doubt that employment change—up or down—is a function of a wide array of forces, of which trade is only one and usually not the predominant one. That is not to say, however, that trends in trade cannot exert contractionary pressure on the labor market. As a result, while much of the 2.4 million jobs lost during the Bush administration stemmed from a slowdown in the economy—much of that exacerbated by the Bush economic policies⁸⁹ and to some extent robust productivity—shifts in U.S. trade patterns, with falling exports combined with rising imports of many light-industry goods, also hurt. PPI estimated that approximately 840,000 jobs were lost in manufacturing due to a combination of export decline and growing competition in labor-intensive industries.⁹⁰ Leading economic firms have come up with similar numbers. The economic forecasting firm Economy.com estimates that these changes in trade patterns cost around 900,000 jobs during the Bush administration due the growing trade deficit.⁹¹ The investment banking firm Goldman Sachs estimates that America has lost between 300,000 and 500,000 manufacturing jobs since the beginning 2001 due just to the relocation of production by U.S. companies to their own overseas affiliates, and even more jobs when third-party foreign contractors are included.⁹²

As a greater share of the U.S. economy is traded, this also means that changes in exports or imports will have a larger short-term effect on income and jobs. Regional economists have long recognized this phenomenon with regard to sub-national regions and distinguish between export and non-export industries. While it is true that the United States loses many more jobs to automation and other kinds of domestic churning, the multiplier from these jobs is much lower since the activity is taking place within the U.S. economy. Given that the multiplier effect from these job losses is higher than it was two decades ago—because more of our economy is now traded—it is likely that one reason for the length of this jobless recovery is the large losses of jobs due to trade. It is true that over the medium term these losses will be made up through job creation in other sectors, but for the present that is cold comfort to the millions of unemployed Americans.

Myth 7: There is nothing really new here

Offshoring is trade. Instead of container ships arriving with products, services are performed at a distance over fiber optic cables. While trade is not new, the potential scale of offshoring, and perhaps its rapidity, is. We are rapidly moving to a global economy in which a growing share of companies in advanced regions will source products and services from virtually anywhere.⁹³ The sooner we get our minds around this new reality, the better we will be.

In some ways, the United States is going through a process on a global scale that we underwent on a regional basis in the 1960s. After WWII, the U.S. economy became a truly national economy, with national labor, capital, and consumer markets. The effect was to allow a massive shift of jobs and population to the South and West. Some parts of the Northeast and Midwest were able to adapt and reinvent their economic bases around higher value-added goods and services. For example, the Boston region shifted into higher-wage defense and electronics industries. In contrast, for a variety of reasons, other regions like upstate New York could never fully make the shift and, as a result, have experienced relatively slow economic growth.

As the U.S. economy dramatically expands again—this time globally—will we follow the Boston region’s path or upstate New York’s? The former would imply moving aggressively into the next set of cutting-edge industries, including advanced IT, robotics, nano-technology, biotechnology, and high-level business services. The latter would imply staying with our existing economic base and seeing it grow slowly, at best.

Myth 8: All offshoring benefits the economy

Because they focus almost exclusively on short-term consumer welfare, many neo-classical economists and economic conservatives believe that all trade is good, even if it leads to offshoring the most skill-intensive, high-wage, and innovative components of the U.S. economy. It was this ingrained belief that led to Council of Economic Advisers head Gregory Mankiw to write, “Outsourcing is a growing phenomenon, but it is something that we should realize is probably a plus for the economy in the long run,” even if he did qualify his statements in the days after its release. One conservative analyst recently went as far as stating that offshoring was a “tonic” for the U.S. economy. While this may be true as it applies to lower-

skill jobs, it is not true in the case of many higher-skill, higher-value added jobs. Given foreign advances in science and technology, it could mean that offshoring threatens more of these higher-wage, higher-skill jobs. Consider this thought experiment. Assume that companies offshored mostly high-wage jobs, keeping lower-wage jobs in the United States. While the prices would fall for the products and services formerly being made by the high-wage U.S. workers, the wages for U.S. workers as a whole would decline even more due to growth of low-wage jobs. As a result, **it is by no means a “plus” if offshoring results in the loss of good jobs and the erosion of competencies of our key high-value added industries.**

Some economists have even concluded that, since offshoring lowers the price of certain inputs (e.g., software), it will create more jobs at home, including jobs making those inputs (e.g., software programmers). For example, Catherine Mann argues that offshoring of IT jobs “will yield even stronger job demand in the United States for workers with IT proficiency and skills.”⁹⁴ While it is true that offshoring IT-jobs will lower the cost of IT services and likely increase IT consumption domestically, it is not true that it will lead to even more domestic jobs in the offshored occupations. Logic dictates that this cannot be true. While it is true that IT jobs will probably increase domestically even with offshoring—because of the growing demand for IT services—IT jobs would expand even more without offshoring since those services would be produced domestically instead of offshore.

In order to minimize concern over offshoring, conservative scholar Thomas Sowell claims that, “this country imports far more jobs than it exports.”⁹⁵ Journalist Tom Friedman argues that offshoring is good because it creates demand for U.S. exports.⁹⁶ And there is no question that this is true—in theory. In fact, if it is true in reality, it takes a lot of the sting out of offshoring. Indian workers staff call centers and process forms, while U.S. companies sell India airplanes, software, and financial services. But India’s battery of tariffs, quotas, import bans, and “canalization” requirements—i.e., the requirement that exporters deal only with state trading bodies rather than potential customers—not to mention rampant copyright piracy, makes it hard to square all these sunny statements with reality; and one could of course compose similar lists for many other big developing countries.⁹⁷

Finally, some claim that offshoring boosts productivity because it results in lower costs (“on efficiency grounds, offshoring is good”⁹⁸). There is no question that lower costs are good, but the definition of productivity is output per hour, not the cost of goods or services. By definition, the federal government’s national income accounts are supposed to measure only the value added within the U.S. economy and subtract the value of inputs provided offshore. In reality, it appears that they may not be doing this, which may have resulted in somewhat artificially inflated productivity numbers in the last few years. The higher productivity is a result of a methodological limitation, not an underlying improvement in efficiency.

This is not to say that trade does not lead to higher productivity in the U.S. economy. In some cases, offshoring can boost productivity if it lowers the cost of capital inputs (including software) and enables companies to invest more in activities that boost productivity, such as new information technology systems. However, offshoring non-capital inputs (e.g., call centers) does not boost productivity, even though it cuts costs. In fact, if firms choose low-wage offshoring instead of investment in new equipment and skills at home, productivity could fall for these functions. In general, lower labor costs raise the cost of capital relative to labor and reduce the incentive for companies to invest in capital (and training) to boost productivity. Offshoring can boost productivity by increasing competition, which puts pressure on companies to lower costs. Offshoring can also lead the U.S. economy to specialize in higher-value added goods and services, leading to higher domestic productivity. Finally, because a more global trading system boosts the size of markets, offshoring can boost productivity by letting companies gain larger economies of scale.

Conclusion

Hopefully, the rise of service sector offshoring needs will serve as a wake up call to our nation’s policymakers to do the right thing. The right response is to enhance our nation’s ability to specialize in innovative, high-valued-added work, get tough about practices by other countries that distort free trade, and boost aid to workers and communities hurt by global competition.

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Endnotes

- ¹ Even with the creation of 300,000 jobs in March, the record of job creation has been anemic at best. It will take many more months of similarly robust job creation and a significantly lower unemployment rate to dispel doubts of structural change.
- ² Robert Atkinson, *The Bush Manufacturing Crisis*, Progressive Policy Institute, October 23, 2003, <http://www.ppionline.org>.
- ³ This was calculated by classifying U.S. occupations on their likely propensity to be able to be performed remotely through IT. For example, among the occupations included are bill and account collectors, customer service representatives, medical transcriptionists, survey researchers, architectural and civil drafters, paralegals, and insurance underwriters. This is similar to the estimate of 14 million by U.C. Berkeley professors Ashok Bardan and Cynthia Kroll. http://www.haas.berkeley.edu/news/Research_Report_Fall_2003.pdf.
- ⁴ John C. McCarthy with Amy Dash, Heather Liddell, Christine Ferrusi Ross, and Bruce D. Temkin, "3.3 Million Jobs US Services Jobs To Go Offshore," Forrester Report, November 11, 2002.
- ⁵ They do not cut costs by 80 percent, because labor is only one component of the total costs.
- ⁶ This is an administration that puts investor interests first. For example, in response to questions about the relatively low job growth in January, Secretary of Labor Elaine Chao stated on CNN, "Well the stock market is, after all, the final arbiter. And the stock was very strong this morning in reaction to the news we just received."
- ⁷ Bureau of Labor Statistics, Occupational Employment Projections.
- ⁸ This is not to say that steps to make our health care system more efficient, for example, are not needed. There are a large number of things that can and need to be done to reduce costs that companies face that can be done without reducing benefits to Americans.
- ⁹ For example, several U.S. insurance companies followed New York Life's lead in establishing life insurance processing operations in Ireland. They benefit from relatively low wage rates for well-educated workers with mathematical and computer skills, and a lower employee turnover rate.
- ¹⁰ Some in Britain are looking at Eastern Europe as a place to outsource because India is getting more expensive.
- ¹¹ Rafiq Dossani and Martin Kenney, "Went for Cost, Stayed for Quality? Moving the Back Office to India," *Berkeley Roundtable on the International Economy*, August 7, 2003, <http://repositories.cdlib.org/brie/BRIEWP156>. India's Satyam Computer Services said it expects to grow its revenues by between 26 percent and 28 percent in 2004. Over the last two years, the company's market value has nearly doubled to \$2.3 billion, in part by winning offshoring contracts, like a recent bid to develop financial service applications for Merrill Lynch.
- ¹² Aparna Sawahney, Indiana Institute of Management, Bangalore, India. "An Analysis of Factors Responsible for the Indian IT Sector Growth: Signaling Quality," *Learning from the Indian Development Experience*, workshop sponsored by George Mason University, Indian Institute of Science, Indian Institute of Information Technology; Bangalore, India, March 3-5, 2003, <http://mgmt.iisc.ernet.in/conf2/Presentations.htm>.
- ¹³ "Scrambling to Stem India's Onslaught," *Business Week*, January 26, 2004, p. 81.
- ¹⁴ GE Capital also has "Global Processing Centers" in China and Mexico; the facilities provide around-the-clock in-bound and out-bound call centers, accounting services, IT help desks, document storage, and software implementation. The Mexican facility alone processes more than 3.5 million documents a day, with turnaround times of as little as eight minutes. http://knowledge.wharton.upenn.edu/100902_ss1.html.
- ¹⁵ Benoit A. Aubert, Michel Patry, and Suzanne Rivard, "Assessing the Risk of IT Outsourcing," Centre Interuniversitaire de Recherché en Analyse des Organizations, May 1998.
- ¹⁶ In August 2000, Amazon.com⁴ announced an agreement with Daksh eServices, a provider of business process outsourcing services in India.
- ¹⁷ The work was done in India until New York City found that Africa was less expensive.
- ¹⁸ Jon Surmacz, "Outsourcing Hype vs. Reality," *CIO Magazine*, December 10, 2003.
- ¹⁹ http://www.sandhill.com/pdf/offshoring_pr.pdf.
- ²⁰ For example, U.S. accountants Wayne Harding and K.C. Truby formed Accountants in India (AII). "Through AII, CPA (certified public accountants) firms can hire a qualified, college graduate accountant, successfully trained in QuickBooks Pro and other business management applications, for about \$8 an hour," said Harding, according to a statement. <http://economictimes.indiatimes.com/articleshow/518724.cms>.
- ²¹ As much as 10 percent to 15 percent of U.S. medical transcription is done overseas. Some companies rely almost exclusively on offshored workers. For example, see: http://mxsecure.com/about/corp_profile.htm.
- ²² Dossani and Kenney, *op. cit.*
- ²³ Edward Leamer and Michael Storper, "The Economic Geography of the Internet Age," *Journal of International Business Studies*, 2001, pp. 641-665.
- ²⁴ Dossani and Kenney, *op. cit.*

- ²⁵ “Extended Mass Layoffs in the Fourth Quarter of 2003 and Annual Averages for 2003,” Bureau of Labor Statistics Press Release, February 12, 2004.
- ²⁶ Peter Coy, “GDP Growth: Are the Numbers Too Rosy?” *Business Week*, April 5, 2004.
- ²⁷ Presentation by Lee Price, Economic Policy Institute, to the Center for American Progress, March 31, 2004.
- ²⁸ If part of a job involves work that is with clients and part does not, unless the other part can be separated, the job has to remain near clients.
- ²⁹ Leamer and Storper, *op. cit.*
- ³⁰ <http://www.nasscom.org>.
- ³¹ John C. McCarthy with Amy Dash, Heather Liddell, Christine Ferrusi Ross, and Bruce D. Temkin, “3.3 Million Jobs US Services Jobs To Go Offshore,” Forrester Report, November 11, 2002.
- ³² Chris Gentle, *On the Cusp of a Revolution: How Offshoring Will Transform the Financial Services Industry*, Deloitte Research, 2003.
- ³³ “Outsourcing Not Top Priority,” *Information Week*, March 15, 2004, p. 20.
- ³⁴ Worldwide IT Services Market Forecast, 2002-2007, Gartner Research, January 12, 2004.
- ³⁵ However, some of this can be mitigated if American firms set up captive shops or outsource to other American firms. Moreover, a survey of 104 software projects by the Center for ebusiness at MIT found that the median Indian project had 10 percent more bugs than comparable U.S. projects. Spencer E. Ante, “Shifting Work Offshore? Outsourcer Beware,” *Business Week*, January 12, 2004.
- ³⁶ Bill W. Hornaday, “Outsourcing didn’t pay off for Conseco,” *The Indianapolis Star*, April 22, 2004.
- ³⁷ Aubert, Patry, and Rivard, *op. cit.*
- ³⁸ “White Paper: National Security Aspects of the Global Migration of the U.S. Semiconductor Industry,” Joseph I. Lieberman, Ranking Member, Airland Subcommittee, United States Senate Armed Services Committee, 2003.
- ³⁹ For one of the first analyses of the effect of the IT revolution on the spatial distribution of employment see the U.S. Congress, Office of Technology Assessment, *The Technological Reshaping of Metropolitan America*, OTA-ETI-643, Government Printing Office, September 1995, http://www.wvs.princeton.edu/~ota/disk1/1995/9508_n.html.
- ⁴⁰ Leamer and Storper, *op. cit.*
- ⁴¹ The latest scanners that can digitize documents at the rate of 200 pages per minute and then transfer that information over digital telecommunications networks to virtually any place on the globe further processing. Moreover, imaging technology has come so far that smudges on documents and signs of forgery now can be detected.
- ⁴² For example, widely dispersed call centers could not really emerge until the construction of digital intelligent telecommunication networks that could easily route calls.
- ⁴³ The cost of a T-1 dedicated phone line between the United States and Manila has dropped from \$30,000 a month to less than \$10,000 in the past few years. Moreover, technology advances have allowed the number of voice channels that can be put on a T-1 line by about five-fold. Moreover, the rapid growth in toll-free 800 service has meant that an increasing number of companies can inexpensively serve customers throughout the country or even the world. http://knowledge.wharton.upenn.edu/100902_ss5.html.
- ⁴⁴ Because of advances in IT, setting up an offshored facility is technically relatively easy. Compared to building complicated factories (that cannot be readily moved in case of domestic turmoil), companies need only develop software, buy office cubicles and computers and train workers.
- ⁴⁵ Dossani and Kenney (p. 18). Call center manager InTelegy can offer clients use of a 400 seat call center in New Delhi at a billable rate of \$18 an hour per Indian worker, as opposed to \$30 to \$35 an hour for their U.S. counterparts. http://knowledge.wharton.upenn.edu/092403_ss3.html.
- ⁴⁶ Dossani and Kenney, *op. cit.*
- ⁴⁷ Annual attrition rates in call centers in the U.S. can range from 70 percent to 120 percent. It takes a month and a half to train a person so that he or she can hit the ground running, and then three months later that person is gone. In contrast, in India, at its worst, the attrition rate is between 12 percent and 35 percent. http://knowledge.wharton.upenn.edu/100902_ss6.html.
- ⁴⁸ However, telecom costs are likely to fall significantly over the next few years. For example, Indian companies have been laying undersea fiber optic cables and as a result transmission costs could fall by 60 percent in the next year. Stephen Baker, “Jobs Go Overseas—Underwater,” *Business Week*, April 5, 2004, p. 13.
- ⁴⁹ <http://www.people3.com/web.1c.18.aspx>
- ⁵⁰ Several telecom companies, including Reliance Infocom and Bharti Telecom, have laid thousands of kilometers of fiber in the past few years, and the state now claims to have the highest density of fiber optic cable in India.
- ⁵¹ Radha Roy Biswas, “Making a Technopolis in Hyderabad, India: The Role of Andhra Pradesh Information Technology Policy,” working paper: University of Massachusetts-Lowell, Regional Economic and Social Development Department, 2003.
- ⁵² *Ibid.*
- ⁵³ Formed through a partnership with the Wharton School, the Kellogg School of Management at Northwestern University, and London Business School, the institution offers postgraduate and executive programs.
- ⁵⁴ <http://knowledge.wharton.upenn.edu/index.cfm?fa=viewArticle&id=852>
- ⁵⁵ Generated by Wipro’s global IT business during the third quarter, the U.S. market accounted for 70 percent of their business. Of the remaining business, Europe accounts for 25 percent and Japan for 5 percent.
- ⁵⁶ As the number of English speakers in China grows in response to a major push by the Chinese government to teach its citizens English as a second language, they could be a destination for some offshored service work.
- ⁵⁷ Some have claimed that the Japanese are offshoring some activities to Japanese speakers in the Manchurian section of China.

- ⁵⁸ The occupational survey is the Occupational Employment Survey by BLS. The household survey is the Current Population survey by the Census Bureau.
- ⁵⁹ There is one exception to this and that is Russia, which had many more scientists and engineers than the United States in the 1960s and 1970s. However, the American innovation system was much more effective.
- ⁶⁰ Moreover, in India, most of the R&D was government funded and less effectively commercialized.
- ⁶¹ *Science and Technology Industry Scoreboard*, Organization for Economic Co-operation and Development, 2003, p.66.
- ⁶² *Ibid*, p. 69.
- ⁶³ Of the 160,000 engineers graduated each year in India, only 3,000 are considered to meet international quality. Anthony P. D'Costa, "ICT and Decoupled Development: Theories, Trajectories and Transitions," *Learning from the Indian Development Experience*, workshop sponsored by George Mason University, Indian Institute of Science, Indian Institute of Information Technology; Bangalore, India, March 3-5, 2003, <http://mgmt.iisc.ernet.in/conf2/Presentations.htm>.
- ⁶⁴ One can make the same case with regard to research. The demand for scientific research is close to infinite. If nations like China increase their capacity to do scientific research, that only helps the United States by contributing to the pool of knowledge that all mankind can benefit from.
- ⁶⁵ Spencer E. Ante, "Shifting Work Offshore? Outsourcer Beware," *Business Week*, January 12, 2004.
- ⁶⁶ Universities are already responding to these changes. For example, Seattle University has shifted its concentration from such things as software development, which increasingly is done overseas, to "business integration"—writing the one-of-a-kind code that lets companies tailor off-the-shelf programs to their needs.
- ⁶⁷ Robert Atkinson and James Johnston, *Stopping the Regulatory Threats to the Emergence of Online Law Support*, Progressive Policy Institute, 2000.
- ⁶⁸ The Forrester projections for high wage jobs could be on the high side.
- ⁶⁹ "Technology in Our Economy," monograph 22, *Temporary National Economic Committee*, 1941, p. xvi.
- ⁷⁰ For example, a 1964 episode of *The Twilight Zone* was about a plant manager who replaced all his factory workers with robots and who himself was eventually replaced by one.
- ⁷¹ In 1940, per capita income in the East South Central region was 37 percent of what it was in the Middle Atlantic region. Not quite the 10 percent to 20 percent differential with India, but the South also was closer and had less risk.
- ⁷² Table 2 is based on data from earlier Forest estimates provided to PPI, not the most recent data projecting that 3.4 million jobs would be offshored. The newest data can be found in "Near-Term Growth Of Offshoring Accelerating Resizing US Services Jobs Going Offshore" by John C. McCarthy with Christine Ferrusi Ross, William Martorelli, Christopher Mines, Adam Brown, Forrester Research, May 14, 2004.
- ⁷³ Such concerns are not new. In 1945 Harvard economist Alvin Hansen stated, "We are always selling too much in the world markets. This indeed constitutes one of the great world problems. We are always selling to foreigners more than they are able to pay for." How things have changed.
- ⁷⁴ In a 1965 Harris poll more than half of Americans thought automation raised unemployment rates, whereas only 38 percent thought it resulted in better and cheaper goods. A 1982 Time/Yankelovich poll found that 52 percent of respondents thought that computers "will throw a lot of people out of work." A 1986 Roper poll found that 54 percent of adults thought the use of industrial robots on assembly lines would be "severely limited." In 1989, 52 percent of Americans thought robots would replace most assembly line workers by 2000. A 1998 General Social Survey poll found that 50 percent thought computers and it would reduce jobs. Michael Handel, *Implications of Information Technology for Employment, Skills, and Wages: A Review of Recent Research*, SRI International, July 2003.
- ⁷⁵ In the midst of the 1960s fears about automation some actually considered schemes whereby the United States would encourage net outmigration of Americans to other nations like Brazil as the demand for labor contracted domestically.
- ⁷⁶ It is in this context that the efforts by Europe and Japan to prevent the value of the dollar falling are so mistaken. With both regions run large trade surpluses with the United States, the only direction the dollar should go is down.
- ⁷⁷ Paul Craig Roberts, "Is Outsourcing Trade – Or Dispossession?" *Vdare.com*, March 4, 2003, http://www.vdare.com/roberts/free_trade_notes.htm.
- ⁷⁸ <http://www.townhall.com/columnists/paulcraigroberts/pcr20030305.shtml>
- ⁷⁹ For the last 30 years such kinds of trade has been a small share of our overall trade. Instead much our trade is based on competitive advantage, with countries exporting products and services that they have developed competitive advantage in. There is nothing inherent about the Japanese economy that leads them to have an advantage in making cars
- ⁸⁰ Chris Mathews, host of the TV show *Hardball*, jokingly asked, "How do you increase the productivity of call centers, have the people in India speak really fast?"
- ⁸¹ Robert Atkinson, *Digital Automation and the New Workforce*, Progressive Policy Institute, April 21, 2000, <http://www.ppionline.org>.
- ⁸² *Offshoring: Is it a Win-Win Game*, McKinsey Global Institute, August 2003.
- ⁸³ *Ibid*.
- ⁸⁴ The model also incorrectly includes expenditures on telecommunications and IT as an added benefit to the U.S. economy, when in fact, those expenditures would be exactly the same, if not higher, had the operation in question remained in the United States.
- ⁸⁵ When calculating global economic benefit the study also uses faulty assumptions, assuming that absent offshoring, labor in India would be not be employed, but with offshoring, the labor in the United States is reemployed.
- ⁸⁶ See, for example: Paul Kaihla, "The Coming Job Boom," *Business 2.0*, September 2003. See also: David Ellwood, *Grow Faster Together or Grow Slowly Apart*, Aspen Institute Domestic Strategy Group, 2002. In 2001, Elaine Chao, President Bush's Secretary of Labor, warned that, "Our new challenge is a scarcity in the one fundamental resource that drives every economy in the

world: the workforce ... If the coming worker shortage in the next several years is not addressed, the federal budget, the economy, and working taxpayers will pay a huge price." <http://www.dol.gov/sec/media/speeches/worldconremark.htm>.

⁸⁷ Tony Carnevale's forecast can be found in an unpublished white paper commissioned by the National Association of Manufacturers. Among those who have cited his findings, the McKinsey report states, "a five percent increase in the number of workers will be needed in 2015 to maintain the ratio of workers total population that existed in 2001." To maintain "our standard of living will require offshoring activities to where they are more workers." A report commissioned by the Indian trade association NASSCOM to defend offshoring repeats this baseless claim: "offshoring may be the only way to sustain the current levels of economic growth given the predicted labor shortage and the potential limitations on immigration." They claim that the United States will experience a domestic labor shortfall of 5.6 million by 2010, due to an aging population and continuing GDP growth, and that either immigration or offshoring is the only answer. *The impact of global sourcing on the US Economy: 2003-2010*, Evalueserve, October 2003, p. 2.

⁸⁸ Adjusted for the fact that demand goes up as productivity goes up.

⁸⁹ For example, instead of front-loading his tax cuts so that most of the stimulus occurred in 2002 and 2003 when it was needed, most of the effect of Bush administration tax cuts will take place in out years when they are not needed. Moreover, instead of targeting the tax cuts on low- and middle-income workers who are most likely to spend them, they focused them on high earners who are more likely to save them, again minimizing the stimulus to the economy.

⁹⁰ Robert Atkinson, *The Bush Manufacturing Crisis*, Progressive Policy Institute, October 23, 2003, <http://www.ppionline.org>.

⁹¹ Mark Zandi, "The Offshoring Threat," *Economy.com*, October 24, 2003.

⁹² *Offshoring: Where Have All the Jobs Gone*, U.S. Economic Analyst, Goldman Sachs, September 19, 2003.

⁹³ This is true as long as there is reasonable political stability, a reasonable business climate, skilled workers, and adequate infrastructure, include advanced telecommunications.

⁹⁴ Catherine L. Mann, *Globalization of IT Services and White Collar Jobs; The Next Wave of Productivity Growth*, Institute for International Economics, December 2003, p. 6.

⁹⁵ Thomas Sowell, "Low Taxes Do What," *Wall Street Journal*, February 24, 2004.

⁹⁶ Thomas L. Friedman, "What Goes Around ..." *New York Times*, February 26, 2004.

⁹⁷ Friedman quotes an executive at an Indian firm that does animation for U.S. companies, stating, "It's unfair that you want all your products marketed globally, but you don't want any jobs to go." This would arguably be unfair, except for the fact that India's trade barriers against American goods and services are far higher than anything existing, or even seriously contemplated, in the United States, and is one reason why India runs an \$8 billion annual trade surplus with the United States.

⁹⁸ Eduardo Porter, "Outsourcing is Becoming a Harder Sell," *New York Times*, March 6, 2004.