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INSIGHTS

Do You Want Jobs or Do You Want Productivity?

Outlook for the Pharmaceutical Industry on Job Growth and Productivity Trends

While the U.S. stock market is performing like a roller coaster, many Americans are wondering if we really are recovering from the recession. After all, the unemployed and underemployed labor force continues to grow. While economists may disagree on the amount, a sustained recovery requires anywhere from 100,000[1] to 250,000[2] jobs to be created each month. Unfortunately, we severely underachieved these targets by only adding an average of 83,000 jobs for the five months ending in October 2011.[3]

Employment (*Over-the-month change, in thousands*)	JUN	JUL	AUG	SEP	OCT
Total nonfarm	20	85	0	210	100

The $787 billion dollar stimulus, the American Recovery and Reinvestment Act, passed on February 17, 2009 by Congress is credited with providing funds to save or create over 5 million jobs through June 2011.[4] Yet, approximately 13.3 million continue to look for full time employment.[5]

Time	Recovery Funded Jobs Reported
JUL – SEP 2011	400,024
APR - JUN 2011	555,029
JAN - MAR 2011	560,992
OCT - DEC 2010	582,089
JUL - SEP 2010	675,841
APR - JUN 2010	750,045
JAN - MAR 2010	682,322
OCT - DEC 2009	608,078
FEB - SEP 2009	633,189
TOTAL JOBS REPORTED	**5,047,585**[6]

Looking specifically at the U.S. pharmaceutical industry over the last ten years, we see evidence of unprecedented growth while jobs disappear from the U.S. economy. Over the last decade, there has been a tremendous amount of productivity attributed to this industry, with revenue levels soaring and the number of employees dropping. Yet the evidence of this productivity cannot be found in the publications of the U.S. Bureau of Labor Statistics (BLS). This is because the gains from labor efficiencies have not directly benefited the U.S. economy. As pharmaceutical manufacturing jobs move offshore, the U.S. loses the benefits typically gained from cost-saving productivity growth.

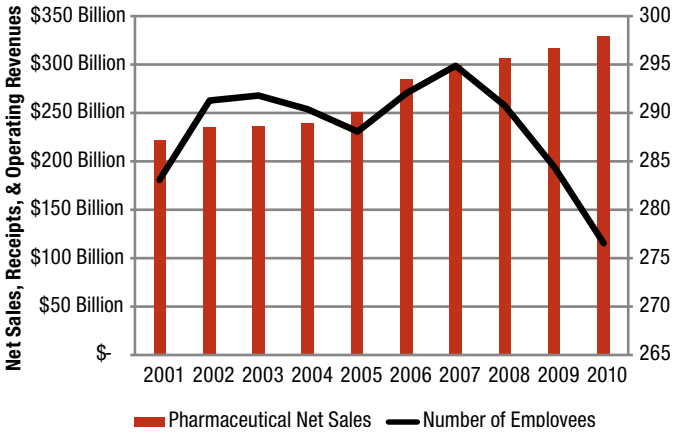
The U.S. government typically leverages Gross Domestic Product (GDP) predictions to factor future employment rates. However, when assessing pharmaceutical employment data from 2007 through July 2011, there is no correlation between GDP in billions of current dollars or GDP in billions of chained 2005 dollars. In 2008, the BLS predicted that pharmaceutical employment in the U.S. would grow to 307,500 employees by 2018.[7] With the impact of mergers, increased productivity, and the global economic climate, and without any significant policy changes by the U.S. government, Clarkston Consulting believes the employment level is more likely to be at 262,000 employees, a contraction of about 4%.

The U.S. maintains many of the Research and Development centers for the pharmaceutical industry, which is a bright light in the U.S. economy. Innovation is critical to boost the demand of goods and consequently create jobs, but innovation without corresponding manufacturing facilities will not contribute enough to support the economic growth necessary to prevent the continued loss of jobs in the pharmaceutical industry. In a pre-globalization world, economists could rely on increased productivity in one industry leading to an overall increase in jobs, albeit in other sectors in the nation's economy. For example, innovations from personal computers in the 80's and 90's improved productivity in the manufacturing sector, yet new jobs were created to offset these job losses in the technology space (e.g. AOL, Microsoft, Apple). Since offshoring became prevalent in the last ten years, the increased productivity in one or two U.S. industry sectors has a major impact on a nation's employment level because the offsetting job creation occurs outside the US economy.

Pharmaceutical Productivity

According to the U.S. Census Bureau, from January 2001 through December 2010, the pharmaceutical industry net sales, receipts, and operating revenues grew in the United States from $222.9 billion to $329 billion, or 48%.[8] Even factoring inflation, the industry grew by 12% over ten years. Meanwhile, as of September 2011, employment in this industry shrunk by nearly 4% from over 283,000 in 2001 to 273,000 employees.[10] This productivity increase is staggering with revenue at $1.2 million per U.S. employee compared to the 2001 rate of $787,384 per U.S. employee.

Size of US Pharmaceutical Industry Compared to Total # of Employees



> "Clarkston Consulting believes the pharmaceutical employment level is more likely to be near 262,000 in 2018 than the 307,500 predicted by the Bureau of Labor Statistics."

Size of US Pharmaceutical Industry in 2001 Dollars (Factoring Inflation)

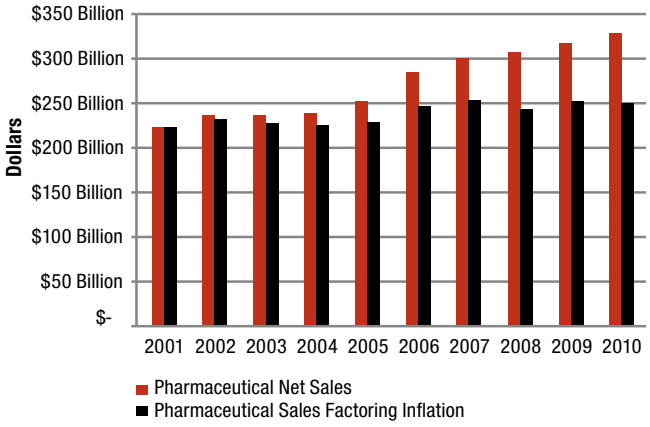


Figure 1: **Inflation measured at 2001 constant rate, using CPI index**

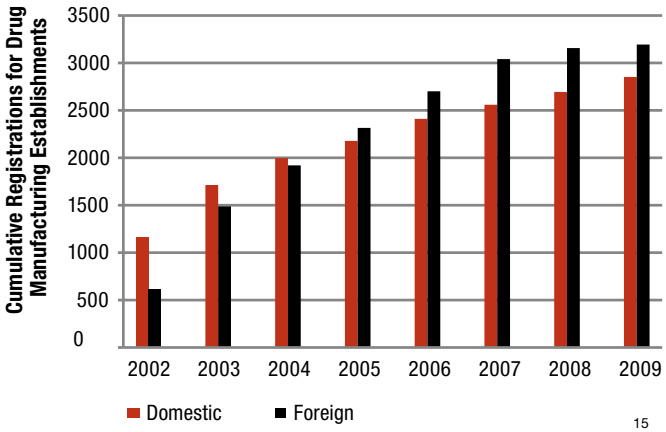
Pharmaceutical Employees (Thousands)

Year	Industry Size	Average Number of Employees	Average Revenue per Employee
2001	$222,900,000,000	283,100	$787,384
2010	$329,000,000,000	276,500	$1,189,873

This rapid productivity improvement is unprecedented and impressive. One major cause of these productivity improvements is the rapid pace of offshoring pharmaceutical manufacturing, information technology services, and other jobs since 2004, in the pharmaceutical sector. Indeed, Pfizer, one of the U.S.'s largest pharmaceutical companies, has saved billions in operating costs[11] due to moving jobs outside of the United States and has even announced plans to move Research and Development operations to China.[12]

The number of drug products made outside the U.S. doubled from 2001 to 2008, according to FDA estimates.[13] Up to 40% percent of the pharmaceutical drugs dispensed in the United States are manufactured abroad.[14] The Federal Drug Administration (FDA) is a domestic organization that does not have the resources to hold manufacturing operations outside the U.S. to the same regulatory and safety standards facing domestic manufacturers. The globalization of the pharmaceutical supply chain through outsourcing manufacturing to countries like India and China certainly reduces costs. Unfortunately, we are only just beginning to experience the concealed expense to the U.S. economy and drug safety.

Challenges of Globalization: Registered Drug Manufacturing Firms



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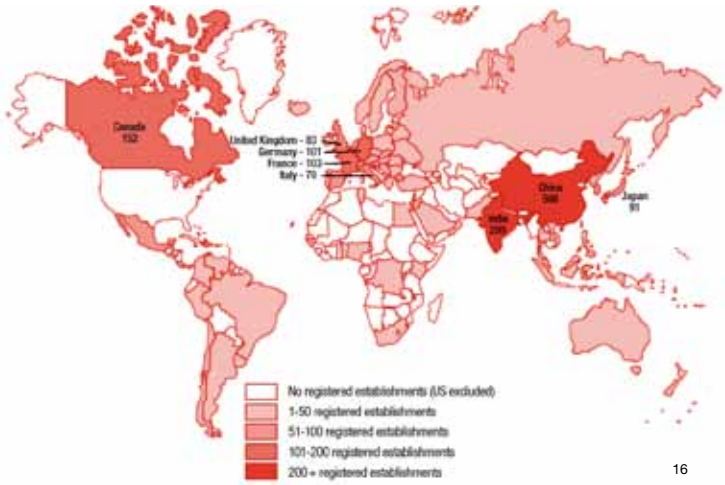
A McKinsey Global Institute study claims the method to delivering economic prosperity is to retool the U.S. economy's engine to achieve a higher level of productivity.[17] At a macro-economic level, this recommendation is valid. Certainly, it is not reasonable to recommend that an industry become less productive to bolster economic growth. Still, there is clear evidence suggesting the unprecedented productivity growth in the pharmaceutical industry is actually harming the U.S. economy as any job creation resulting from productivity gains are occurring offshore.

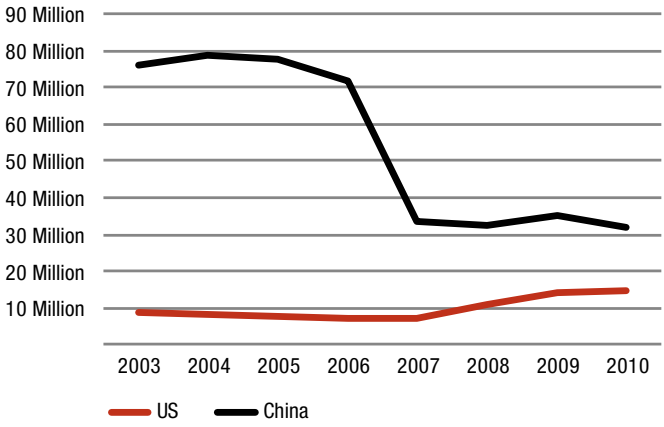


> "In 2003, China had nearly nine times as many unemployed labor workers than the US, in 2010 this ratio dropped to roughly two times as many unemployed."

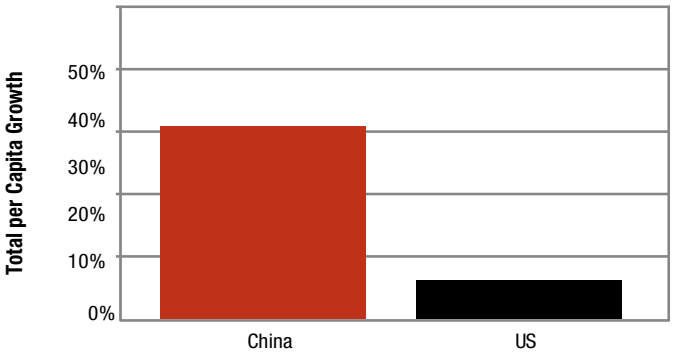
A Deeper Look at Unemployment

In 2003, China had nearly nine times as many unemployed labor workers than the U.S. (76 million versus 8.8 million).[18] In 2010, China only had roughly two times as many unemployed workers (31.9 million versus 14.9 million).[19] GDP per Capita Purchaing Power Parity (PPP) has grown in China by 41% from 2006 through 2010 compared with 7% growth in the United States during the same period.[20] For comparison purposes, consider that GDP per Capita grew at approximately the same rate in a ten year time span, throughout the 90's (1990 – 1999) when the U.S. experienced growth of 42%.[21]

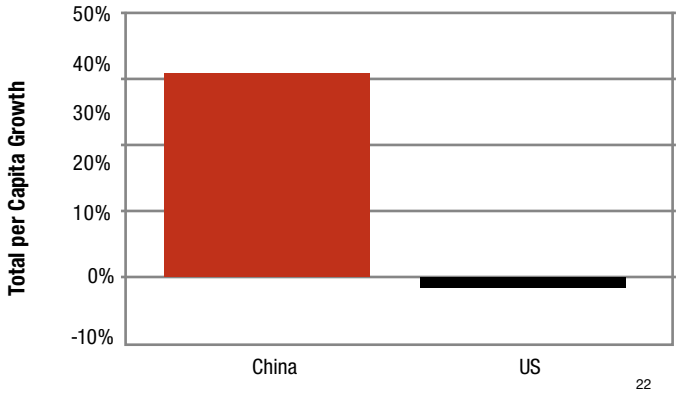
Number of Unemployed (China vs. US)



Total GDP per Capita (PPP) Growth US$ 2006-2010



Real Historical GDP per Capita



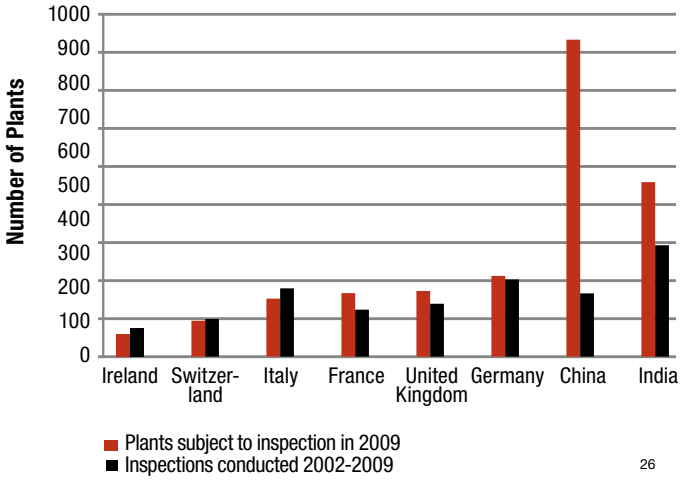
Increased productivity through technology and manufacturing improvements allows our U.S. businesses to operate effectively and efficiently offshore. It is unreasonable to expect any company to choose to produce in a market with more expensive labor and greater regulatory attention, given the alternatives available. It is also unfeasible to expect pharmaceutical corporations to temper the rate of productivity enhancements in order to grow more jobs at home. At the same time, the U.S. economy relies heavily on this private sector for growth and prosperity.

The U.S. Government must partner with the Pharmaceutical Industry for a Solution

The U.S. government and the pharmaceutical industry should take action immediately on these four priorities in order to encourage the economic development of the industry within the U.S.

1. The FDA has a very difficult mandate to protect public health by assuring the safety, effectiveness, and security of human and veterinary drugs, vaccines and other biological products, medical devices, our nation's food supply, cosmetics, dietary supplements, and products that give off radiation.[23] In order to ensure pharmaceutical manufacturers produce quality products, the FDA has established guidelines for Good Manufacturing Practices (GMP). For any drug dispensed in the United States, the FDA has the responsibility and authority to verify factories comply with GMP standards. According to Pew Health Group, though the FDA inspectors do travel abroad, the FDA's foreign inspection service lacks the resources to inspect manufacturing sites with any meaningful regularity.[24] Recent pilot partnerships with the U.S. FDA's European and Australian counterparts to improve international coverage has certainly been a step in the right direction of safety and equality. However, government regulators have much further to go to create a balance of regulation enforcement across the globe.[25]

No. of Pharmaceutical Manufacturing Sites subject to US Food & Drug Adminstration Inspection in 2009 vs. actuals 2002-2009



As a nation, the United States must already compete for manufacturing jobs with foreign nations in the cost of labor, goods and services, and infrastructure capabilities. U.S. policy and regulation must not allow the imbalance in number of site inspections conducted between manufacturers in the U.S. and offshore to continue to escalate. Policy makers must provide the necessary funding to ensure we are not providing incentives for pharmaceutical companies to move jobs offshore.

2. China accounts for roughly 20% of the world's population[27] and approximately 5% of the world's drug market.[28] China's drug market is expected to grow by 25%-27% to more than $50 billion in 2011,[29] thanks in part to a 2010 announcement from the Chinese government, which described a massive program to boost healthcare spending.[30]

While it may be unreasonable to expect that U.S. pharmaceutical companies would stop making drugs offshore, it is reasonable to expect and support these companies in their efforts to sell drugs globally. The Chinese drug market is very fragmented with thousands of distributors and manufacturers, none of whom has a sizable market share.[31] Prioritizing sales in China and other emerging markets like Brazil and India would increase the number of U.S. jobs and the strength of the U.S. pharmaceutical industry. However, multinational companies certainly face challenges in expanding to China, not the least of which include piracy and counterfeit concerns, pricing pressures,[32] and calls from the Chinese government to move R&D facilities into the country.[33]

U.S. companies have had mixed success in growing through the Chinese marketplace. For instance, Coca-Cola continues to invest heavily in operations and to generate sales and the investment seems to be working well for the fast moving consumer goods company. On the other hand, Apple's iPhone sales continue to slump in the Chinese market. The task will not be easy for U.S. pharmaceutical companies to expand into this market but the benefits are clear to the top and bottom line for the industry. To some degree, the job growth associated with increased sales in emerging markets could help to offset some of the lost jobs in the manufacturing sector.

The professional and related occupations make up nearly 32% of all jobs in the pharmaceutical industry.[34] Employment for engineers, biochemists and biophysicists, and other medical scientists would continue to grow at home. As companies grow, employment for office and administrative support occupations would also increase. All told, an incremental increase in sales in China alone of about 10% could result in thousands of domestic jobs. This focus on expanding pharmaceutical sales in China and other growing foreign economies could increase pharmaceutical employment by over 1% (see chart below).

U.S. pharmaceutical companies have been awaiting the opportunity to expand their sales into emerging markets. This evidence suggests that international sales expansion is necessary to create more U.S. jobs. Roadblocks to expansion remain in the way of pharmaceutical companies that the U.S. government can help address with China. For instance, the current administration must continue to express concerns to the Chinese government about their plan to establish a national catalogue of products where the intellectual property must be developed and owned in China as a market access condition.[35] This Chinese requirement will either force the U.S. pharmaceutical companies to close R&D facilities in the United States or prohibit the opportunity for sales growth. The U.S. government must also continue to take aggressive action to support the protection of American intellectual property rights. The enforcement of intellectual property rights not only supports the growth of the U.S. economy, but it can also prevent inappropriate competition for U.S. pharmaceutical companies from foreign markets.[36]

> "The U.S. government and the pharmaceutical industry should work together to help displaced U.S. pharmaceutical workers retrain for positions in the healthcare industry."

3. Pharmaceutical R&D spending fell in 2010 by $2 billion, nearly 3% of global research spending.[37] This trend seems to be continuing into 2011 and beyond as Pfizer and other major pharmaceutical players are looking to cut costs.[38] The most critical component of growth, for both the U.S. economy and specifically in the pharmaceutical industry, is innovation. Since increasing spend has not systematically translated into successful new medicines, pharmaceutical companies must find new ways to make their R&D budgets work harder.

US Pharmaceutical Employees (2010)	2010 US Pharma Revenue	2010 Average Revenue per Employee	5% Revenue Increase	10% Revenue Increase	15% Revenue Increase	Jobs Impact (Low)	Jobs Impact (Medium)	Jobs Impact (High)
268,500	32,900,000,000	$1,225,326	$1,645,000,000	$3,290,000,000	$4,935,000,000	1,289	2,578	3,866
			Impact to Employment in the Pharmaceutical Industry			**0.48%**	**0.96%**	**1.44%**

New medicines translates into job growth through expanding sales teams and training offerings, expanded management and administration functions, and dedicated engineers and scientists. In order to develop more successful new medicines, it is imperative to stay away from "me too" drugs and start focusing on innovative drugs where there is currently an unmet need for medicine. In order to be more successful new drugs need to prove with conclusive evidence why they are more valuable than the products currently on the market. This requires a large investment from the pharmaceutical company, when the benefit to the patient may be minimal. Licensing and collaborating with smaller biotechnology companies has certainly been one way that big pharma has been filling their pipeline. Nevertheless, organic growth and development of new molecules will continue to be an important part of growing the pipeline.

One method that has been successful in the consumer products industry and can also be useful in drug development is the concept of open innovation. Leveraging and supporting individual researchers throughout the world to help understand the new science available in the marketplace can certainly help the pharmaceutical industry discover the next blockbuster drug. This benefits the economy in two ways – first, in pushing funding to the individuals, universities, and laboratories that are focused on developing new medicine and new science and secondly, in increasing the likelihood of finding the next blockbuster drug. Patience and a comprehensive long-term strategy are actually more valuable than dollars spent in developing a strong pipeline of new drugs.

One new blockbuster drug, like Lipitor, with annual sales of $10 billion, could add as many as 40,000 jobs to the industry over the course of the life of the drug's patent protection.

Blockbuster Annual Sales	2010 Average Revenue per Employee	Impact on US Employment in 1 year	Impact on US Employment in 5 years	Impact on US Employment in 10 years
$	$ 1,225,326	4,081	20,403	40,805

4. Thousands of the underemployed and unemployed in the U.S. job market have been laid off by the pharmaceutical industry in the scores of mergers in the last few years. Since many of these workers have similar skills and have all been flooding the job market at the same time, competition for any open position is high. Yet, according to the website indeed.com, there are still over 47,000 open and unfilled jobs in the U.S. pharmaceutical industry.[39] While that is certainly a lot, this figure does not compare to the healthcare industry's 490,000+ open jobs.[40]

Many skills are transferable between pharmaceutical jobs and health care professions. Pharmaceutical workers likely already have knowledge of patient's rights, physician policies, and industry trends. These workers have experience working in a highly regulated industry, which is highly productive. To manage rising costs, the healthcare industry needs new ideas and methods for productivity and efficiency improvements where former pharmaceutical worker's experience can add a lot of insight.

While the benefits to the jobless and the economy are obvious, there can be real benefits for the pharmaceutical companies who support former employees with training and outplacement in the healthcare industry. Healthcare workers with intimate knowledge of the company's offerings bolstered by a positive parting experience can mean brand champions who are placed in favorable new jobs, instead of in a competing marketplace. Government unemployment programs that support ongoing skill development should take a very practical look at training opportunities for ex-pharmaceutical employees in the healthcare industry.

Conclusion

The U.S. economy is certainly trending into dangerous territory with a jobless recovery from the latest recession. Increasing regulations in the healthcare and life sciences industries in the U.S. will continue to make it difficult for pharmaceutical companies to achieve the tremendous growth of the last six to eight years. These companies are operating at extremely high levels of productivity with very few of the benefits actually reaching the U.S. economy.

The U.S. has an amazing history of persevering despite a difficult global economic climate. There is no doubt that the loss of American jobs from increased productivity and global competition is causing economic challenges. While the call to action may be quietly calling to the pharmaceutical giants, the risk of not being proactive to stem a double dip recession is too great to ignore. By focusing on global growth, talent optimization, regulatory equality, and innovation – the pharmaceutical industry could be poised to help pull the U.S. into an employed and prosperous future.

About the author

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