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Congress of the United States

U.S. House of Representatives

Committee on Small Business

2361 Rayburn House Office Building
Washington, DC 20515–6315

Memorandum

To:	Members, Committee on Small Business
From:	Committee Staff
Date:	May 9, 2016
Re:	Hearing: "The New Faces of American Manufacturing"

I. Introduction

On Thursday, May 12, 2016 at 11:00 a.m. the Committee on Small Business will conduct a hearing titled "The New Faces of American Manufacturing." Over the next decade it is likely that nearly three and a half million manufacturing jobs will need to be filled.[1] There is expected to be a "skills gap" that is expected to result in two million of those jobs going unfilled.[2] The cause of the gap is multifaceted. Manufacturing output has increased in the United States nine out of the last thirteen quarters[3] and with it businesses' need for skilled workers has increased. Exacerbating the shortage is the wave of retiring baby boomers, those Americans born between 1946 and 1964,[4] who are retiring at a rate of 10,000 a day.[5] The hearing will discuss these issues as well as examine innovative ways academia and manufacturers are addressing workforce development for the next generation of American manufacturers.

II. Manufacturing and the United States Economy

A strong manufacturing industry is fundamental to our nation's economic prosperity. Since the industrial revolution, manufacturing has contributed to higher export potential, better standards of living, and more jobs. The value added to the United States gross domestic product by manufacturing is around 12 percent.[6] More than 9 percent of the American workforce is employed directly in manufacturing or over 12 million Americans.[7]

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[1] THE MANUFACTURING INSTITUTE AND DELIOTTE, THE SKILLS GAP IN U.S. MANUFACTURING 2015 AND BEYOND 2 (2014), *available at* http://www.themanufacturinginstitute.org/~/media/827DBC76533942679A15EF7067A704CD.ashx [hereinafter Manufacturing Study].

[2] *Id.*

[3] http://data.bls.gov/timeseries/PRS30006092.

[4] http://www.usnews.com/news/articles/2014/05/07/us-manufacturers-say-skills-gap-could-compromise-competitiveness.

[5] http://www.investopedia.com/articles/personal-finance/032216/are-we-baby-boomer-retirement-crisis.asp.

[6] http://www.tradingeconomics.com/united-states/manufacturing-value-added-percent-of-gdp-wb-data.html.

[7] http://www.bls.gov/web/empsit/ceseeb1a.htm.

The average manufacturing business employs less than 50 people,[8] and according to the latest data from the United States Census Bureau, there are approximately 256,000 manufacturing firms in the United States.[9]

The gradual, decades-long decline of manufacturing was brought to a halt in April 2010, when the United States began adding, instead of losing, manufacturing jobs.[10] Since January 2010, the United States has added 831,000 manufacturing jobs.[11] While it might not warrant being labeled a "manufacturing comeback" or "renaissance" given the previous number of job losses, the addition, rather than displacement, of American manufacturing jobs for the last six consecutive years is certainly noteworthy.

This sector drives American innovation, representing at least two-thirds of all private sector research and development spending, and accounting for over 90 percent of patents issued.[12] In addition to these aforementioned benefits, manufacturing provides a multiplier effect on the economy. For every $1 of manufacturing output in a community, there is at least another $1.40 of wealth created.[13]

Opinions on the economic health of manufacturing appear split between those holding a relatively pessimistic view and those with a more positive view. Pessimists are alarmed by long-term aggregate declines in manufacturing employment and the changing composition of manufacturing output. Since peaking at 19.6 million jobs in 1979, total employment in manufacturing has declined to 12.33 million.[14] Those who opine over the decline in manufacturing attribute the problems to trade competition, rather than other factors, such as improvements in worker productivity.[15] Optimists believe changes taking place in the manufacturing sector of the economy, especially the shifting composition of manufacturing output, are a positive sign of the United States economy's resilience and comparative advantage in advanced technology. These individuals view the decline in total manufacturing employment as a function of improvements in productivity as firms are able to achieve higher

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[8] http://www.bls.gov/opub/ted/2012/ted_20120426.htm. The vast majority of manufacturing firms would also be considered small businesses by the Small Business Administration since they have under 500 employees. 13 C.F.R. § 121.201 (size standards in sector 31-34 range from 500 to 1,500 employees).

[9] http://www.nam.org/Newsroom/Facts-About-Manufacturing/.

[10] http://data.bls.gov/pdq/SurveyOutputServlet (last visited April 28, 2016).

[11] *Id.*

[12] Gene Sperling, Director, President's National Economic Council, Speech Before The Conference On The Renaissance Of Manufacturing 2 (Mar. 27, 2012) (noting manufacturing represents 70 percent of all R&D spending), *available at* http://www.whitehouse.gov/sites/default/files/administration-official/sperling_-_renaissance_of_american_manufacturing_-_03_27_12.pdf; *see also* Rana Foroohar, Bill Saporito, *Is the U.S. Manufacturing Renaissance Real?*, TIME, Mar. 28, 2013 (noting manufacturing represents 67 percent of all R&D spending), *available at* http://business.time.com/2013/03/28/is-the-u-s-manufacturing-renaissance-real/.

[13] Gene Sperling, Director, President's National Economic Council, Speech Before The Conference On The Renaissance Of Manufacturing at 6. Other estimates are slightly higher. *See* Rana Foroohar, Bill Saporito, *Is the U.S. Manufacturing Renaissance Real?*, TIME, Mar. 28, 2013, *available at* http://business.time.com/2013/03/28/is-the-u-s-manufacturing-renaissance-real/.

[14] http://www.nam.org/newsroom/facts-about-manufacturing/.

[15] ROBERT D. ATKINSON, LUKE STEWART, SCOTT ANDES AND STEPHEN EZELL, THE INFORMATION TECHNOLOGY & INNOVATION FOUNDATION, WORSE THAN THE GREAT DEPRESSION: WHAT EXPERTS ARE MISSING ABOUT AMERICAN MANUFACTURING DECLINE 3 (2012), *available at* http://www2.itif.org/2012-american-manufacturing-decline.pdf.

rates of manufacturing output with fewer workers.[16] In addition, optimists look at the value-added output from manufacturing which has increased even as total manufacturing jobs have declined.[17]

III. The Skills Gap

In 2014, the Manufacturing Institute and Deloitte published a study titled "The Skills Gap in U.S. Manufacturing 2015 and Beyond." The study surveyed over 450 manufacturing executives across the entire spectrum of the industry. The study found that over the next decade, nearly three and a half million manufacturing jobs likely need to be filled and the skills gap is expected to result in 2 million of those jobs going unfilled.[18]

There are two major contributing factors to the widening gap – baby boomer retirements and economic expansion.[19] An estimated 2.7 million jobs are likely to be needed as a result of retirements of the existing workforce, while 700,000 jobs are likely to be created due to natural business growth.[20] In addition to retirements and economic expansion, other factors contribute to the shortage of skilled workforce, such as a negative image of the manufacturing industry among younger generations, lack of STEM (science, technology, engineering and mathematics) skills among workers, and a gradual decline of technical education programs in public high schools.

An average manufacturing worker in the U.S. earned $79,553 in 2014 – 20 percent higher than what an average worker earned in other industries.[21] Four out of five manufacturing companies surveyed in the Deloitte study stated they are willing to pay more than current market rates to hire and retain skilled workers in order to tackle talent shortage. However, while paying higher wages to attract the skilled workers may help attract talent, it likely isn't enough to single-handedly solve the talent issue. Compensation increase can yield only marginal improvements in attracting workers but manufacturers also need to improve the perception of the industry in it being "clean and safe" and "high-tech" rather than "dirty and dangerous.[22]

According to a 2013 STEM Connector report, student interest in pursuing a STEM career has been on the rise in the last 10 years, with 25 percent of students genuinely interested in having a STEM career.[23] However, for three out of five students graduating from high school, this interest diminishes over their schooling years.[24] In addition,

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[16] Robert Samuelson, *Myths of Post-Industrial America*, THE WASHINGTON POST, April 8, 2013.
[17] *Id.*
[18] Manufacturing Study at 2.
[19] *Id.*
[20] *Id.*
[21] http://www.nam.org/Statistics-And-Data/Facts-About-Manufacturing/Landing.aspx
[22] Manufacturing Study at 14
[23] MY COLLEGE OPTIONS AND STEMCONNECTOR, WHERE ARE THE STEM STUDENTS? WHAT ARE THEIR CAREER INTERESTS? WHERE ARE THE STEM JOBS i (2013), *available at* http://www.discoveryeducation.com/feeds/www/media/images/stem-academy/Why_STEM_Students_STEM_Jobs_Full_Report.pdf
[24] *Id.*

apprenticeship programs that combine on-the-job learning with mentorships and classroom education fell 40 percent in the U.S. between 2003 and 2013.[25] However, that does not mean demand for STEM workers has diminished over the years. On the contrary, in STEM occupations, the job postings outnumbered the unemployed by almost 2 to 1 during 2009-2012, and employment in STEM occupations is expected to grow by 17 percent through 2018, faster than overall employment.[26] Higher than normal demand for STEM workers, but lower supply, leads to a compounding skills problem with time.

To address the skills gap, manufacturers not only have to find workers with the skills required to meet today's and tomorrow's advanced manufacturing requirements, they must also develop and engage their existing workforces. Many manufacturing executives see developing their workforces as the most effective way to remedy the problem, with 94 percent agreeing internal employee training and development programs are among the most effective skilled production workforce development strategies, and 72 percent agreeing involvement with local schools and community colleges is effective.[27] This reflects an understanding of the multidimensional nature of the skills gap as manufacturers see the need to develop the talent pipeline both in their companies and communities.

IV. Conclusion

Small manufacturers make up a large percentage of all domestic manufacturing firms. Today, these firms are utilizing new, innovative, and unconventional production methods to gain an edge. Maintaining a strong domestic manufacturing presence coupled with consumers buying domestically produced products is critical to ensuring a vibrant and diverse American economy. This hearing will provides an opportunity to discuss methods of reducing the so-called "skills gap" and determine what federal policies might be beneficial to alleviate this staffing shortage.

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[25] *Id.*

[26] CHANGE THE EQUATION, STEM HELP WANTED: DEMAND FOR SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS WEATHERS THE STORM 2 (2012), *available at* http://changetheequation.org/sites/default/files/CTEq_VitalSigns_Supply%20%282%29.pdf

[27] Manufacturing Study at 3.