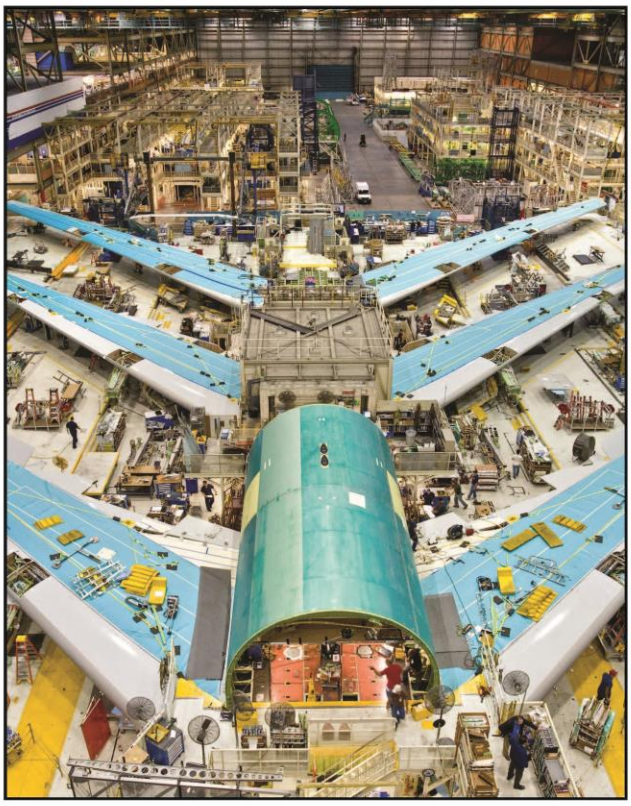

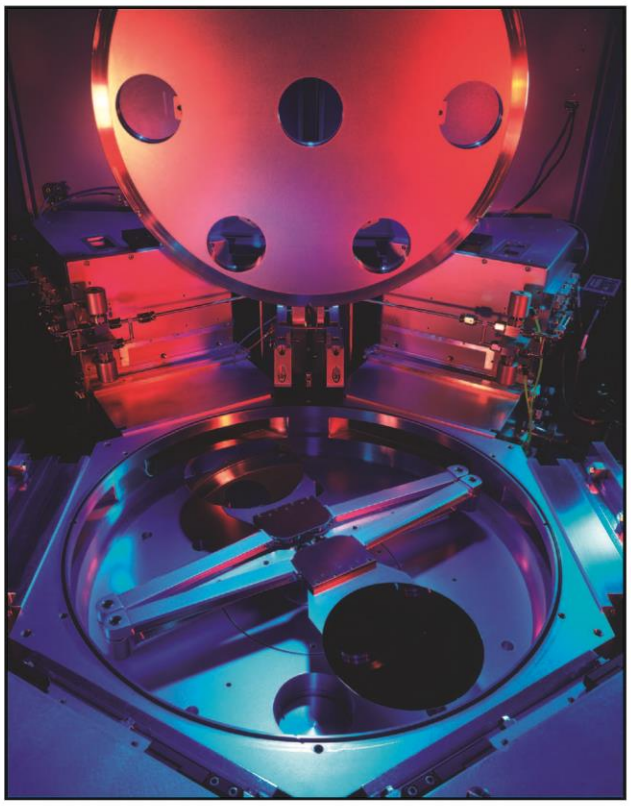

WHY IS CAPITAL INVESTMENT CONSISTENTLY WEAK IN THE 21ST CENTURY U.S. ECONOMY?

By Thomas J. Duesterberg and Donald A. Norman

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THE ASPEN INSTITUTE
MANUFACTURING AND SOCIETY IN THE 21ST CENTURY

MAPI FOUNDATION

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Director of Economic Studies
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EXECUTIVE SUMMARY

U.S. capital investment spending has faltered since the dot-com speculative bubble which burst in early 2000. It has not kept pace with the economic growth, profits, cash flows or virtually any other metric one could use to benchmark investment spending. In 2014, real GDP was 8.7 percent above its level in the fourth quarter of 2007, the peak quarter prior to the Great Recession. Gross private domestic investment over the same period was just 3.9 percent higher. The trend in investment spending net of the depreciation which occurred is far worse. Net private investment totaled $860 billion in 2006; by 2013 it totaled just $524 billion.

The slowing pace of investment has contributed to slower productivity, economic growth and, ultimately, to a slower rate of improvement in living standards. Labor productivity increased at an average annual rate of 3.3 percent between 1947 and 1973. It declined after 1973 and then picked up in the 1990s, growing at an average annual rate of 3.2 percent between 1996 and 2004. But then, between 2006 and 2014 it grew at an annual rate of 1.5 percent. Since 2011, it has increased by just 0.7 percent per year.

There are a number of explanations as to why investment spending has lagged, including:

- Policy uncertainty and weak business confidence;
- Reduced animal spirits and entrepreneurialism;
- Lack of investment opportunities ("Secular Stagnation");
- Corporate tax policy;
- Regulation; and
- Loss of market share to global competitors.

While there has been much concern expressed about the tepid rate of recovery from the Great Recession, a growing number of economists believe that recent trends reflect the new normal or what they call "secular stagnation." That is, the potential growth rate of the U.S. economy going forward cannot be expected to match the economy's performance between the end of World War II and 2000. The outlook for slower economic growth is partly a consequence of demographic and education trends which are largely beyond the influence of economic policy. Investment spending also is influenced by factors ranging from uncertainty, a reduction in animal spirits and entrepreneurialism, and by limited technological opportunities that are on the horizon. Factors like these are not easily dealt with by economic policy, but can more readily be affected by the overall economic and regulatory climate.

Other factors that influence investment spending, however, can be influenced by economic policy. Corporate tax reform would contribute to investment, especially if it includes a provision that allows for the expensing of investment. Expensing and lower corporate tax rates would make U.S. companies more competitive in global markets. Reduced uncertainty regarding the course of economic (including monetary) policies, increased spending for research and development and for an aging and deteriorating infrastructure, the negotiation of additional free trade agreements and stronger enforcement of existing ones, and regulatory reform that pays attention to the costs that an ever-increasing number of regulations impose on companies and which makes it easier for companies to start new businesses also would contribute to increased investment. In turn, this should spur greater productivity growth and, ultimately, a higher rate of economic growth and living standard than we will have if we remain on the current path. We have no magic bullet to suggest to rebalance the complicated equation, but hope that analysis like ours showing the long-term impact on basic investment will help resuscitate a reasonable democratic discussion of the trade-offs.

Introduction

At least since the crash of the dot-com bubble at the turn of the millennium, observers have puzzled over the weak levels of capital investment in the United States.[1] This weakness has been especially pronounced in the last few years as the economy fitfully recovers from the deepest recession since the 1930s. Real capital investment has yet to recover previous levels even though the overall rebound is now in its sixth year. Capital investment is generally considered to be one of the principal sources of growth in productivity, innovation, and the overall standard of living. And, indeed, in the years since the onset of the current recovery all these indices have slowed in tandem with capital investment.

The problem is now so persistent that leading economists are advancing an argument structurally similar to that popular in the wake of the Great Depression; that is, for reasons which are hotly debated, we have reached a stage of economic development characterized by secular stagnation, hence requiring reduced levels of capital investment.[2] In the late 1930s, the term of economic art advanced to explain the slow recovery from the depression was economic maturity. Harvard economist Alvin Hansen and others argued, somewhat like Cowen and Gordon more recently, that the bulk of the advances expected from current and any projected technology had already been harvested and that population growth would slow and reduce consumption growth, thereby reducing the rate at which capital investment could be expected to grow going forward. Fortunately, the pessimists were proven wrong and post-war America—fueled in part by technological advances born of the massive war effort, and new capital investment in aerospace, information technology, and machinery—enjoyed three generations of vigorous economic growth, innovation, and unprecedented personal prosperity.[3]

In this paper we explore the issue of weak capital investment, first providing evidence for the problem and its impact and then reviewing some plausible explanations for the weakness. Based on the evaluation of the causal factors, we offer some suggestions for public policy to address the weakness of private investment. Given the centrality of the manufacturing sector to innovation, research and development, productivity growth, wage growth, and overall economic growth, we pay particular attention to this sector, although the issue of slow investment growth transcends manufacturing and reaches into all sectors of the economy.[4] While recovering the levels of dynamic growth achieved from the end of World War II to about 2007 is an unknowable prospect because of the role of new innovation in growth theory for the modern economy, we do argue that the historically low levels of capital investment can partially be remedied with good policy to set us on a path to higher growth. Some argue too that we may have reached a stage of economic development in which capital investment is no longer as important to innovation and growth as it has been for the last 150 years. This, too, is probably not knowable at this time, but we believe that capital investment, which includes investment in intellectual property, is still a vital source of innovation and growth.

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[1] One of us wrote at length about this problem in 2008: See Donald A. Norman, "The Puzzle of Manufacturing Sector Investment," *Business Economics*, April 2008, pp. 23-33, *http://nabe-web.com/publib/be/0802/norman.html*.

[2] See especially: Tyler Cowen, *The Great Stagnation* (New York: Dutton, 2011); and Robert J. Gordon, "Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds," National Bureau of Economic Research, Working Paper No. 18315, August 2012.

[3] For a good contemporaneous summary of this debate and a refutation of the economic maturity thesis, see George Terborgh, *The Bogey of Economic Maturity* (Chicago: Machinery and Allied Products Institute, 1950). This group was the predecessor of MAPI. In the first edition of his influential textbook on economics, Paul Samuelson reviews the debate between Hansen and Terborgh. See Paul A. Samuelson, *Economics: An Introductory Analysis*, *First Edition* (New York: McGraw Hill, 1948), pp. 417-423.

[4] One of us has offered evidence for the importance of manufacturing to the future growth of the U.S. economy. See Thomas J. Duesterberg, *The Manufacturing Resurgence: What It Could Mean for the U.S. Economy*. *A Forecast for 2020* (Washington: The Aspen Institute and MAPI, 2013), *http://www.aspeninstitute.org/sites/default/files/content/docs/pubs/Manufacturing_Resurgence.pdf*.

Section I
Evidence of Weak Investment

Although real GDP in 2014 was almost 9 percent above its level in the fourth quarter of 2007 (the peak of the previous business cycle), several major categories of gross investment have not recovered to the same extent. Table 1 gives the real dollar value of GDP and major categories of investment just prior to the start of the recession, at the trough of the recession and then for 2014.[5] Most investment measures fell precipitously between 2007 Q4 and 2009 Q2. With the recovery investment has also revived. Nonetheless, when comparing investment levels prior to the start of the recession with investment levels in 2014, it is apparent that most categories of investment have not grown as fast as GDP.

Table 1 – Real Gross GDP and Investment: 2007 Q4 – 2014
[Billions of Chained (2009) Dollars]

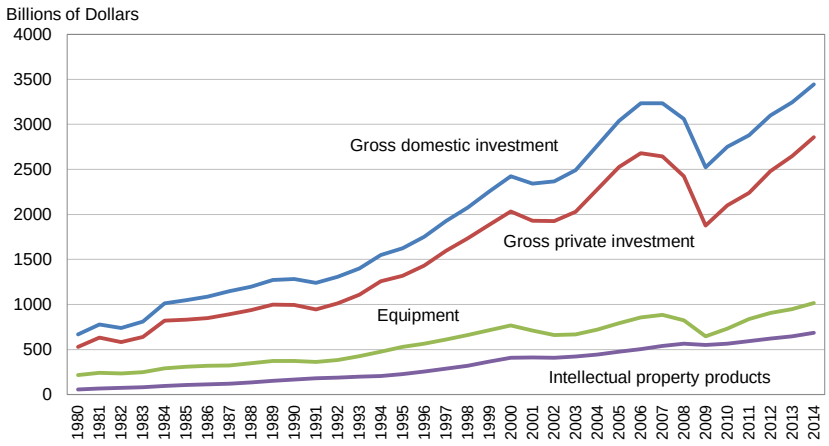
	2007 Q4	2009 Q2	% Change 2007 Q4-2009 Q2	2014	% Change 2007 Q4 -2014
GDP	14,991.8	14,355.6	-4.2	16,294.7	8.7
Gross Private Domestic Investment	2,605.2	1,820.5	-30.1	2,707.0	3.9
Fixed Investment	2,586.3	2011.0	-22.2	2,611.6	1.0
Non Residential Fixed Investment	1,997.6	1,634.0	-18.2	2,116.5	6.0
Equipment	910.0	631.6	-30.6	1,008.3	10.8
Intellectual Property	552.4	549.4	-0.5	654.5	18.5
Government Gross Investment	624.9	651.3	4.2	544.1	-12.9

Source(s): U.S. Bureau of Economic Analysis

Total fixed investment includes investment in residential housing, which has yet to fully recover from the recession. Even when housing investment is excluded, it is clear that fixed investment still has not recovered to the extent as overall GDP. In contrast, investment in equipment and intellectual property has rebounded. Government investment actually rose during the recession as a result of the large stimulus bill (which, for instance, doubled the National Science Foundation [NSF] budget for one year), but this category faltered significantly after the recession. Figure 1 shows trends in the major types of investment back to 1980.

A more telling measure of real investment, however, reveals a much different story. Figure 2 shows the trend in ***net*** domestic investment starting in 1967. These numbers are in chain-weighted dollars and are corrected for the depreciation of real assets. Physical capital and equipment obviously declines in value as it ages and is subject to the wear and tear that comes with use. R&D and other forms of intellectual capital also depreciate. The value of R&D expenditures depreciates "because its contribution to a firm's profit

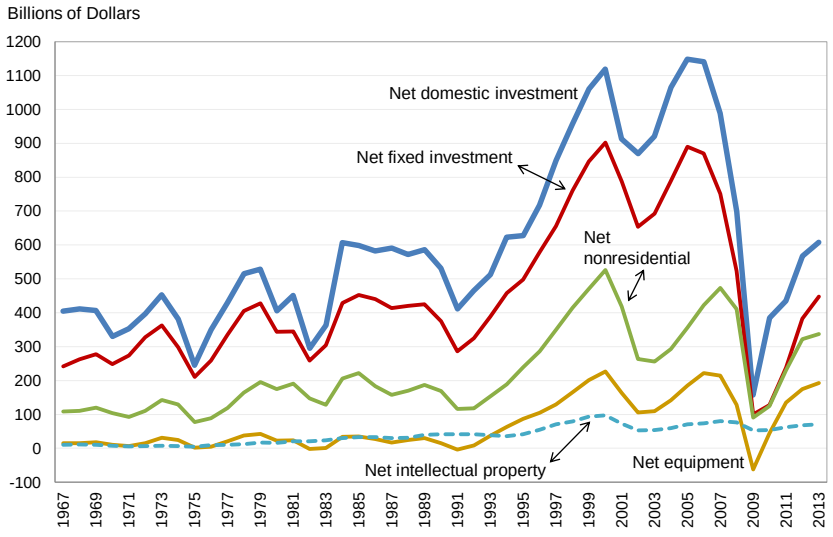
Figure 1
Gross Domestic Investment (1980-2014)



Source(s): U.S. Bureau of Economic Analysis

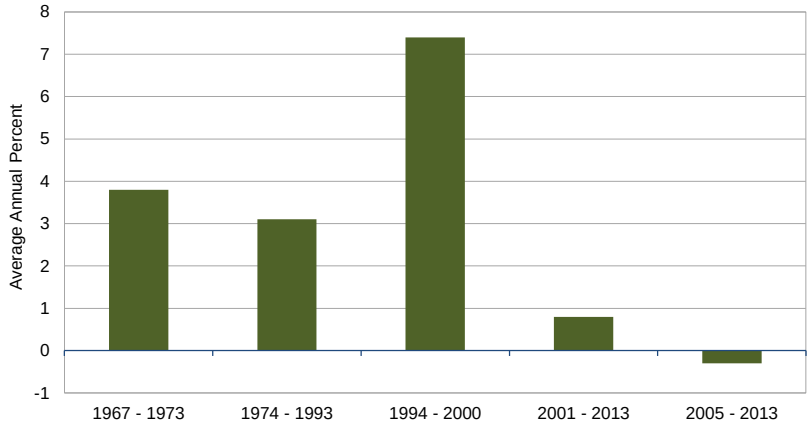
[5] Unless otherwise noted, data are from the Bureau of Economic Analysis.

Figure 2
Net Domestic Investment by Major Type, Chained Dollars



Source(s): U.S. Bureau of Economic Analysis

Figure 3
Growth of Domestic Investment Over Selected Time Periods



Source(s): U.S. Bureau of Economic Analysis and MAPI

declines over time."[6] In Figure 2 one can readily see the traditional pattern of decline and recovery to new highs in cycles since 1967, but a significant change in the pattern occurred during the Great Recession. Full recovery of net domestic investment appears to be years in the future, including investment in the vital categories of equipment and intellectual property. Net private fixed investment, for example, was $870 billion in 2006 and $524 billion in 2013. In 2009, for the first time since the Great Depression, we witnessed a net destruction of capital stock in the United States, at least for the important category of equipment.

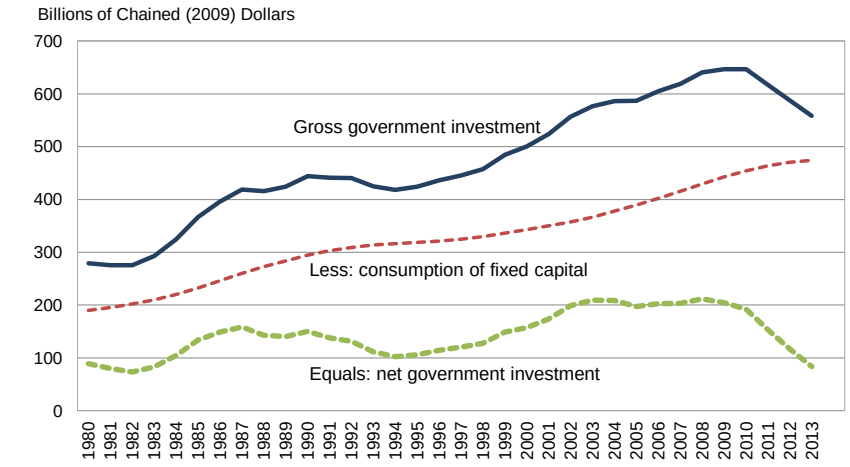
It is instructive to break up this data into discrete periods to show the magnitude of the problems. Figure 3 illustrates domestic capital investment for periods that coincide with major changes or productivity trends, which we discuss in the Section II. The extent of the slowdown after the end of the dot-com speculative bubble is clear, as is the accelerated decline after the Great Recession.

When looking more closely at the sub-components of this indicator, the reality is even worse for government investment in the economy (Figure 4). Government expenditures support the maintenance of, and additions to, our infrastructure that are required for a well-functioning competitive global economy, as well as much of the basic research that underpins the formation of our intellectual property. As Figure 4 shows, after a bump in 2009 and 2010 due to the stimulus bill, real government investment has seen a steady downturn, which is even more pronounced when depreciation is accounted for. Federal spending on research and

Full recovery of net domestic investment appears to be years in the future, including investment in the vital categories of equipment and intellectual property.

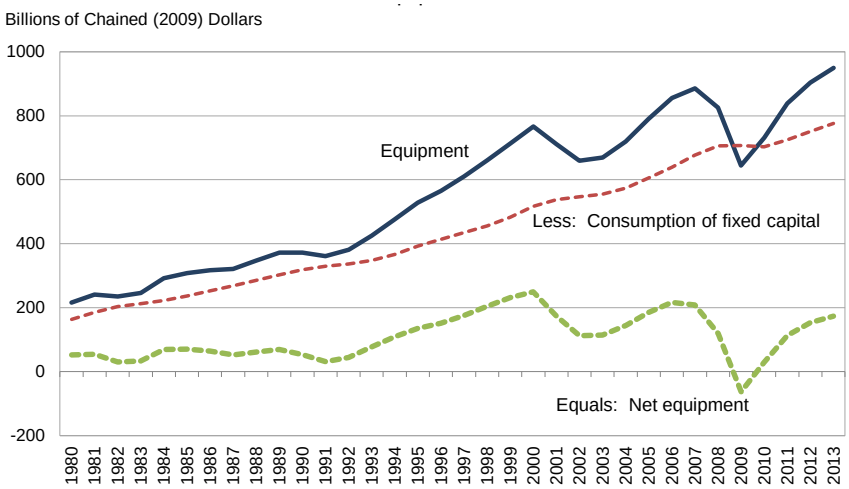
[6] Wendy C. Y. Li, "Depreciation of Business R&D Capital," *BEA/National Science Foundation R&D Satellite Account Paper* (Washington: Bureau of Economic Analysis, October 2012), *http://www.bea.gov/national/pdf/WendyLiDepreciationBusinessR%26DCapital20130314BEAwebversion.pdf*.

Figure 4
Gross and Net Government Investment



Source(s): U.S. Bureau of Economic Analysis

Figure 5
Gross and Net Domestic Investment in Equipment



Source(s): U.S. Bureau of Economic Analysis

development dropped in 2011 and has not recovered. The NSF notes that this is "… a noticeable departure from the recent trend."[7]

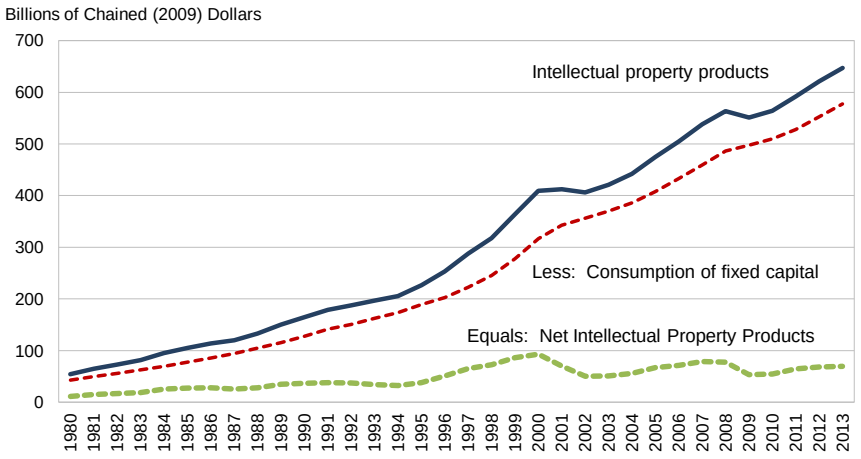
A closer look at net investment in both equipment and intellectual property, both of which are centered in and important to innovation in manufacturing, have lagged since the end of the dot-com boom in 2000. Figures 5 and 6 show a leveling off of net investment in both categories since 2000. Net equipment investment between 2006 and 2013 declined from $222 billion to $193 billion, and intellectual property investment was down from $74 billion to $71 billion. Recovery has been modest following the heady decline of equipment spending after 2007. Intellectual property expenditures have been steadier, a sign of the importance placed on such investment by firms and research institutions, but net investment is still below the 2000 peak.

The final category of importance to the private economy is investment in nonresidential structures. This includes mining, utility, commercial and manufacturing buildings, and infrastructure. This indicator peaked in 2008 and has far to go before it gets back up to this high level. Figure 7 shows that net investment in structures in 2013 was about half that in 2008.

Another measure of investment activity bears close scrutiny, in large part due to recent contentious debates. Many have argued over the last 30 years that U.S. firms, particularly manufacturing firms, are moving their investments abroad at an alarming rate and, hence, both hollowing out domestic production capacity and shifting accompanying research and development out of the country. Such analysis ignores the impact of inward foreign direct investment (FDI), that is, investment by foreign firms and individuals in domestic U.S. assets. Data clearly show that the United States is the leading destination in the world for FDI. In 1999, the United States was the destination for

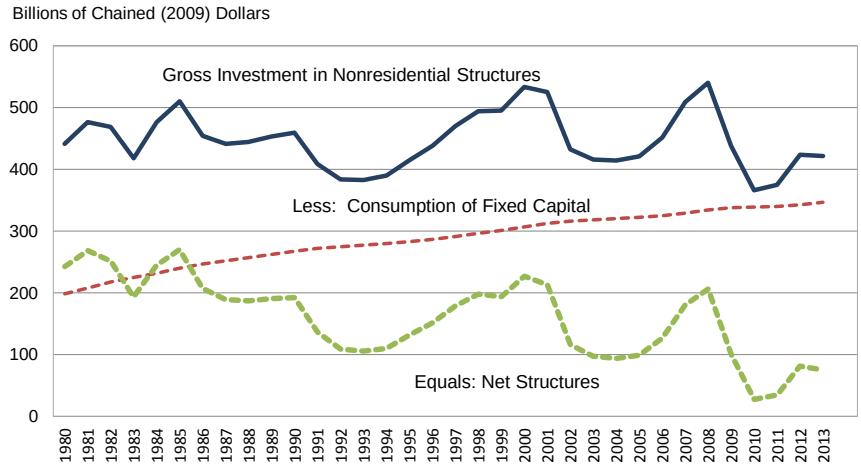
[7] See National Science Foundation, *Science and Engineering Indicators 2014* (Arlington, VA: NSF, 2014), p. 4-2, *http://www.nsf.gov/statistics/seind14/index.cfm/overview*.

Figure 6
Gross and Net Domestic Investment in Intellectual Property Products



Source: U.S. Bureau of Economic Analysis

Figure 7
Net Domestic Investment in Nonresidential Structures



Source(s): U.S. Bureau of Economic Analysis

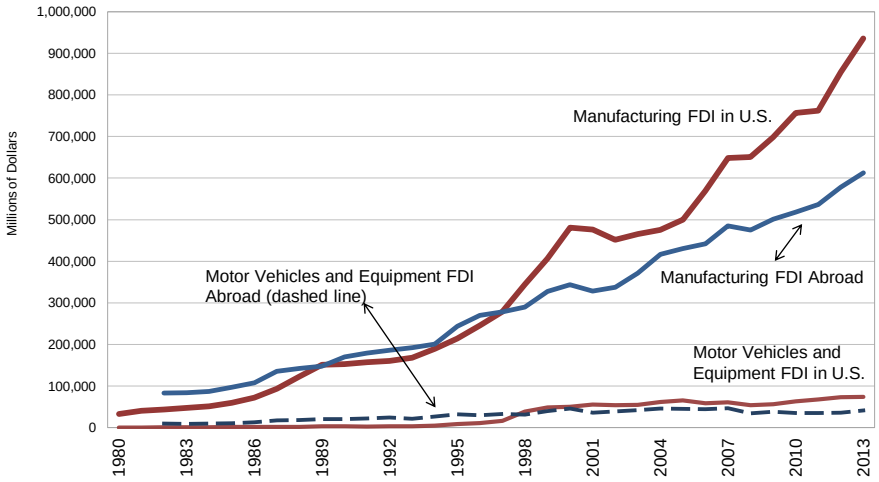
39 percent of global FDI.[8] For manufacturing, the net investment total by foreign firms in the United States is considerably larger than that of U.S. direct investment abroad, as Figure 8 illustrates. Nonetheless, as analyst Dan Ikenson points out, inward bound FDI has been declining on a real and relative basis since the bursting of the dot-com bubble. The U.S. share of global FDI is now around 17 percent, and it has been 13 years since the peak of $314 billion in FDI in the United States was achieved. FDI in the United States fell from $227 billion in 2011 to $147 billion in 2012.[9] Although these net numbers are reflected in the total investment figures provided earlier, it is worth noting that there is still more inward than outward bound FDI, and the slowdown in domestic investment in the United States starting around 2000 extends to foreign investors as well. Even motor vehicle sector investments show a balance in recent years in favor of inward bound flows. So the decline in domestic investment is not due to moving investment abroad.

Related to FDI is the question of R&D investment by multinational companies, both domestic and foreign, in the United States and abroad. Again the story is that, partly due to the importance of foreign multinational production in the United States, there is no evidence that U.S. firms are in the vanguard of a net exodus of R&D to foreign destinations. It is true that U.S. companies are expanding their foreign R&D spending more quickly (2.3 percent in recent years) than in the United States, but the same is true for foreign firms based in the States. All told, in 2010 foreign multinationals

Despite record corporate profits in recent years and the accumulation of around $2 trillion in cash reserves on the balance sheets of major corporations, investment as a percent of cash flow has been diminishing.

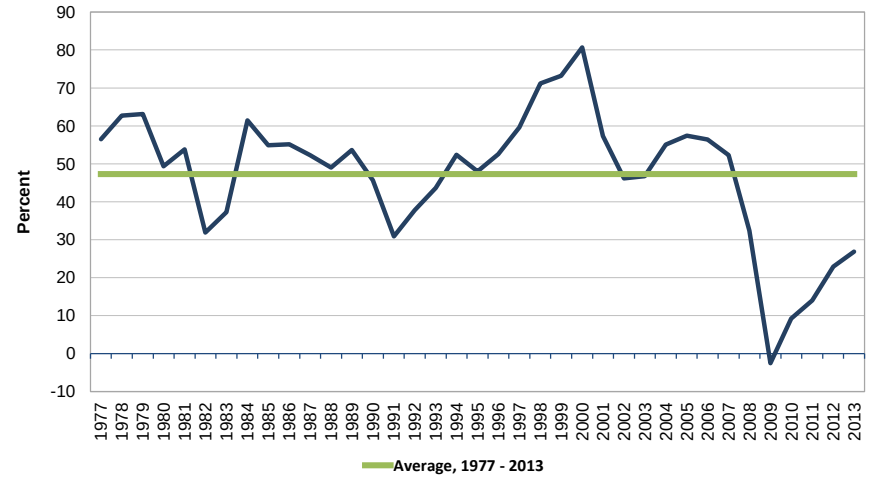
[8] See the excellent overview by Daniel J. Ikenson, "Reversing Worrisome Trends: How To Attract and Retain Investment in a Competitive Global Economy," *CATO Institute Policy Analysis*, No. 735, August 22, 2013, *http://www.cato.org/publications/policy-analysis/reversing-worrisome-trends-how-attract-retain-investment-competitive*.
[9] *Ibid*, pp. 2-3.

Figure 8
Foreign Direct Investment in Manufacturing in the United States and Abroad
(All Countries Total 1980-2013)



Notes: Data for FDI abroad prior to 1982 is not available.
Data for FDI in the U.S. prior to 1997 is based on SIC; 1997 and beyond based on NAISC.
Source(s): U.S. Bureau of Economic Analysis

Figure 9
Net Private Investment as a Percent of Net Cash Flow



Source(s): St. Louis Federal Reserve Board and MAPI

conducted over $41 billion of R&D for the same purpose in the United States. It is worth noting that 70 percent of R&D is accounted for by manufacturing firms, and foreign firms devote more for this purpose in the United States than the reverse.[10]

The last indicator of the secular slowdown in capital investment we consider is a financial one. Despite record corporate profits in recent years and the accumulation of around $2 trillion in cash reserves on the balance sheets of major corporations, investment as a percent of cash flow has been diminishing. Figure 9 shows that after a bump upwards in 2001, when the economy began recovering from the dot-com bubble, net investment as a proportion of cash flow steadily declined in absolute terms and relative to its long-term average. Anecdotal evidence from executives at manufacturing firms suggests that the investment pattern of the buoyant 1990s later came to be seen as less efficient than planned, and so executives became more cautious after 2000. Nonetheless, the long period in which investment in capital goods has increased at a relatively slow rate compared to what one might expect given cash flows and corporate profits remains a puzzle.

Section II
Lagging Investment and Productivity

Following the pioneering work of Robert Solow, the rate of economic growth is a function of the growth of labor and capital inputs.[11] In addition, the rate of economic growth and living standards are

[10] NSF, *Science and Engineering Indicators 2014*, *op. cit.*, pp. 4-25–4-29.
[11] Robert M. Solow, "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics*, Vol. 70, February 1956, pp. 65-94.

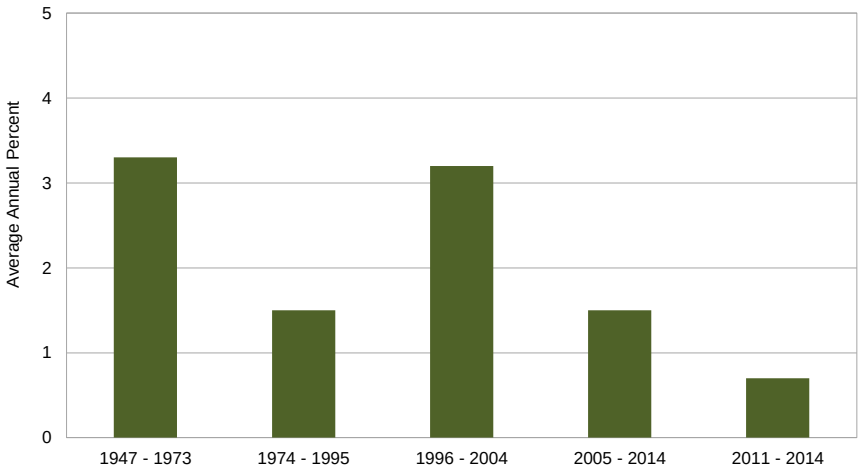
also raised by improvements in productivity. That is, after accounting for increased labor and capital inputs there is additional or "residual" growth that generally is attributed to productivity gains driven by technological change, efficiency improvements and innovation. This residual growth has been referred to as "a measure of our economic ignorance" because it is difficult to precisely measure the contribution of technological change and innovation to economic growth. Nonetheless, measures of the residual contribution to economic growth from technological change and innovation are referred to as total factor or multifactor productivity.

A significant issue for the United States (as well as for China, Japan, and Europe) is that demographic trends point to a slowing of the growth of labor inputs over time. The U.S. labor supply grew rapidly during the 20th century as population grew and also because the overall labor force participation rate increased rapidly as women entered the workforce. But the labor force participation rate for women peaked in 2000 at 60.3 percent and edged down to 56.6 percent in early 2015. The overall labor force participation rate peaked at 67.3 percent in 2000 and currently stands at 62.1 percent. The population is aging and those in the baby boomer generation are retiring. These retirees possess a lot of what economists call human capital that makes them productive. A growing concern in the manufacturing sector is that many companies are facing the prospect of losing skilled workers because the median age level of employees is rising.[12]

In addition to the slowing growth of the labor force, education levels are leveling off after a long period in which the number of individuals graduating from high school and college increased. The rise in education levels contributed to the skill sets of workers and thus to increased productivity. With the leveling of years of schooling, the skills sets of workers cannot grow as rapidly as they did throughout most of the 20th century.[13] This too contributes to slower productivity growth.

Adding to the reduced growth of the labor supply is the slowing growth of labor productivity (output per hour). Changes in labor productivity are the result of shifts in the composition of the labor supply, the intensity of capital goods, and to multifactor productivity growth. Labor productivity for the major sectors of the U.S. economy grew at an average rate of 3.3 percent between 1948 and 1973 (Figure 10). Then, from 1974 through 1995, productivity grew by just 1.5 percent per year.

Figure 10
Labor Productivity Growth Over Selected Time Periods



Source(s): U.S. Bureau of Labor Statistics and MAPI

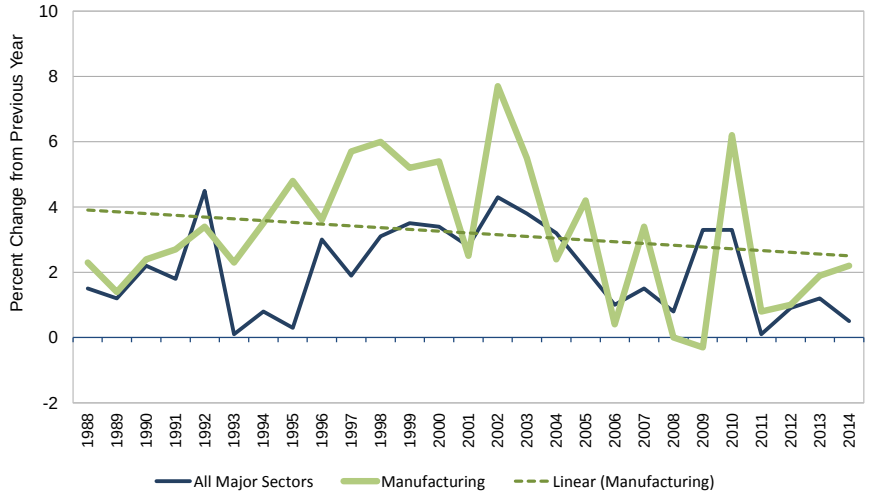
A number of explanations have been advanced to explain why there was a marked slowdown in productivity growth starting in 1973. These included a decline in labor quality, the two energy price shocks following the Arab Oil Embargo and the Iranian revolution, and the reduction in the growth of measured capital per labor hour. Labor productivity growth

[12] Harold L. Sirkin, "The Coming Shortage of Skilled Manufacturing Workers," Bloomberg Business, January 14, 2013.
[13] A good summary of trends is in Brink Lindsey, "Why Growth Is Getting Harder," Cato Institute, *Policy Analysis No. 737*, October 2013, pp. 3-11.

rebounded to an average of 3.2 percent between 1996 through 2004. The spread of technologies associated with the Internet and computers is generally thought to explain this resurgence of productivity growth. Productivity growth then slowed again after 2004. Between 2005 and 2014, labor productivity grew at an average annual rate of 1.5 percent. Worse, since 2011, however, productivity growth has averaged just 0.7 percent.

Labor productivity in the manufacturing sector, though generally greater than productivity for the economy at large, has exhibited a similar pattern (Figure 11). After growing at an average rate of 2.6 percent between 1988 and 1994, productivity growth increased to an average of 4.7 percent between 1995 and 2005. Since 2011, labor productivity growth has averaged 1.5 percent.

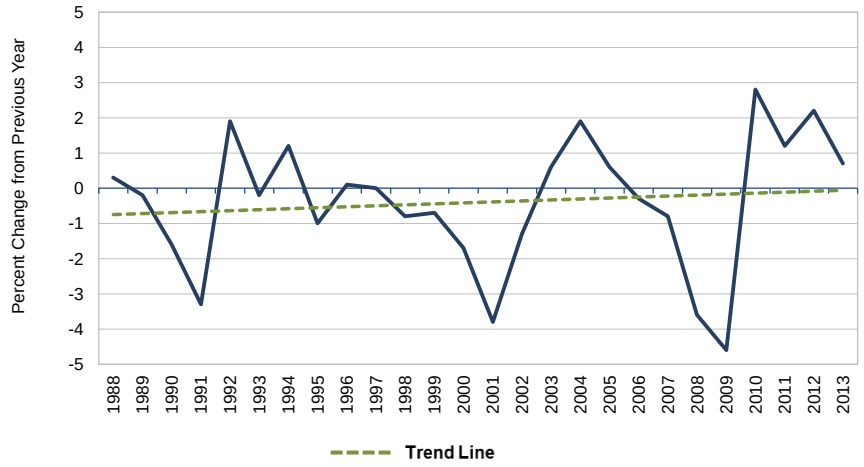
Figure 11
Manufacturing Labor Productivity Growth
(Output Per Hour)



Source(s): U.S. Bureau of Labor Statistics and MAPI

An expanding capital stock also contributes to the overall economic growth rate. For one thing, providing workers with more capital contributes to labor productivity. As elaborated earlier, investment in capital goods has been declining and this is one of the reasons the growth in labor productivity has slowed. The trend in the productivity of capital goods has moved upward since 1988 (Figure 12). In addition, the contribution to growth in the private nonfarm business sector from increases in capital intensity has slowed in recent years. From 1995 to 2000 increased capital intensity contributed 1.2 percentage points to the growth of the private business sector and from 2000 through 2007 increased capital intensity contributed 1.0 percentage point. In the period from 2007 to 2013, however, this contribution fell to 0.7 percentage points.

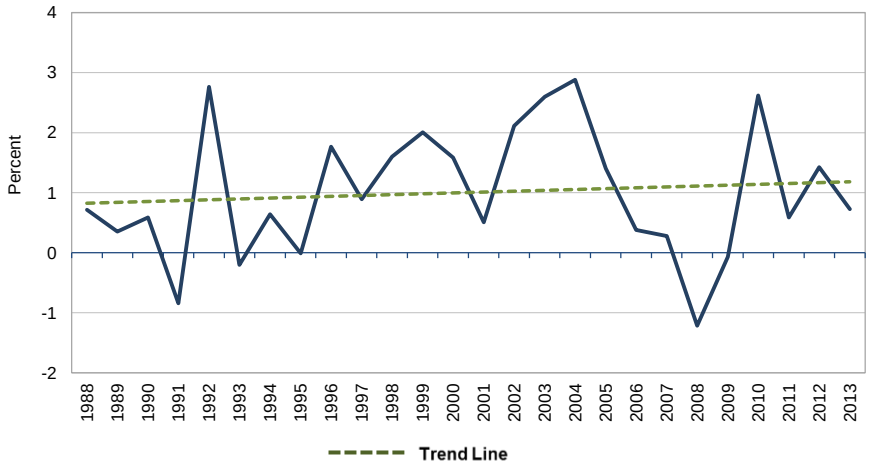
Figure 12
Growth of Capital Productivity



Source(s): U.S. Bureau of Labor Statistics and MAPI

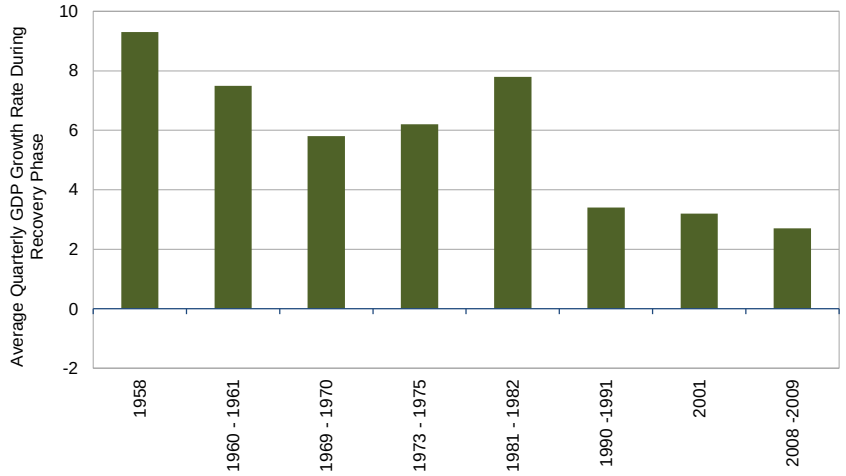
Technological change and innovation as measured by multifactor productivity (Figure 13) is the final contributor to economic growth. Multifactor productivity reflects the combined effects of technological change, efficiency gains, returns

Figure 13
Multifactor Productivity Growth



Source(s): U.S. Bureau of Labor Statistics and MAPI

Figure 14
Recovery From Recessions



Source(s): U.S. Bureau of Economic Analysis and MAPI

to scale, and other factors beyond increases in the supply of labor and capital. The contribution of multifactor productivity has increased over time but, as was the case with capital intensity, the contribution of multifactor productivity to economic growth has declined in recent years.

Increases in the labor supply, the quality of the labor supply, capital goods, technological change, and improved efficiency are all drivers of economic growth. All of these factors have weakened since around 2000. Some of these drivers cannot be changed by adopting new economic policies. For example, demographic factors are, as Dale Jorgenson has said, "baked in" and there is little that can be done to change them.[14]

The Great Recession

Lagging investment and slower productivity growth contributed to the weak recovery from the Great Recession. As shown in Figure 14, economic growth in the four to six quarters following the end of postwar recessions typically bounced back strongly; that is, until the last three recessions. There was a positive correlation between the extent to which GDP fell and the strength of the recovery. The recessions in 1990-1991 and in 2001 were relatively mild and thus the fact that growth in the recovery phase was not strong was not surprising. In the Great Recession, however, the large peak to trough drop in GDP (equal to 4.2 percent) was followed by a very weak recovery.

Our view is that the slowing growth of investment and the concomitant fall in productivity contributed to the weak recovery. Investment spending is the one variable most susceptible to policy influence and thus it is important to ask what is behind its weakening since the end of the dot-com bubble.

[14] Remarks to Cato Institute forum on "The Future of Economic Growth," Washington, DC, December 4, 2014, *www.cato.org/events/future-us-economic-growth*.

Section III
Why Is Investment Lagging?

Standard economic, econometric and financial models used to forecast investment spending incorporate various drivers that are thought to determine investment spending. At the aggregate level, these models typically include interest rates and the growth of GDP. At the firm level, other variables help explain what drives investment decisions. A recent MAPI survey of senior financial executives found that cash flow and expected profits are key drivers of investment decisions.[15] But other factors including the level of capacity utilization, expected market growth and interest rates also affect investment decisions. A subsequent MAPI survey looked at the role of hurdle rates. Most companies establish hurdle rates—benchmarks of the required return on an investment—that are used in making investment decisions.[16] The expected return on a proposed investment must equal or exceed the company's hurdle rate which is based on its weighted average cost of capital. Hurdle rates for particularly risky investments may exceed the company's weighted average cost of capital. Other metrics may be used, including Economic Value Added or EVA, payback periods, net present value, and the expected return on invested capital, to help guide decisions. In general, most of these purely financial factors have been favorable in recent years.

Apart from these financial considerations, factors such as confidence, animal spirits, lack of profitable investment opportunities, changing demographics, changes in fiscal and monetary policies, the tension between short-term demands on the part of investors for quicker returns versus longer term corporate strategic goals, as well as uncertainty associated with regulatory initiatives (environmental, financial, antitrust), and tax policy, can also impact investment spending. Most of these factors have always existed, but it appears that many have worsened since around 2000. For example, there has been much uncertainty in the past two years as to when the Federal Reserve Board will change its monetary policy and, if so, what it will do.

A fundamental question is whether one or more of the factors cited above have changed to such an extent that they have caused investment spending to lag. What follows is a brief overview of some factors thought to reduce investment spending.

Weak Business Confidence

If business decision makers have confidence that their markets will expand and if they are confident that there will be no major surprises that could disrupt their plans, they will be more willing to commit to investments in long-lived assets that will yield returns over the long run. The current environment is one which challenges confidence. As we have shown, investment remains weak even though firms have near-record cash reserves, interest rates remain low, and capital markets are generally strong. Slowing economic growth in Europe and Asia, radical and rapid changes in financial markets, the threats posed by ISIL and Russia, and volatility in energy markets are just a few of the events that undermine confidence and may help offset the favorable conditions in capital markets and corporate balance sheets.

Measuring uncertainty's impact on confidence is difficult because there are many different types of this phenomenon. There are uncertainties created by the economic outlook in the United States, polarization of the political parties, macroeconomic policy, monetary policy, regulatory policies (environmental and financial), the economic outlooks for our major trading partners, volatility of oil and exchange rates, and corporate tax policy.

Scholars are developing tools to understand how the nuances of uncertainty affect decision making for investment. What matters is level and trend in overall uncertainty. A recent paper by Baker,

[15] MAPI Foundation, *Business Outlook Survey*, January 2015.
[16] MAPI Foundation, *Business Outlook Survey*, April 2015.

Bloom, *et. al.* develops a measure of uncertainty associated with levels of government spending, regulation, taxes, and political polarization.[17] Their measure of uncertainty has trended upward since 1960. The trend in their index was relatively stable between 1973 and 2006. Since 2006, however, the uncertainty index has climbed much more rapidly than in earlier periods, thus providing some evidence that uncertainty could be having an impact on investment. The research of the Bloom/Baker Stanford team has been extended in time (back to 1900) and place (with many other developed economies) and tends to corroborate a consistent correlation between uncertainty and weak investment.

A recent paper by the Bank for International Settlements links the "collapse in investment in 2008 …" which "accounted for a large part of the contraction in aggregate demand …" in many advanced economies directly to uncertainty. Moreover, the authors find that: "The test results imply that the economic uncertainty has had a greater effect since 2007."[18] Another recent publication links the uncertainty index developed by the Stanford team directly to capital investment by corporations, with a strong negative correlation between the two. This research further refines the findings to show that the negative impact is more pronounced for "firms with a higher degree of investment irreversibility and for firms which are dependent on government spending."[19] The term "irreversibility" generally applies to large capital projects with lengthy lead times, such as building refineries, commercial aircraft, or new factories.

[A]n accumulating number of studies show a break in overall levels of certainty in the last 10-15 years that is related in ways to capital investment weaknesses.

Uncertainty is clearly a composite of many factors, some of which are explored in more detail below. It is worth noting that an accumulating number of studies show a break in overall levels of uncertainty in the last 10-15 years that is related in ways to capital investment weaknesses.

Reduced Animal Spirits and Entrepreneurialism

John Maynard Keynes discussed the role of animal spirits in driving investment in his book, *The General Theory*. Keynes defined animal spirits as a "[s]pontaneous urge to action rather than inaction and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities."[20] In his discussion on animal spirits, Keynes apparently sought to reassure those who were concerned that new economic policies might depress investment, noting that "[i]f the fear of a Labour Government or a New Deal depresses enterprise, this need not be the result of a reasonable calculation or of a plot with political intent—it is the mere consequence of upsetting **the *delicate balance of spontaneous optimism*** [emphasis added]." The main point here is that whether or not a calculation is based on reason, the motivation to invest can be impacted by uncertainty. In 2006, then Federal Reserve Governor Kevin Warsh echoed this line of argument, stating that businesses appeared to be more risk-averse than warranted by economic fundamentals.

A variation of the role played by animal spirits is the role of entrepreneurialism. Citing the work of the great economic historian David Landes and his co-authors, the Kauffman Foundation summarizes the case: "Historically, entrepreneurship and innovation have been the principal source of economic

[17] Scott Baker, Nicholas Bloom, Brandice Canes-Wrone, Steven J. Davis and Jonathan Rodden, "Why Has U.S. Policy Uncertainty Risen Since 1960?" Draft paper for the *American Economic Review Papers and Proceedings*, January 5, 2015.
[18] Ryan Banerjee, Jonathan Kearns and Marco Jacopo Lombardi, "Why Is Investment Weak?" *Quarterly Review*, Bank for International Settlements, March 2015, pp. 67, 75.
[19] Huseyin Gulen and Mihai Ion, "Policy Uncertainty and Corporate Investment," Social Science Research Network, February 20, 2015, *http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2188090*.
[20] John M. Keynes, *The General Theory of Employment, Interest and Money* (London: Macmillan, 1936), pp. 161-162.

growth, technological progress and rising standards of living."[21] The Kauffman Foundation is among those consistently raising the clarion call for diminishing levels of entrepreneurship in the United States. Their measure of new business start-ups shows that business creation peaked in 2006, declined by 31 percent by 2010, and, by 2012, was still 27 percent below the recent peak. New business creation actually reached almost 800,000 in the late 1970s and 1980s, and was only around 400,000 in 2012. Declines in prime age and in younger age cohorts exacerbate their concern.[22]

Some like Alex Tabarrok dispute this, arguing that the number of small business start-ups is not an accurate measure of entrepreneurialism. CEOs and managers in large modern corporations are able to act in an entrepreneurial fashion. He cites the turnaround of Ford Motor Company under its former CEO Allan Roger Mulally as an example of entrepreneurialism in a large corporation.[23]

Lagging investment is an important reason as to why the growth of labor productivity has slowed. It also helps to explain why the contributions from capital intensity and multifactor productivity have slowed in recent years.

At a higher level of this category, at least in terms of potential for innovation, is venture capital (VC) funding. The United States is a global leader in this arena, but other nations are narrowing the gap. Total VC activity in the United States took a dive in the Great Recession but has revived during the recovery. Between 2002 and 2012, the total amount of VC invested in the United States increased from $22 billion to $27 billion, but the average size of investment is flat and the value relative to GDP declined from $2.08 to $1.73 per $1,000 of GDP in this period.[24] Ernst & Young publishes an "Entrepreneurship Barometer" for the G-20. In the 2013 edition, the United States ranks high in terms of the culture of entrepreneurship and financing but low on the tax and regulation measure and last among the G-20 on what they identify as "coordinated support" which encompasses the eco-system allied with government and educational institution support for entrepreneurial ventures.[25]

Lack of Investment Opportunities (Secular Stagnation)

As noted earlier, Robert Gordon and others believe that investment spending has slowed because there is a lack of opportunities in which to invest. This argument has a lineage dating back to the 1930s when Alvin Hansen and others thought that the United States and other industrialized countries were doomed to a slower growth rate owing to the absence of new technologies that typically spur investment and to demographic weakening. Gordon cites the railroad, electricity, automobiles, and modern communications as examples of technologies that ushered in periods of large investment and faster economic growth. In a similar vein, Tyler Cowen argues that we have taken advantage of the "low hanging fruit" of new technology and going forward it will be increasingly difficult to find opportunities that would cause investment to expand as fast as it did for most of the post-World War II era. Cowen and Gordon both place emphasis on breakthrough investments that have major impact over time but are hard to anticipate. Larry Summers and Paul Krugman have also embraced variations of this hypothesis.

There is one sense in which the secular stagnation model is hard to dispute. The simple story of growth over time sees population growth and labor deepening combining with productivity growth due to innovation, the latter part being emphasized by Cowen and Gordon. But renewed levels of growth, at least in developed economies, clearly have little if any room for improvement due to labor deepening,

[21] Kauffman Foundation, "State of Entrepreneurship Address 2014," Kansas City, February 2014, p. 6.
[22] Kauffman Foundation, "2015 State of Entrepreneurship Address," Kansas City, February 2015, pp. 3-5.
[23] Remarks to Cato Institute forum on "The Future of Economic Growth," *op. cit.*
[24] See NSF, *Science and Engineering Indicators 2014, op. cit.*, Figures 8-57 and 8-59.
[25] Ernst & Young, *The EY G20 Entrepreneurship Barometer 2013, http://www.ey.com/GL/en/Services/Strategic-Growth-Markets/EY-G20---Access-to-funding*.

and may be deteriorating in this measure. Population growth is slowing or declining, the labor force participation rate has declined, average hours worked is falling, and educational attainment indicators are stable to declining.[26] There is undoubtedly room for improvement in educational equality and labor force participation, but the consistent, rapid gains of the 20th century are behind us.

The idea of secular stagnation cannot be dismissed out of hand and the lack of new breakthrough technologies may in fact be one holding back investment spending, at least in the near term until new ones are developed. Further, while secular stagnation may be one factor that accounts for slowing investment, there are others as discussed throughout this section. While secular stagnation may not easily be remedied by policy changes, some of these other factors can be.

There is another increasingly useful way to view innovation, especially in the economy of the 21st century. In an important work on the microeconomics of innovation, William Baumol emphasizes that much of what is done in the modern setting can be characterized as the "routinization" of innovation. While it is all well and good to rely on major breakthroughs that drive waves of economic growth (is the "Internet of everything" the next in this series?[27]), most advances are incremental and depend on long-term accumulation of new ideas and collaboration to translate them into marketable products. As Baumol puts it, "… leading economic historians have concluded from their evidence that much of the U.S. economy's productivity growth is attributable not only to those dramatic breakthroughs, but perhaps even more to the accumulation of preexisting products and processes."[28] A contemporary example perhaps of this phenomenon is the 21st century research agenda of Boeing:

> The 99-year-old aerospace giant long has focused on developing new technologies that it reserved for big projects every 15 years or so to craft the fastest—and farthest-flying jetliners—such as its 787 Dreamliner.
>
> Today, Boeing is centering innovation on incremental improvements that it can deliver more quickly to airlines with greater reliability and at a lower price, said Ray Conner, chief executive of Boeing's commercial airplane unit … [in an interview with *The Wall Street Journal*].[29]

While we cannot rule out major new productivity-enhancing innovations, the life of the modern firm is, as Baumol argues, a continuous process of looking for improvements to gain an edge in a competitive economy. That is perhaps why R&D budgets in U.S. corporations have not declined at the same rate as expenditures on structures and production-related equipment.

A growing body of empirical research helps demonstrate that the current corporate tax structure clearly contributes to lagging investment.

Corporate Tax Policy

A growing body of empirical research helps demonstrate that the current corporate tax structure clearly contributes to lagging investment. As shown in Table 2, the United States has a higher statutory

[26] See above and Lindsey, *op. cit.*, pp. 3-10.
[27] Teena Hammond, "Cisco: The Internet of Everything is at a tipping point," TechRepublic, February 18, 2015. Cisco estimates that $19 trillion in new profits and cost savings could emerge globally in the next decade from this phenomenon.
[28] William J. Baumol, *The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism* (Princeton, NJ: Princeton University Press, 2012), p. 34.
[29] Jan Ostrower, "At Boeing, Innovation Means Small Steps, Not Giant Leaps," *The Wall Street Journal*, April 2, 2015, *http://www.wsj.com/articles/at-boeing-innovation-means-small-steps-not-giant-leaps-1428016900*.

Table 2 – Statutory Corporate Tax Rates

	Year		Percentage Points	
	2014	2006	2006 to 2014 Change	2014 Difference With the U.S
China	25.0	33.0	-8.0	-15.0
Canada	26.5	36.1	-9.6	-13.5
Mexico	30.0	29.0	1.0	-10.0
Japan	35.6	40.7	-5.1	-4.4
Germany	29.6	38.3	-8.7	-10.4
South Korea	24.2	27.5	-3.3	-15.8
United Kingdom	21.0	30.0	-9.0	-19.0
France	33.3	33.3	0.0	-6.7
Brazil	34.0	34.0	0.0	-6.0
United States	40.0	40.0	0.0	0.0
9-Country Trade-Weighted Average	27.9	33.6	-5.7	-12.1
OECD Trade-Weighted Average	27.9	32.3	-4.4	-12.1
Global Average	23.6	27.5	-3.9	-16.4

Source(s): KPMG and MAPI

Table 3 – Marginal Effective Tax Rates in Manufacturing

	Year		Percentage Points	
	2014	2005	2005 to 2014 Change	2014 Difference With the U.S
China	21.4	47.6	-26.2	-12.1
Canada	7.7	35.4	-27.7	-25.8
Mexico	18.9	18.9	0.0	-14.6
Japan	29.4	31.7	-2.3	-4.1
Germany	26.6	36.3	-9.7	-6.9
South Korea	32.4	35.3	-2.9	-1.1
United Kingdom	22.5	27.7	-5.2	-11.0
France	37.7	37.2	0.5	4.2
Brazil	34.5	34.5	0.0	1.0
United States	33.5	35.1	-1.6	0.0
9-Country Trade-Weighted Average	20.5	34.7	-14.2	-13.0
OECD Trade-Weighted Average	19.2	27.8	-8.6	-14.3

Source(s): Mintz and Chen and MAPI

corporate tax rate than any of our major trading partners.[30] A higher tax rate raises the effective cost of capital. Moreover, the U.S. corporate tax rate has remained unchanged for more than 20 years while other countries have lowered their rates. When one looks at effective tax rates (i.e., the average rate paid after various deductions are taken), it remains the case that the U.S. companies are at a disadvantage. Effective corporate tax rates in most countries also have declined in recent years to a much greater degree than in the United States (Table 3). In the last 10 years, the average effective marginal tax rate on corporate investment fell by 3 percent in all OECD countries and nearly 7 percent in the G-7. More than 63 countries dropped their tax rate on corporate entities since 2005, while the United States remained stable.[31] The 2015 *Economic Report of the President* outlines the impact of these differentials on investment and growth and the rationale for lowering corporate tax rates.[32] Add to that the burden of local and state taxes and the fluctuation of rules affecting depreciation of capital assets, and it becomes clear that U.S. companies face a disadvantage when competing in global markets. This is one reason for the United States losing global market share in FDI, as we showed in Section I. Because of the differential in tax rates and with all other factors being equal, it is simply more profitable, in most cases, to produce outside the United States.

As MAPI Vice President and Chief Economist Daniel J. Meckstroth put it, "[t]he U.S. tax system is out of step with the rest of the world."[33] It is the only country in the G-7 that taxes the active foreign earnings of its companies worldwide. The differential tax rate faced by U.S. companies distorts

[30] Daniel J. Meckstroth, *The U.S. Needs a More Competitive Corporate Tax System*, MAPI Foundation and NAM, April 13, 2015.
[31] See Jack Mintz and Duanjie Chen, "U.S. Corporate Taxation Prime for Reform," *Tax Foundation Special Report No. 228*, February 2015.
[32] Council of Economic Advisors, *Economic Report of the President* (Washington, DC: Government Printing Office, 2015), Chapter 5.
[33] Meckstroth, *op. cit.*

As… Meckstroth put it, "the U.S. tax system is out of step with the rest of the world."

investment decisions and even with deferrals meant to offset some of the tax burden created by taxation of foreign earnings the tax differences in many cases are so large that foreign earnings will never be brought back to the United States.

Regulation

One negative factor frequently adduced by corporate executives as influencing investment decisions is the burden of regulation. While one needs to emphasize that much of the existing corpus of domestic regulation is essential to the smooth functioning of the economy and is a result of democratic choices to achieve social and cultural welfare goals, there is increasing evidence that the weight of regulation in the United States is growing at a swift pace and is likely affecting global competitiveness. Because we now must include global investment flows to get a true picture of this variable, it is increasingly important to address the ***relative*** burden of regulation as a factor in investment decisions. So we will distinguish between the static state of the regulatory burden as it affects investment and the change over time as it affects the attractiveness of U.S. investment and in comparison to the parts of the world.

To focus on manufacturing alone, based on a study done for the National Association of Manufacturers (NAM), the total burden of federal regulation is nearly $20,000 per employee for manufacturing firms and over $2 trillion for the entire economy. Manufacturing executives report that some two-thirds of the regulatory costs would be spent on investment if the money were freed up.[34] The pace of growth for major regulations affecting manufacturers has picked up measurably in recent decades. According to a National Economic Research Associates (NERA) study, since 1998 "… the accumulated inflation-adjusted cost of regulations affecting the manufacturing sector has grown by an inflation annualized rate of 7.6 percent" whereas real GDP has grown by 2.2 percent and the physical volume of manufacturing output by 0.4 percent annually in the same years.[35]

…there is increasing evidence that the weight of regulation in the United States is growing at a swift pace and is likely affecting global competitiveness.

In more recent years, new or proposed regulations could have substantial impact on the industrial sector. The proposed strengthening of the ozone emissions standard to 65 parts per billion (ppb) would, again according to the NERA, add about $140 billion per year in compliance costs and reduce manufacturing output by 0.3 percent per year.[36] Moreover, 34 states would be non-compliant by 2020, calling into question the ability to build new plants, drill new oil and gas wells, or expand industrial production in those states. These states include most of the industrial Midwest, major oil and gas producing regions, the newly industrialized Southwest, New England, and California. According to the Environmental Protection Agency (EPA) analysis, meeting the new requirement will necessitate major contributions from "unknown technology." In the absence of technological breakthroughs, it is highly conceivable that existing plants will be required to close and new investment in oil, gas and

[34] *The Cost of Federal Regulation in the U.S. Economy, Manufacturing and Small Business* (Washington: NAM, 2014), Executive Summary, *http://www.nam.org/Data-and-Reports/Cost-of-Federal-Regulations/Federal-Regulation-Executive-Summary.pdf*.

[35] NERA, *Macoreconomic Impacts of Federal Regulation of the Manufacturing Sector*, report commissioned by MAPI (Arlington, VA: MAPI, 2012), p. 34, *https://www.mapi.net/system/files/NERA_MAPI_FinalReport_0.pdf*.

[36] See NERA, *Economic Impacts of a 65 ppb National Ambient Air Quality Standard for Ozone*, prepared for the National Association of Manufacturers (Washington: NAM, 2015), pp. 5-11, 5-14, *http://www.nera.com/publications/archive/2015/economic-impacts-of-a-65-ppb-national-ambient-air-quality-standa.html*.

petrochemical sectors, and other energy-intensive industries will be limited, assuming that EPA chooses to vigorously enforce the new standard.

Another new regulation also introduces major uncertainties and possible costs on the technology industry. The Federal Communications Commission this winter adopted its "net neutrality" rule, requiring Title II regulation of the internet infrastructure on the model originally conceived for the wired telephone network as it existed in the 1930s. While details are yet to be fully understood, uncertainty about enforcement alone may dampen new investment in infrastructure such as fiber optic cable. And it is unknown if the economic model of Title II regulation will diminish the economic returns available under the previous system of light regulation and, hence, discourage new investment. Experience with generally similar regulation applied in recent decades in the European Union (EU) suggests that such regulation will discourage investment. A study of the Annenberg School for Communication at the University of Pennsylvania shows that investment in broadband in Europe 2007-2012 was less than half that in the United States and that U.S. consumers enjoyed better access to broadband at lower prices than European consumers.[37] Another study comparing the EU approach to that of the United States concludes:[38]

> In sum, it is not clear that Europe's approach to net neutrality—encouraging unbundled networks—will do much to facilitate neutral networks. Moreover, the cost of that neutrality appears to be significantly less investment in next-generation networks.

A final example of regulation that impedes investment is the ban on crude oil exports.[39] In a study released in 2014, we argued that lifting this ban would spur sizable new investment in both oil and petrochemical infrastructure, encouraging over $63 billion per year in new manufacturing investment, and that such dynamism in this sector would lead to additional investment gains in related industries such as machinery, construction and mining equipment, and pipeline infrastructure.[40] The recent decline in oil prices has already contributed to lower investment. According to Goldman Sachs estimates, the drag from lower oil and gas exploration will cut growth in investments in half in 2015 relative to 2014.[41]

The other important way to analyze the impact of regulation is to compare the growth or diminution of regulation and the general investment environment relative to other competing nations.[42] Of course many factors affect decisions about where to site important capital investment (including R&D). These include the tax environment, availability of a skilled workforce, the legal environment, infrastructure, and many more. The regulatory environment is clearly an important factor in such decisions. While it is frequently asserted that the U.S. economy is relatively less regulated than some competitors, such as Germany, the United Kingdom, China, or Japan, most competitive analyses in recent years show that whatever U.S. advantage may once have existed is slipping away due to a more robust pace of U.S. regulatory growth and efforts by foreign competitors to narrow the gap. For

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[37] Christopher S. Yoo, "U.S. vs. European Broadband Deployment: What Do the Data Say?" University of Pennsylvania Institute for Law and Economics, Research Paper No. 14-35, June 2014, *http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2510854*.

[38] See Scott J. Wallsten and Stephanie Hausladen, "Net Neutrality, Unbundling, and their Effects on International Investment in Next-Generation Networks," *Review of Network Economics*, Vol. 8, Issue 1, March 2009, p. 107.

[39] This ban was set in place by law in 1973, but in 2014 was partially lifted by executive decision. Some scholars argue that the entire ban could be lifted by executive action.

[40] See Thomas J. Duesterberg, Donald A. Norman, and Jeffrey F. Werling, *Lifting the Crude Oil Export Ban: The Impact on U.S. Manufacturing* (Washington: The Aspen Institute, 2014), *http://www.aspeninstitute.org/sites/default/files/content/upload/FINAL_Lifting_Crude_Oil_Export_Ban_0.pdf*.

[41] Nick Timiros, "Oil Price Drop Hurts Spending on Business Investments," *The Wall Street Journal*, March 22, 2015.

[42] See Ikenson, "Reversing Worrisome Trends: How To Attract and Retain Investment in a Competitive Global Economy," *op. cit.*

example, the Organization for Economic Cooperation and Development (OECD) maintains a "FDI regulatory restrictiveness index" for 58, mostly developed, countries. Using a broad spectrum of measures, the index strives to capture whether countries are open or closed to foreign investments. In 1997 the United States was well under the overall average score, registering 0.089 versus 0.138 for all OECD members, where 1 is totally closed and 0 is totally open to FDI. But by 2013 the United States was above the average of OECD countries, with a stable rating of 0.089, while the OECD average had fallen to 0.069. By 2013, countries as diverse as the United Kingdom, Poland, Japan, Sweden, Latvia, Germany, and Costa Rica all had more friendly climates for inward FDI than the United States.[43]

The World Economic Forum (WEF) publishes a highly watched "Global Competitiveness Report" each year. Using over 50 separate criteria, the Forum attempts to capture the world rankings of each country's relative competitiveness. While the United States typically ranks high on this scale, on the sub-index of "burden of government regulation" the 2014-2015 tables found the United States 82nd out of 144 nations. Overall, the United States ranked third in total competitiveness.[44] Another global ranking system finds the U.S. position related to "economic freedom" to be declining. The Fraser Institute has published its rankings, based on 42 variables, since 1980 for most countries. In that year the United States ranked third in the "Economic Freedom of the World" index but it had fallen to 14th by the most recent year. Moreover, in regulatory related categories, the United States fared more poorly: in terms of "regulation" it was 21st, in terms of "freedom to trade internationally" it was 40th, and in terms of "size of government" it was 162nd.[45] All of these rankings thus show a consistent pattern of slowly eroding global advantage due to various categories of regulation. In 2012, Harvard Business School's (HBS) Michael Porter and Jan Rivlin published the results of a survey of over 1,900 HBS graduates on how they made location decisions for new plant and equipment. In their summary they state simply that: "Considerable evidence … suggests that the U.S. is not winning enough of the location decisions that support healthy job growth and rising wages." And in explanation, they argue in part: "The U.S. government is failing to tackle weaknesses in the business environment that are making the country a less attractive place to invest and nullifying some of America's most important competitive strengths."[46] Regulation is an important part of Porter's story.

Global Trade and Investment

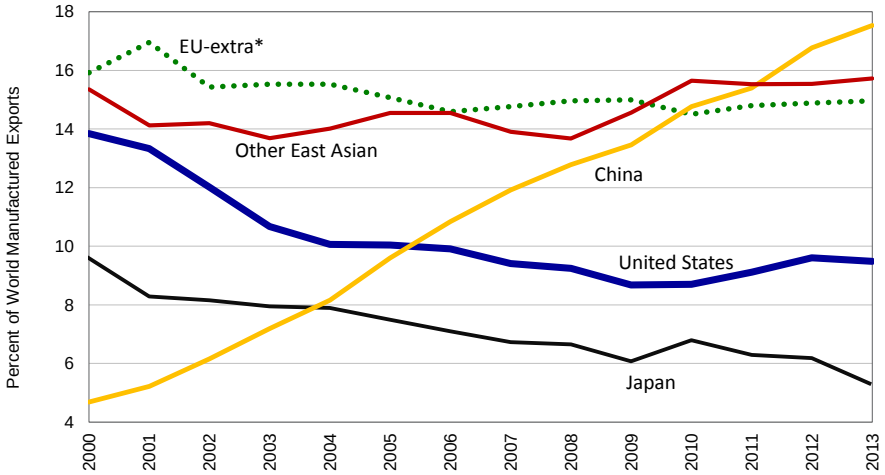
The United States emerged from the colossal destruction of World War II as the industrial super power of the world. Challenged by few in the wake of the devastation of Germany, Japan, and much of industrial Eurasia, the United States enjoyed an era of unprecedented growth, prosperity, and global economic dominance. By the 1970s, U.S. dominance began to slowly erode as the European and East Asian economies rose from the ashes, enjoyed the advantages of the latecomer, and began to compete again in global markets, especially for industrial goods. By the early 1970s, President Nixon felt compelled to act to stem the tide of losing global (and domestic) market share to new industrial powers. He authorized the Secretary of the Treasury John Connally to end the link of the dollar to gold and devalue the U.S. dollar. Together with a 10 percent import surcharge levied at the same time, the cause of combatting foreign economic competition was joined. This battle has continued unabated since then as new competitors, most recently the newly developed "BRIC" countries of Brazil, Russia, India, and China have joined the fray, along with Mexico and many others. Many have argued since the 1970s,

[43] *Ibid*, pp. 16-17. And for 2013 data see OECD, *FDI Regulatory Restrictiveness Index, 2013* (Brussels, OECD, 2015), *http://www.oecd.org/investment/index*.
[44] World Economic Forum, *Global Competitiveness Report, 2014-15* (Geneva: WEF, 2015), *http://www.weforum.org/reports/global-competitiveness-report-2014-2015*.
[45] *Economic Freedom of the World: 2014 Annual Report* (Vancouver, BC: Fraser Institute, 2014), *http://www.fraserinstitute.org/research-news/display.aspx?id=21855*.
[46] Michael E. Porter and Jan W. Rivlin, "Choosing the United States," *Harvard Business Review*, March 2012, *http://www.harvardbusiness.org/choosing-united-states*.

that "fair" and oftentimes "unfair" foreign competition can explain the slower growth, loss of jobs, and slower investment, at least relative to the 1950s and 1960s.

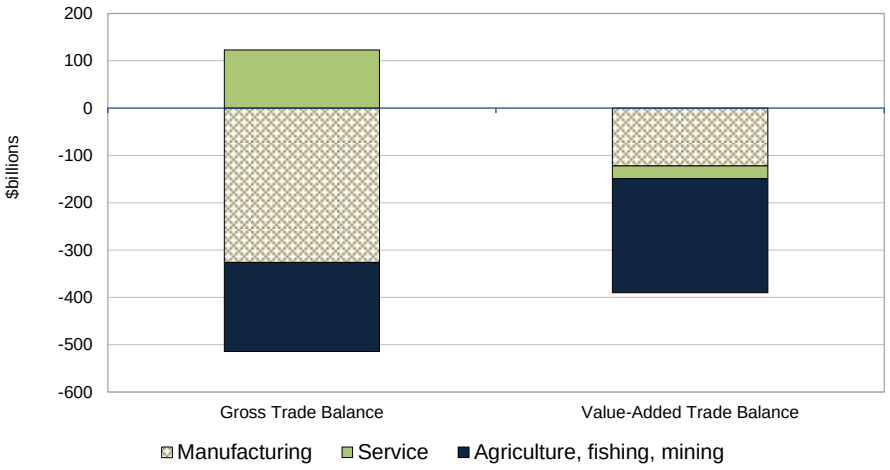
While the dominant position of the United States in the immediate post war period was bound to wane as the world recovered, further erosion of the competitive position in the last few decades was a less obvious outcome. Figure 15 shows the slow loss of global market share for manufactured goods exports by the United States, whose share declined from 14 percent in 2000 to 9 percent in 2013. During this period, total U.S. exports continued to grow, by 85 percent between 2005 and 2014, but they failed to keep pace with those of the new export super powers in Asia and the developing world. Europe lost global market share, but not at the same pace as the United States.

Figure 15
The United States Is Losing Export Market Share



Source(s): World Bank and Eurostat and MAPI Foundation
* Extra=exports to non-members
Updated1/12/2015

Figure 16
Manufacturing Accounts for a Smaller Share of the Trade Deficit in Value-Added Terms (2009)

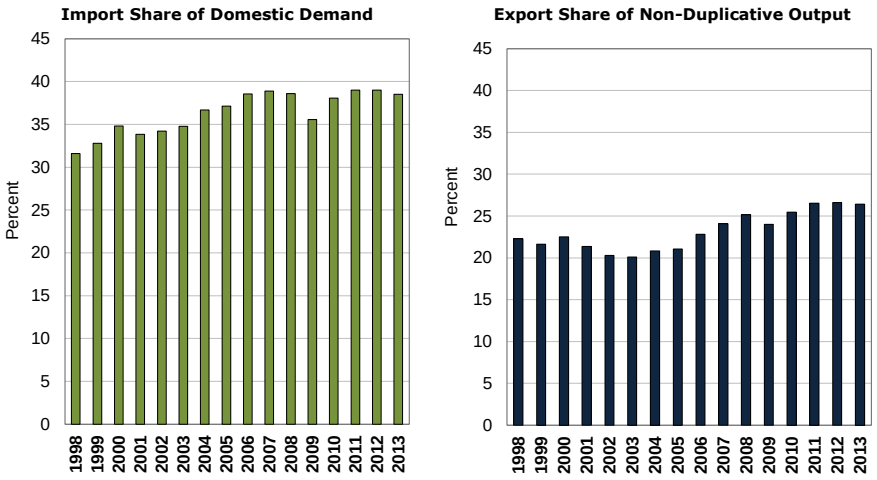


Source(s): OECD-WTO TiVA and MAPI

A slightly different picture emerges from an examination of trade flows in terms of value added. The Apple iPhone, to take a famous example, is assembled in China, but the lion's share of the value added originates in the design and engineering of the phone, and in communication chips made or engineered in the United States. Germany's luxury cars, to take another example, are often assembled in the United States or China, while key parts are made in Germany or nearby Slovakia. Traditional trade statistics count the entire value of the resulting product according to its last place of substantial transformation, hence China for the iPhone, etc. The OECD and the World Trade Organization (WTO) now provide estimates of trade flows on a "value added" basis, which tell a slightly better story for the United States. Figure 16 shows the trade balance for the United States using this method, and it reduces the trade deficit in merchandise for

the United States, while reversing it for services trade.[47] Another measure of the impact of global competition is what share of domestic U.S. consumption for manufactured goods is captured by foreign producers. As Figure 17 illustrates, import shares of total domestic demand grew from 31 percent in 1998 to a high of 39 percent before the Great Recession, but appear to have leveled out since then at 38-39 percent. As noted earlier, exports from the United States (see Figure 17 for exports' share of output) have grown faster, around 85 percent in gross terms, since 2005, than imports which grew only at a 40-45 percent rate. Nonetheless, since the value of imports is so much larger, the trade deficit has been reduced only marginally.

Figure 17
The Trade Gap Widens for Manufacturers



Source(s): U.S. Bureau of Economic Analysis and MAPI Foundation
Updated: 12/5/2014

This clear loss of global market share, most notably in merchandise trade, almost certainly has a negative impact on domestic capital investment. While the total measure of investment foregone due to erosion of market share is nearly impossible to calculate, we have shown elsewhere that the most likely source of future growth in domestic output of goods is recapturing some of the lost global market share, including domestic market share.[48] More specifically, we have given some estimates of the effect on investment in the oil and gas sector and affiliated industries from lifting the ban on oil exports and, hence, capturing broader global market share in this sector.[49] The data cited earlier shows some stabilization or slight improvement in U.S. export performance and regaining some domestic market share, but thus far the progress is almost certainly too modest to spur a measurable uptick in domestic investment.

In our discussion of regulation as it affects global investment decisions, we noted that the advantage enjoyed by the United States in its overall investment climate may be eroding. Another concern is specifically related to trade policy. In recent years, the trade balance with countries with which the United States has some form of free trade agreement (FTA) has generally been more favorable than with the rest of the world. For example, the United States in 2014 had a trade surplus in manufactured goods of $55 billion with FTA partners, but a deficit of $579 billion with non-FTA countries.[50] This experience and economic theory generally suggest that further trade opening agreements would be helpful for recapturing global market share and spurring domestic capital investment. The United States, however, has fallen behind other, more aggressive trade-oriented nations in implementing new trade opening agreements. Over 400 new regional FTAs have come into effect

[47] See MAPI and NAM, *The Facts About Modern Manufacturing* (Facts About Manufacturing's Impact on Foreign Trade and Investment) (Arlington, VA: MAPI, 2014). The reversal in services trade is due to how trade facilitation services (transportation, financing, distributors) for merchandise goods are accounted for.
[48] Duesterberg, *The Manufacturing Resurgence*, *op. cit.*
[49] Duesterberg, Norman, and Werling, *Lifting the Crude Oil Export Ban*, *op. cit.*
[50] See Bureau of Economic Analysis, *Free Trade Agreements, http://trade.gov/fta/*.

since 1995, and the United States is party to only two of these (as well as 10 bilateral agreements. In contrast, Mexico has three major regional agreements, adding all of Europe and Latin America to its list. The European Union has 38 separate FTAs and is negotiating 12 more.[51] Relatively open access to as much of the world as possible is becoming a more important element of the calculus that informs global investment decisions. One prominent example is the decision of Audi to build its newest North American plant in Mexico, after having procured land in Tennessee with this plant in mind. According to the *Wall Street Journal*, Audi's chief executive cited Mexico's web of FTAs, which "… give exporters from Mexico duty-free access to markets that contain 60 percent of the world's economic output …" as a prime reason for choosing Mexico over the United States.[52] BMW, Nissan, and the U.S. big three all produce cars in Mexico. The United States could help itself by completing the two huge trade agreements, with Pacific and European nations, which have been under consideration for the last few years.

Section IV
Policy Recommendations

Secular Stagnation

Perhaps this is stating the obvious, but we do believe that the investment drought is a problem and that it is not immune from actions that can help alleviate it. It is a problem because capital investment has been and will continue to be a source of innovation, productivity growth, and, through various transmission mechanisms, of increases in the standard of living. We have offered substantial evidence of these links, and the growth performance of the U.S. economy, including growth in incomes, bears out the notion that the capital investment slowdown coincides with weaker economic productivity growth. The secular stagnation hypothesis has some attraction in this slow growth environment, but we think it is too often overstated. While demographic and labor deepening dynamism clearly have weakened, there is probably some secular element (i.e., impact of the Great Recession) affecting the numbers. It ought to be possible to improve labor quality through better education and targeted immigration measures. As for the lack of innovation, we have argued that incremental innovation is increasingly a defining feature of the modern capitalist economy, and that there is no way to predict if another major breakthrough, comparable to those of electrical power or the internet, is on the horizon. Risk takers and inventors certainly have not disappeared, and there are numerous candidates now on the horizon for major new technologies: robotics, 3-D printing, the Internet of things, and new energy generation and storage technologies are just a few.

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[51] See World Trade Organization, *Participation in Regional Trade Agreements*, *https://www.wto.org/english/tratop_e/region_e/rta_participation_map_e.htm*.

[52] See Dudley Althaus and William Boston, "Why Auto Makers Are Building New Factories in Mexico, Not the U.S.," *The Wall Street Journal*, March 18, 2015, p. A-1, *http://www.wsj.com/articles/why-auto-makers-are-building-new-factories-in-mexico-not-the-u-s-1426645802*.

Trade Policy

Related to the secular stagnation argument is one extensively employed by the predecessor to this theory, that of economic maturity. This idea too rested on a foundation of technology saturation but also on a dearth of demand. Labor market weakness, an aging and slow growing demographic dynamic, and income stagnation and inequality are often linked to this phenomenon.[53] The demand stagnation notion is often inelegantly associated with the loss of market share for U.S. industry in a globalized economy. But while recognizing the reality of some of these developments, we do not accept the notion that they represent a permanent condition. Slower consumer spending, for instance, is certainly due in large part to the need to rebalance personal balance sheets. On the positive side, immigration has been a constant force for renewal and demographic strength in the United States. The United States has lost global market share, especially in goods, but that market is growing rapidly, as billions of people in Asia and elsewhere enter the middle class and become viable consumers. U.S. export performance in the last decade has improved and continual attention to factors which affect its competitiveness (see below) can extend this improvement. Being more aggressive in opening new markets through trade agreements, especially the TTIP and TPP initiatives, would go a long way to strengthen total demand. Consistent enforcement of WTO and IMF restrictions on IPR infringement, dumping, currency manipulations, and other trade distorting would also aid U.S. producers in access to growing global demand. Eliminating the ban on oil exports would open up vast new markets and provide a direct stimulus to sizable domestic capital investment.

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Corporate Tax Reform

There are a number of other specific policy measures that would help spur a reversal of investment, either directly or indirectly, through channels that strengthen overall competitiveness or total demand. Changing our corporate tax structure is one step—perhaps the most important step—that can be taken to increase investment spending. There are many competing proposals as to how the corporate tax structure should be changed.[54] One is the Fiscal Commission Plan (the Bowles-Simpson Plan) that was introduced in 2010. This plan would lower the top statutory corporate income tax rate from 35 percent to 28 percent. The plan would make up for lost tax revenue by broadening the tax base. The net impact, however, would be to ***raise*** the effective cost of capital in the corporate sector by 5 percent, according to Ernst & Young.

A second proposal, known as the Growth and Investment Plan, was proposed in 2005 by the President's Advisory Panel on Tax Reform. This plan would lower the top corporate statutory tax rate to 30 percent and would allow businesses to expense new business investment, remove interest from the business tax base, and reduce investor-level taxes on dividends, capital gains and interest. Because immediate deductibility of investment is allowed, the cost of capital for the corporate sector as a whole would be lowered by 21 percent. A proposal like or similar to the Growth and Investment Plan clearly would provide an incentive for increased investment. Other plans abound. President Obama, House Ways and Means Chairman, Paul Ryan, Senators Rubio and Lee, and Senate Finance leaders Hatch and Wyden all have plans.

[53] See especially, Gordon, *op. cit.*

[54] For a detailed analysis of these two alternatives, see Ernst & Young, *Impact of Two Proposed Federal Tax Reform Plans on Business Investment Incentives: Alternative Approaches to Business Tax Reform.* A Special Report prepared for the American Council for Capital Formation.

Enacting any type of tax reform is one of the most difficult legislative challenges for Congress. If this were not the case, the corporate tax code would have been changed long ago. There is broad agreement that the high marginal corporate tax rates paid by U.S. companies discourage investments; that the taxation of income earned abroad at these high tax rates works against the repatriation of earnings; and that corporate tax reform should be fiscally responsible. There is also the issue of the double taxation of corporate earnings when they are paid out as dividends or when investors realize capital gains, and the question of keeping full or accelerated depreciation of capital investment to encourage investment decisions. The chief problem in gaining a consensus on tax reform is that industries will be affected in different ways with some being winners and others losing. There is no magic solution to this problem, but it is clear the current corporate tax code discourages investment by U.S. companies and tax reform that reduced marginal tax rates, quickened depreciation schedules, and encouraged companies to repatriate foreign earnings would provide incentives for increased investment.

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One cannot forget subchapter S and other pass through firms, which represent hundreds of thousands of businesses which often are innovators and job creators and account for almost 40 percent of all U.S. business activity. Lowering the C-corporation tax rate would open an even wider gap between the rates paid by the two major types of firms. For pass through firms to remain dynamic and competitive, some neutrality with C-corporations (lowering the statutory rate in line with C-corporations) and sensitivity to the impact of loophole closing measures should be considered.[55] Simplification of the tax code, partly by trading off costs due to lower rates for eliminating some preferences would help both small and large firms by freeing up resources for more productive use than tax compliance.

Research and Development

We noted in the first section of this paper that federal, state, and local investment in research and infrastructure has been weak to declining in recent decades. Federal R&D expenditures, especially for basic research, are important to innovation, particularly in an era in which private sector firms have difficulty in devoting cash to high risk basic research.[56] A steady and robust federal budget for basic research is something that not only adds to investment but plants seeds for breakthrough technology over the long run. Physical infrastructure—roads, airports, ports, and water systems in the United States—have been under-funded for many years. Despite continued calls for a renewed commitment to infrastructure spending and a brief spurt of federal spending to combat the Great Recession, federal, state, and local budgets are constantly squeezed by rising commitments for health, income support, and pensions. Some rebalancing of priorities to free up funds to repair infrastructure, so important in meeting simple needs such as clean water for semiconductor fabrication plants, electrical transmission lines to power the internet, or pipelines to transport new found oil and gas resources, would be helpful to spur investment and growth in our economy.

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[55] See "Should Main Street Business Elect C-Corp Status? No!" S Corporation Association of America, February 2015. See URL for a discussion of some of the relevant issues: *http://s-corp.org/2015/02/04/should-main-street-businesses-elect-c-corp-status-no/*.

[56] For an analysis of the strong correlation between federal support for basic research and innovation, see Jeremy Leonard and Cliff Waldman "An Empirical Model of the Sources of Innovation in the U.S. Manufacturing Sector: One Must Look Beyond R&D To Understand Innovation," *NABE Business Economics*, Vol. 42, October 2007, No. 4, *http://nabe-web.com/publib/be/0704/leonard.html*.

Uncertainty and Political Polarization

The possible policy remedies to address the effects of uncertainty are less obvious and perhaps less specific than for taxation or infrastructure. Bloom and his collaborators have constructed a complex index, and some recent work does identify and address "policy related uncertainty."[57] They note the consistent rise in overall size, complexity, and reach of government programs—mainly measured by growth in taxes, spending, and regulation. We also described other efforts to explain the relative decline in competitiveness due to growth of some of these factors. The Stanford team, additionally, links uncertainty to "increased political polarization." Specific measures such as constant changes in the tax code, some provisions of which must be renewed every year, major disruptions in government programs, and more extensive regulation are difficult to counter in an era of polarization. But it is possible to conceive of more consistent and stable political conditions and some reduction of partisan rancor as helpful in reducing uncertainty, especially if it can be shown to generate positive economic benefit. The experience of the 1980s and 1990s is helpful to recall in this regard.

Other research suggests the theory that the impact of uncertainty on the economy is mediated by the transmission mechanisms of financial markets.[58] That is, uncertainty results in more restrictive lending conditions, reduced propensity to commence or provide credit for "irreversible" capital intensive projects, and in turn to less credit availability. The most powerful impact is on capital investment, but purchases of both durables and non-durables are also affected. It is conceivable that monetary policy could reduce the impact of heightened uncertainty by offsetting the worst of the financial market effects. For instance, the stock market crash of 1987 did not result in a recession partly due to a quick response from the Federal Reserve Board to provide liquidity. Most believe that the impact of the Great Recession also was mitigated by monetary policy.

Regulation

The final arena in which policy could work to promote investment is in the broad and complex area of regulation. Many factors, from environmental to health and worker safety and prudential regulation of financial institutions fall under this rubric. We noted at the outset that each democratic polity must try to balance decisions about regulation based on social analysis and on socio-cultural choices. Some improved form of cost-benefit analysis is needed to assist in this process. Some regulations have "unintended consequences" that might merit a second look when they appear. For example, in our zeal to tamp down the excess speculation in financial markets following the Great Recession, new restrictions on trading, new capital requirements, and enhanced regulatory oversight of financial institutions may have led to reduced liquidity in those markets (hence less investment). In recent comments, former Treasury Secretary Larry Summers said "… regulators should make a priority of addressing the problems of bond market liquidity, brought on by their very efforts to make institutions safer after the financial crisis."[59] We also noted earlier that regulatory costs faced by U.S. companies are greater than those placed on many competitors in both the developed and developing countries. The ease of doing business, the sheer number and complexity of regulations, and the cumulative cost of same has slowly worsened the competitive position of the United States and deterred investment decisions of both domestic and foreign firms in the U.S. economy. It is our view that cost-benefit analyses provide cover for proposed regulations and often do not take such costs seriously.

[57] Baker, *et al.*, "Why Has U.S. Policy Uncertainty Risen Since 1960," *op. cit.*

[58] S. Gilchrist, J. Sim and E. Zakrajsek, "Uncertainty, Financial Frictions, and Investment Dynamics," *Finance and Economics Discussion Series*, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Paper No. 2014-69, 2014.

[59] Patti Domm, "Summers agrees with Dimon: There's a Liquidity Problem," NBC.com, April 9, 2015.

Consequently, the balance has become skewed in favor of increasing the regulatory burden. We have no magic bullet to suggest to rebalance the complicated equation, but hope that analysis like ours showing the long-term impact on basic investment will help resuscitate a reasonable democratic discussion of the trade-offs.

Additionally, there are tools available to the Executive and Legislative branches of government to review, change, and eliminate poorly conceived, anachronistic or overly burdensome regulations. More reliance on the powers of the Office of Information and Regulatory Affairs at The White House or broader use of Congressional Oversight through the Congressional Review Act ought to be starting points for redressing the balance. Much of the thrust for increased regulation in recent years has come from the federal government, in some cases adopting national regulations in areas long left to some states. One example is the recent imposition on states of federal standards for hydraulic fracturing. The new "one size fits all" standards override standards already in place in states with diverse geographies, such as Colorado and Ohio. Standards at the state level were developed with input from industry, civil society, and state environmental officials, all of whom had a better understanding of their states' resource bases and conditions. Such experimentation at the state level has historically been part of the process of finding good balance between competing interests, and we think it should be the default option in most cases.

Concluding Remarks

A number of factors have contributed to the lag in investment spending that has become increasingly apparent since the bursting of the dot-com bubble. The slowing of investment spending has resulted in slower productivity growth and, in turn, a lower rate of economic growth. While there has been much concern expressed about the tepid rate of recovery from the Great Recession, a growing number of economists believe that recent trends reflect the new normal. That is, the potential growth rate of the U.S. economy going forward cannot be expected to match the economy's performance between the end of World War II and 2000.

The outlook for slower economic growth is partly a consequence of demographic and education trends which are largely beyond the influence of economic policy. Investment spending also is influenced by factors ranging from uncertainty, a reduction in animal spirits and entrepreneurialism, and by limited technological opportunities that are on the horizon. Factors like these are not easily dealt with by economic policy.

Other factors that influence investment spending can, however, be affected by economic policy. Corporate tax reform that makes U.S. companies more competitive in global markets, reducing uncertainty regarding the course of economic (including monetary) policies, increasing spending for research and development and for an aging and deteriorating infrastructure, negotiating additional free trade agreements, and regulatory reform that pays attention to the costs that an ever-increasing number of regulations impose on companies and which makes it easier for companies to start new businesses would contribute to increased investment, greater productivity growth and, ultimately, a higher rate of economic growth and living standards than we will have if we remain on the current path.

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