BEYOND THE NEW NORMAL

Establishing a Pro-Growth Economic Policy Environment

3

Measuring Economic Growth

Wayne Winegarden
Niles Chura

PACIFIC RESEARCH INSTITUTE

FEBRUARY 2017

Beyond the New Normal

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PART III

Measuring Economic Growth

Pacific Research Institute
101 Montgomery Street, Suite 1300
San Francisco, CA 94104
Tel: 415-989-0833
Fax: 415-989-2411
www.pacificresearch.org

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Part 3: Measuring Economic Growth

ISBN 978-1-934276-32-7

Download copies of this study at www.pacificresearch.org.

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Executive Summary

> *…the welfare of a nation can scarcely be inferred from a measure of national income. If the GDP is up, why is America down? Distinctions must be kept in mind between quantity and quality of growth, between costs and returns, and between the short and long run. Goals for more growth should specify more growth of what and for what.*[1]
>
> —Simon Kuznets

Simon Kuznets, Nobel laureate, and primary architect of the current national economic accounts, was underscoring a fundamental lesson that is often overlooked with respect to measuring our economic wellbeing: All economic measures, regardless of their value, have limitations. The wording "a measurement of national income" is also significant. It implies that Kuznets recognized that there is more than one way to measure economic performance, GDP being just one of them.

As noted by Kuznets, it is beneficial to rely upon many measures of economic performance that, when taken as a whole, create a broader perspective on our economic past, provide greater insights regarding our future economic direction, and, therefore, help empower better overall economic policies. However, current economic measures are biased toward measuring aggregate expenditures leaving insightful, yet often overlooked, areas of focus, such as the economy's supply-side incentives and the economy's structure of production, underdeveloped.

The underdevelopment of supply-side measures has become an obstacle to understanding the impact from economic policies on the economy's long-term underlying growth rate (i.e. its structural growth path). Due to these shortcomings, part III of the Beyond the New Normal research program presents alternative economic measures that can help provide additional insights on the health of the economy.

The logic behind several of these alternative measures are based on the pioneering work by Kadlec and Laffer (1979) and Robbins and Robbins (2001); others apply accounting principles to the macroeconomy to create perspectives on issues such as the economy's asset efficiency. The overarching goal is to develop measures that link economic incentives, and the economy's

production structure, to economic outcomes. Such an approach provides a more comprehensive view of the economy, particularly the supply-side of the economy, and enables a broader understanding of the impact from government policies on the private economy.

The measures presented explicitly account for: the differences in the prices paid for expenditures relative to the prices received by workers and the owners of capital; the return on work and the return on investing; the impact from policies on incentives and relative prices; and, the health of the economy's production structure. The purpose of presenting these metrics in a separate paper is twofold.

First, the development of these metrics requires an in-depth presentation. Combining this detailed discussion with one focused on theory and a historical review (to be provided in the forthcoming Part IV of the Beyond the New Normal series) would distract from both the arguments for expanding the measures of national income and the historical review, respectively. And, this leads to the second purpose of this paper: debunking the belief that short-term growth in GDP is synonymous with long-run improvement in a nation's economic welfare, particularly if the GDP growth is manufactured via excessive government deficits. This point is further highlighted by evidence that government spending is "crowding out" private investment and that the composition of government spending is now greatly weighted toward non-value-accretive transfer payments. This combined trend is tied to slowing economic growth.

Historical experience illustrates that even if GDP growth is satisfactory in the short-term, the growth in one measure of national income can be masking underlying problems. Take the volatile 1970s, which debunked several economic myths, such as the alleged trade-off between employment growth and inflation. Looking at the average growth rate in inflation adjusted GDP, economic growth during the 1970s appears to be only slightly below the historical average – between 1970 Q4 and 1982 Q4 average annualized real GDP growth was 3.0 percent, compared to 3.1 percent average annual real GDP growth between 1958 Q2 and 2016 Q3.

The stagnation of the 1970s becomes evident, however, once other perspectives on the economy are considered. For example:

- Average annual productivity growth (inflation adjusted output per hour) was 16.9 percent below the average growth rate for the entire period;
- Average annual growth in household's inflation adjusted net worth was 18.0 percent below the average growth rate for the entire period;
- Average annual growth in inflation adjusted private income received was 23.8 percent below the average growth rate for the entire period, and on a per worker basis was 56.9 percent lower; and,
- Average annual growth in inflation adjusted median family income was 80.2 percent below the average growth rate for the entire period.

The possibility of sharp discrepancies between alternative economic measures, such as during the 1970s, exemplify why it is important to account for many perspectives on national income. It also exemplifies the potential economic losses that could arise due to inadequate measures of the economy's incentives and structure of production (the supply-side of the economy). The failure to adequately account for these economic fundamentals can result in misunderstandings regarding important economic trends or the impacts from alternative economic policies.

Without improved measures of the economy, the long-term impact from changes in government fiscal policies, monetary policies, trade policies, and regulatory policies on the economy's underlying incentives can be misunderstood or missed entirely. For instance, altering economic incentives meaningfully impacts economic decisions and therefore outcomes. When changes in economic incentives encourage greater entrepreneurship and a more efficient allocation of assets, economic growth improves. The reverse happens when changes in economic incentives discourage greater entrepreneurship and encourage a less efficient allocation of assets. The underdevelopment of these supply-side perspective, unnecessarily constrains our understanding of national economic welfare.

As will be illustrated in Paper IV of the Beyond the New Normal research program, the metrics developed in this current paper provide additional insights that help connect alternative government policies to alternative economic outcomes.

In response to government policies that changed the relative prices of labor and capital, companies substituted the relatively less expensive capital for the relatively more expensive workers.

Introduction

Current macroeconomic data are constructed based on a Keynesian view of the economy. Due to this foundational perspective, the traditional presentation of the macroeconomic data over-emphasizes the role of aggregate demand in the economy, and under-emphasizes measures of market efficiency and incentives. This traditional view also skews the analysis toward consumption of goods and services.

The consequences from these oversights are significant. In particular, due to these data deficiencies, the net impact from government economic policies can be obscured, and the underlying health of the U.S. economy can be misunderstood. It is, therefore, imperative to broaden how we measure the macro-economy in order to accommodate these important, but generally overlooked, economic drivers. This expanded view is particularly valuable with respect to demonstrating the pivotal role that the chosen mix of economic policies has played in the economy's current slow economic growth path.

The goal of this paper is to provide this more comprehensive perspective on the economy. These additional perspectives can be gained through a reorganization of the existing economic data sources.[2] The economic data restructuring leverage the original work on this subject performed by Kadlec and Laffer (1979) and Robbins and Robbins (2001).[3]

To illustrate why additional macroeconomic measures are beneficial, the next section provides a quick digression on macroeconomic policy. Once the economic policy implications have been reviewed, the remainder of the paper overviews several reorganized economic measures that address key deficiencies.

Due to the enormity of this topic, it is not possible for us to review all beneficial reorganizations, but our intention is to illustrate several promising metrics as well as illustrate the potential benefits such a reorganization offers. Part IV of the *Beyond the New Normal* research program "The Policy Mix Theory and Historical Evidence" leverages the insights from these metrics, in addition to the measures of the government sector developed in Part II of the *Beyond the New Normal* research program "Accounting for Government", to evaluate the causal connection between the economic policy mix and economic outcomes over the past half century.

A quick digression on macroeconomic policy

Kadlec and Laffer (1979) noted that "since World War II, macroeconomics has been dominated by two competing aggregate demand theories. Both monetarists and Keynesians agree, in principle, that shifts in aggregate demand are the major source of changes in output, employment, and the price level."[4] Over 35 years later, Kadlec's and Laffer's insights remain relevant. Economic policy makers, leveraging the consensus that is generally referred to as the neoclassical synthesis, still view changes in aggregate demand (e.g. the familiar consumption, investment, government expenditures, and net exports decomposition of economic output, or GDP) as the primary driver of the economy in the near-term.

This aggregate demand centric view of the economy defines the policy problem as the need to manage short-run economic fluctuations. The goal is to ensure that the current economic growth rate is near the economy's *potential* growth rate, the potential growth rate defined as the economy's sustainable rate of growth based on underlying capital, labor, and technology assumptions. Additionally, it is theorized that the potential growth rate is consistent with an inflation rate that is not above the Federal Reserve's target inflation rate.

In this approach, government policies (particularly tax, spending, and monetary policies) are seen as aggregate demand equilibrators that stabilize short-term economic performance. Put differently, an important role for government economic policies is to fine tune the economy's near-term performance. When the economy's growth rate slows, or even slips into a recession, it is appropriate, and feasible, to stimulate economic growth. When the economy's growth rate accelerates too fast, usually driven by monetary policy-makers' concern over the threat of inflation, it is appropriate, and feasible, to *decelerate economic growth* to a more sustainable pace.

Changes in fiscal policies either stimulate or reduce aggregate demand by altering the growth in government spending, particularly the growth in government transfer payments; and, by adjusting individuals' and businesses' taxes. Monetary policies stimulate or reduce aggregate demand by changing the money supply and manipulating key interest rates in order to influence overall borrowing, lending, and wealth. The aim of these activist measures is to put money in the hands

of those who are expected to spend it, thus driving up the consumption component of GDP and bringing it back in-line with the assumed potential growth rate.

By ensuring that the near-term growth in aggregate demand remains close to the economy's potential growth rate, these activist fiscal and monetary policies are supposed to generate a more stable short-term economic environment (e.g. a smoother business cycle). Through efficient short-term economic management, the economy's long-term economic prospects are assumed to be maximized.

These analyses do not account for the full economic consequences once the sources and uses of the government revenues are comprehensively considered. When both the sources and the uses of government revenues are considered, there is no stimulus in stimulative fiscal policies. Monetary policies that veer away from the primary responsibility of maintaining price stability will similarly fail to stimulate the economy and arguably result in a slowing economy. The stimulative limits of fiscal and monetary policies are discussed more comprehensively in Part IV of the *Beyond the New Normal* research program "The Policy Mix Theory and Historical Evidence".

In contrast to the inability of economic policies to effectively manage aggregate demand, economic policies will predictably alter an economy's underlying incentives. Changes in economic incentives alter the returns from entrepreneurship and innovation (e.g. the introduction of new technologies), which are the fundamental drivers of economic growth over the long-term.

Broadly defined, entrepreneurship is the drive to constantly find new and better ways to fulfill consumers' needs, often involving the development of new technologies and processes or the improvement of old ones. This entrepreneurial drive fulfills a growing range of our needs and wants, such as the discovery of new medicines and the competitive drive that brings new and faster telecommunication services to hundreds of millions of people. Of course, entrepreneurship is a risky endeavor. Failure is not only a potential outcome; it is a reality for the majority of entrepreneurs.

Whether an individual or enterprise will choose to bear the risk of entrepreneurship is based, in large part, on the economy's incentive structure. The economy's asset base and structure of production reflects the accumulation of these past entrepreneurial and business investment decisions. As a consequence, it is essential to account for changes in economic incentives and the economy's structure of production when measuring the health of an economy.

Intentionally or not, economic policies alter economic incentives, which lead to meaningful changes in the structure of production and the reward to entrepreneurship. Due to these connections, when economic policies adversely impact incentives, they will also undermine the economy's sustainable long-term economic growth performance. Taking measure of how changing economic policies alter economic incentives is, therefore, a crucial aspect of understanding long-term economic growth.

What you measure is what you get

Based on the logic of the neoclassical synthesis, the national economic data are organized in a manner that facilitates the ill-fated short-term aggregate demand management policies. The focus on managing short-term aggregate demand has left measures that account for changes in economic incentives and the structure of production under developed. As a result, the expenditure based presentation of the economic data limits our understanding of the health of the economy. When coupled with the policy focus on fine tuning the economy's near-term (or cyclical) performance, these deficiencies often lead to policies that create unnecessary volatility in the near-term, and reduce overall economic performance in the long term.

As an example, the aggregate demand bias treats each expenditure component as an inter-changeable method of stimulating the economy. However, forced increases in consumption expenditures are not a substitute for desired (or necessary) increases in investment expenditures – they represent two fundamentally different economic phenomena based on very different consumer time preferences.

Policies such as the 2009 cash for clunkers program that attempt to stimulate consumption illustrate the limits to this stimulative approach to fiscal policy. Hoekstra and West (2014), for instance, found that the majority of the cash for clunkers subsidies went to people who would have purchased cars either during the two-month period of the cash for clunkers program, or, within eight months of the program.[5] Cash for clunkers simply shifted people's consumption patterns inter-temporally – it did not fundamentally change the economy's growth path nor did it even appreciably change the economy's short-term rate of growth. Policies that stimulate current consumption (the largest component of aggregate demand) at the expense of future consumption, is not incenting growth over the long-term.

The assumption of substitutability between government expenditures and private expenditures creates further distortions to the consumption-investment decision process – increased consumption of public goods and increased government investment are no substitute for private consumption and private investment. The current organization of the aggregate economic data does not adequately distinguish between these alternative expenditure components, and are, consequently, ill-equipped to provide insights regarding these issues.

The false assumptions regarding interchangeability of various expenditures highlight an additional point that simply because one (or several) expenditure component(s) is (are) growing does not necessarily signify that the economy's underlying economic health is improving.

There is a parallel with business revenues that illustrates this potential deficiency. Often, robust revenue growth is a sign that a business is flourishing. When associated with rising sales and stable (or slower growing) costs, rising revenues are a sign that business profitability is increasing and the business is healthy. However, robust revenue growth does not necessarily indicate that the long-term sustainability of the business is sound. Perhaps revenues are growing, but at a slower pace than costs, leading to falling profits. Or, perhaps the business is growing current

revenues at the expense of future revenues. Therefore, even though profits are higher today, they will be smaller tomorrow. In short, a partial view of the business, no matter how important the proxy, cannot suffice as a measure of business health. Such considerations are also relevant for the broader economy.

Aggregate demand analyses view consumption growth as a means to sustain overall income (economic) growth. People's actions are based on the exact opposite premise...

Due to these measurement deficiencies, economic policies can distort economic signals, and diminish the economy's long-term economic growth potential, without the current oft-used economic data signaling to policymakers that a problem is developing. Periods of weak economic growth, such as the recovery from the 2007-09 recession, exemplifies the consequences when short-term economic policies diminish the incentives for long-term economic growth. This resulting lower long-term economic growth performance ultimately hampers stable wealth creation whose benefits are widely shared.

The aggregate demand framework also confuses the cause and effect between consumption and income. Individuals engage in economic activity in order to consume goods and services today, or invest their income today so they will have the resources (savings and wealth) to consume more goods and services tomorrow. Aggregate demand analyses view consumption growth as a means to sustain overall income (economic) growth. To the contrary, consumption is the ultimate goal of economic activity. Earning an income is the means to the consumption end.

Due to these considerations, the typical aggregate demand based data provide an incomplete accounting of a policy's impact and can create an appearance that economic growth has been improved when a fuller accounting illustrates that economic growth has either not been stimulated or that economic growth has been *borrowed* from the future. The reverse is also possible. In light of these deficiencies, a reorganization of current data sources, while limited by the data that are collected, can provide important insights that address these deficiencies.

Accounting for the market process

The economic accounts need to measure economic activity in both the production markets and the consumption markets. In the production markets, businesses interact with households and other businesses to acquire the labor and capital resources necessary to produce the goods and services (output) desired by consumers. To acquire the necessary capital goods, businesses will also interact with financial intermediaries in the capital markets. This process of assembling inputs to create outputs is subject to a great deal of risk and uncertainty. For instance, products that were once highly valued, can become undesired; the prices of inputs can vary unpredictably; or, new techniques or innovations can make current production techniques obsolete.

The flip side of the production markets, are the consumption markets. Whereas, compensation is a cost in the production markets, it is the largest source of household income to fund purchases on the consumption markets. The total household income also includes the income earned from the capital markets (from owning assets or lending money). Like the business sector, households will also interact with financial intermediaries to finance housing and consumer durable purchases (e.g. automobiles and consumer appliances).

The price system coordinates the production and consumption decisions made within the U.S. economy. Prices include the final costs of goods and services, but they also include interest rates, exchange rates, and the return to capital. Government policies influence economic decisions, in part, by changing absolute and relative prices. The imposition of a sales tax, for instance, raises the costs of purchasing a good for the consumer and reduces the revenues earned from selling the good for the producer. Similarly, the imposition of an income tax raises the costs of hiring employees for firms and reduces the income earned from working for employees.

Because there is a separation between the prices paid and the prices received (what Kadlec and Laffer referred to as the tax wedge), the relevant market prices that each side of a market transaction is basing their decision will differ. While gross labor costs include employer-paid labor taxes and regulatory costs, employees will not base their decision to work on the firm's gross labor costs. Employees will base their decision on their income net of all employee-paid taxes and costs. Employers, on the other hand, will base their hiring decisions, not on the income paid to employees net of employee-paid taxes and costs, instead, employers care about the gross labor costs.

Therefore, even though employers and employees are negotiating with one another over the same economic good (labor services) the prices employers are using to base their decisions differs from the prices employees are using to base their decisions. A fuller understanding of the economy is gained when these price differences are explicitly taken into account.

A similar logic impacts the capital markets. Adjusted for risk, the expected rate of return of different investments will tend to equalize. Changes in tax rates, particularly tax changes that distinguish between different asset classes, will change the expected risk adjusted after-tax rate of return from investments. Changes in the money supply will impact interest rates, and will similarly change the expected risk adjusted after-tax rate of return across different investments. Clearly, as the potential rates of return change, the asset base will vary in response. The changed asset base can, subsequently, have important growth implications.

The current expenditure-bias inherent in the macroeconomic data do not sufficiently account for these price discrepancies, which reflect the changes in incentives that will meaningfully influence economic activity. Therefore, part of the reorganization of the economic data need to explicitly account for these discrepancies.[6] The reorganized data also need to account for the impacts on the economy's asset base and the impacts on risk adjusted expected returns. The following sections introduces key data metrics, discuss the benefits of the expanded data metrics, and illustrate the reorganization performed.

Measuring economic expenditures

The main data source for the initial reorganizations is the Bureau of Economic Analysis, National Income and Product Accounts (NIPA).[7] The NIPA accounts are divided into seven summary accounts that provide data on the composition of production, the distribution of incomes earned in production, and the composition of expenditures."[8] All of these data are valued at the prices in which the transactions occurred – or what we refer to as *prices paid*.

As would be expected by the expenditure bias inherent in current theory, the current macroeconomic data provide a good overview of total expenditures, which equals an economy's gross domestic product or GDP. Two adjustments to the typical presentation of GDP are beneficial, which are reflected in Table 1.

First, if the goal is to measure the health of the economy, then the dollars spent on government consumption and investment expenditures should be viewed separately from dollars spent on private expenditures. As previously argued in "Accounting for Growth", important information about the economy is obscured by combining the value added from private transactions with the costs of government transactions. Consequently, it is important to view total expenditures excluding government consumption and investment expenditures, or *gross private expenditures*.

Second, an important adjustment to gross investment is necessary. Businesses typically differentiate between investment that maintains the current asset base (maintenance capital expenditures, or capex) and investment that grows the asset base (growth capex). More precisely, maintenance capex are the expenditures required to keep existing assets running smoothly in order to preserve the cur-

rent level of production – it compensates for the normal wear and tear on assets, or depreciation. Maintenance capex does not expand the business; it simply enables the company to maintain the status quo. Expenditures on growth capex, on the other hand, increase the asset base of the company in order to facilitate organic growth.

Typically, total economic expenditures track gross investment, which is the macroeconomic equivalent of the sum of maintenance and growth capex. But, from an economic growth perspective, it is the growth capex that matters. Therefore, Table 1 presents total private investment net of depreciation or net private domestic investment. To keep the total expenditures equivalent to total output, private fixed capital consumption is listed separately, and is more appropriately viewed as a type of consumption.[9] Private fixed capital consumption, or depreciation, plus net private domestic investment equals gross private investment.

TABLE 1. Gross Domestic Product and Total Private Expenditures
2014, 2015
($ in billions)

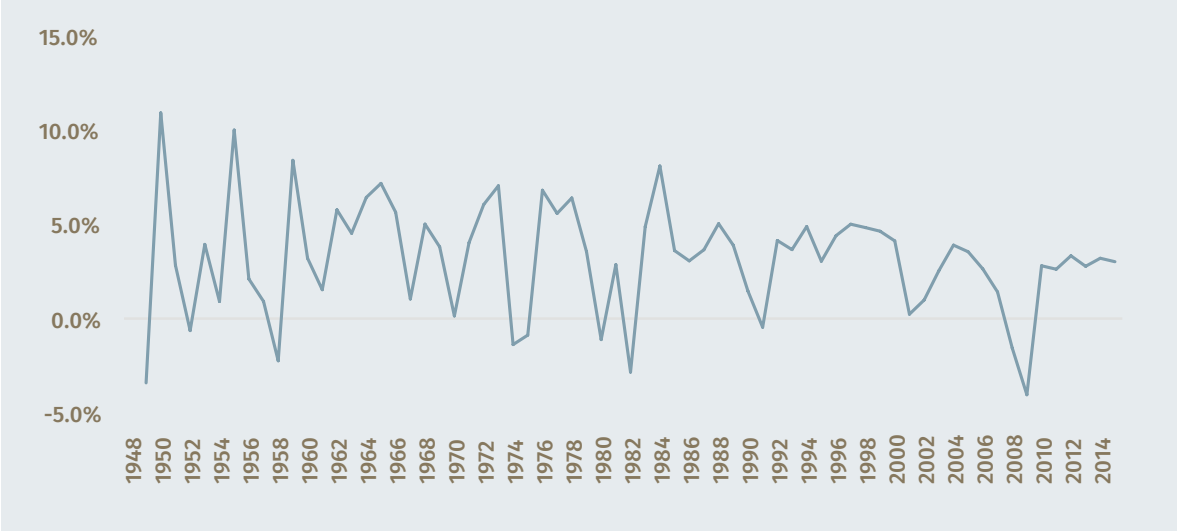
	2014	2015
GDP	17,393.2	18,036.6
Government consumption & investment expenditures	3,152.1	3,218.3
= Gross Private Expenditures	14,241.1	14,818.3
Personal consumption expenditures	11,863.4	12,283.7
Private fixed capital consumption	2,227.8	2,308.3
Net private domestic investment	658.7	748.3
Net exports	(508.8)	(522.0)

Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Table 1 illustrates that as of 2015, gross private expenditures, valued at prices paid, were $14.8 trillion. Gross private expenditures provide a measure of total private output, it represents the gross cost to consumers from purchasing private goods and services and the cost of investment by firms. However, since gross private expenditures are funded by the income people earn through work and investments, and the resources people receive through transfer payments, gross private expenditures are not a sufficient measure to understand the incentives to work, save, and invest. These considerations require an understanding of the income received from working, saving, and investing and are presented in the next section.'

Adjusting gross private expenditures for inflation, Figure 1 presents the percentage change in annual private expenditures between 1948 and 2015. Figure 1 illustrates that the growth patterns of gross private sector expenditures has varied over time. During the 1950s and 1960s, growth in gross private expenditures were faster on average, but more volatile. Also evident is the *great moderation* of the 1980s and 1990s, where growth was strong, but less volatile than the 1950s and 1960s; as well as the growth slowdown that has occurred since the turn of the 21st Century.

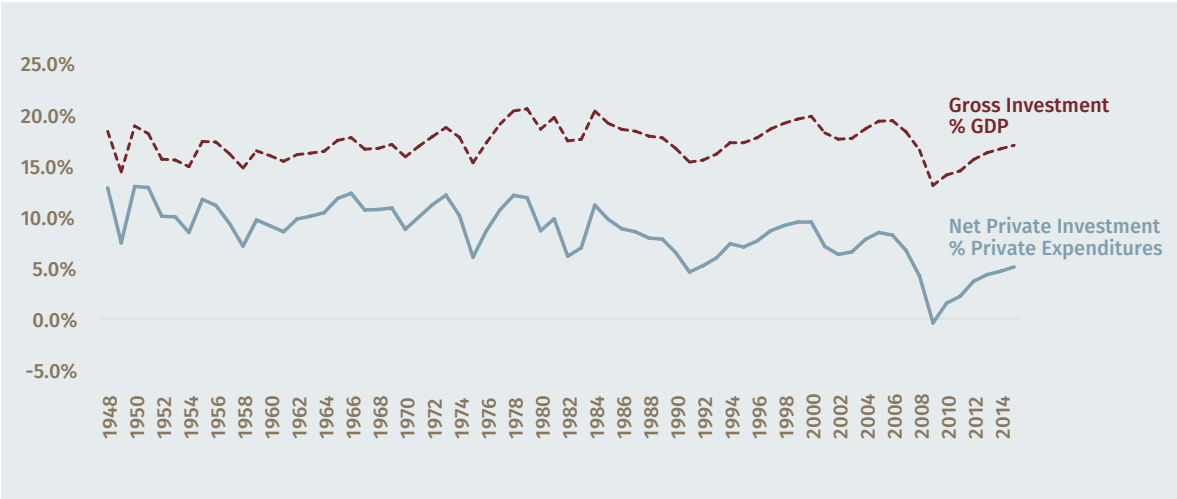
FIGURE 1. Annual Percentage Change in Inflation Adjusted Gross Private Expenditures
1948 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

The expenditure patterns of the sub components of gross private expenditures will also provide important additional information, particularly the trends in net private investment. Relative to gross private expenditures, net private investment has been a declining economic priority since the 1980s, see Figure 2. And, as Figure 2 also illustrates, the net investment trend differs significantly from the trend in gross investment.

FIGURE 2. Net Private Investment and Gross Private Investment as a Percentage of Private Expenditures
1948 – 2015

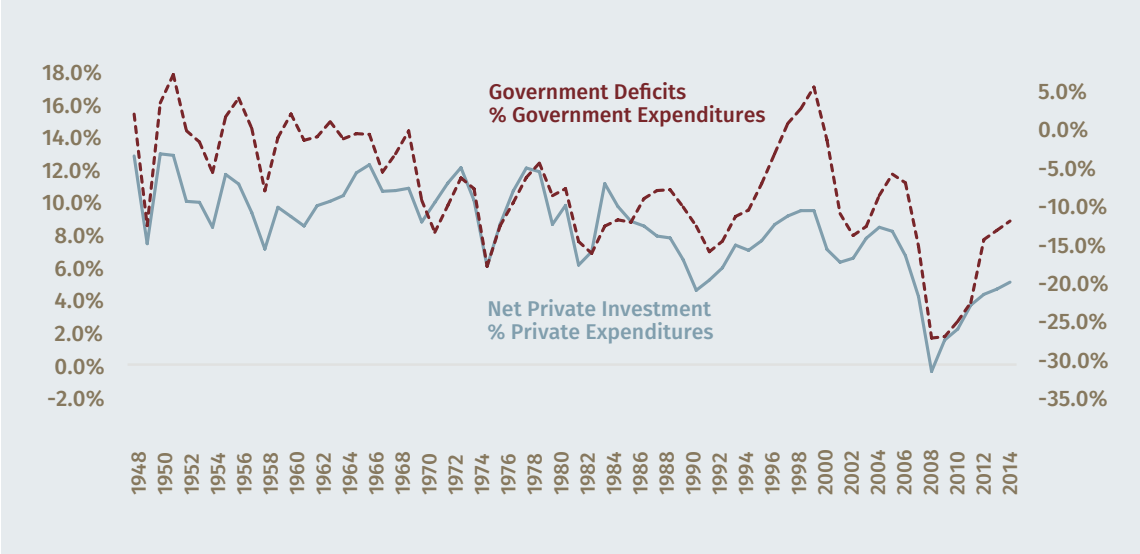


Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Figure 3 illustrates the connection between government budget deficits and the disconcerting trend in net private investment. The red dotted line in Figure 3 measures total government surpluses or deficits as a percentage of total government expenditures. The synchronicity between increases in government deficits, which requires funds from the private sector, and decreases in private net government investments as a share of total expenditures is an indication that growing government borrowing is limiting the ability of the private sector to invest for future growth, which is a negative sign for future productivity and technology growth. Part IV of the *Beyond the New Normal* research program explores this trend in greater detail. From the economic measurement perspective, the connection illustrates the importance of focusing on net investment rather than gross investment.

FIGURE 3. Net Private Investment as a Percentage of Private Expenditures Compared to Total Government Deficits/Surpluses as a Percentage of Total Government Expenditures

1948 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Measuring income

Theoretically, summing up all of the income earned in producing the total goods and services in the economy (Gross Domestic Income, GDI) should be the same as the total value of expenditures on these goods and services (GDP). In practice, the BEA's measures of gross expenditures and gross income differ slightly due to the reliance on different data sources. Starting with the BEA's measure of GDI, in 2015, the total income earned from production valued at market prices was $18.3 trillion, see Table 2, which is similar to BEA's estimate of GDP for 2015 of $18.0 trillion.

Tracking total income earned in the economy provides important additional perspectives because the total private expenditure data do not account for the impacts from taxes on the return on work and the return on investing; nor do total private expenditures differentiate between the expenditures funded by earned income and the expenditures funded by transfer payments. Measuring the return on work and the return on investing provides important insights on the productive capacity of the economy that is perhaps one of the least developed measures.

Just as with expenditures, it is beneficial to separate the measures of the private economy from the measures of the government sector. Consequently, Table 2 removes the income earned in the government sector and government enterprises from GDI to estimate what we call gross private income. In 2015, gross private income was $15.9 trillion. The major source of this income was created by private businesses ($13.7 trillion), with households creating an additional $1.3 trillion of income, most of which is the imputed value of homeowners' homes – the imputed value of the home represents the rental value of a home to the homeowner and is included as part of national income in order to ensure that owner-occupied houses are treated similarly to tenant-occupied housing.[10]

TABLE 2. Gross Domestic Income and Gross Private Income by Sector
2014, 2015
(in billions)

	2014	2015
GDI	17,651.0	$18,290.4
- Income from government	2,101.9	2,153.7
- Income from government enterprises	199.2	208.5
= Gross Private income	$15,349.9	$15,928.2
Private businesses	13,184.8	13,669.3
Corporate businesses	9,980.1	10,311.2
Non-corporate businesses	3,204.7	3,358.1
Households	1,224.9	1,273.8
Nonprofits	940.2	985.1

Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

With respect to the return on work and labor, and the incentives to engage in productive activities, it is beneficial to allocate the private income to workers, and to owners of capital. The values from these breakdowns will differ slightly from the gross private income reported in Table 2 due to different data sources to compile these details. Additionally, because of the different prices paid by firms and the prices received by workers and owners of capital, it will be necessary to differentiate the income allocated to labor and capital at prices paid and the income allocated to labor and capital at prices received.

Table 3 presents the prices for employing capital and labor at prices paid. These are the prices that firms must pay to employ labor and capital to produce goods and services. Due to depreciation and government levies, prices paid do not reflect the return on work and investing, which should be measured at prices received.

In 2015, the value of labor income at costs paid (a measure of the costs of labor) was $9.2 trillion. This breaks down into $7.8 trillion in compensation to employees, which includes the employer paid payroll taxes, and $1.4 trillion in proprietors' income, which is basically the income earned by small business owners. While we chose to categorize proprietors' income as labor income (as the income earned due to the labor efforts of small business owners), there is also an argument that proprietors' income could be categorized as capital income (the income earned to reward the entrepreneurship of small business owners). Categorizing proprietors' income as a form of labor income, however, allows us to differentiate these businesses from large corporate businesses. Based on this definition, labor income accounted for 57.6 percent of the total private costs in 2015. This is slightly below the 60 percent average between 1948 and 1999 – labor is now earning a smaller share of total private income than the historical average. An understanding of why this trend is occurring can be gained by a review of the relative prices of capital and labor, which is discussed in the "measuring risk adjusted returns" section below.

Table 3. Gross Private Income Allocated to Labor and Capital at Prices Paid
2014, 2015 (in billions)

	2014	2015
Gross Private Labor Income (costs paid)	$8,787.4	$9,211.5
Compensation of employees	$7,449.7	$7,834.7
Proprietors' Income	$1,337.7	$1,376.8
Gross Private Capital Income (costs paid)	$5,519.7	$5,580.2
Corporate Profits w/IVA and cc adj	$2,156.1	$2,088.1
Rental income of persons with cc adj	$606.1	$659.6
Consumption of fixed capital	$2,227.8	$2,308.3
Net interest payments	$529.7	$524.2
Gross Private Labor & Capital Income (costs paid)	$14,307.1	$14,791.7
+ Taxes on production and imports, subsidies, net transfer	$1,291.1	$1,342.3
+ income payments to ROW - income receipts from ROW	$(248.1)	$(205.7)
Gross Private Domestic Income	$15,350.1	$15,928.3

Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

In 2015, capital income measured at costs paid (a measure of the costs of capital) was $5.6 trillion. Of this amount, the consumption of capital (or depreciation) accounted for $2.3 trillion. Corporate profits, before taxes, but including adjustments to properly account for the value of inventories (iva) and economic depreciation (ccadj), were $2.1 trillion or 13.1 percent of total private costs. This is above the average corporate profit share between 1948 and 1999 of 11.4 percent.

Table 3 also presents data on taxes on production. These include general sales taxes, excise taxes, property taxes, and other special assessments paid by businesses. In 2015, these taxes and subsidies equaled $1.3 trillion or 8.4 percent of total private costs. Table 3 also accounts for the net income receipts from the rest of the world into the U.S. of $205.7 billion. In total, 2015 private capital and labor income was $15.9 trillion, $13.8 trillion excluding the costs of depreciation.

The value of total private income at costs paid, while providing important information, does not provide information regarding the incentives for workers and capital owners to engage in productive activity. The incentives for workers and capital owners to engage in productive activities requires information on the after-tax return to workers and owners of capital, as well as information regarding the relative prices of capital and labor.

> Although businesses directly pay several taxes, ultimately businesses do not bear the tax burden, people do.

Determining the return to workers and owners of capital raises an important methodological question. Although businesses directly pay several taxes, ultimately businesses do not bear the tax burden, people do. Therefore, calculating the after-tax return to workers and capital owners must begin by appropriately netting out the taxes where the company physically sends the money to the government. Workers and owners of capital bear these tax costs by receiving lower gross payments from the company.

Starting with payroll taxes, although employers physically pay part of the payroll tax burden, there is strong evidence that employees bear the entire burden from these taxes through lower wages.[11] Consequently, Table 4 below attributes the entire cost of the payroll taxes to workers. The empirical evidence for taxes on production and taxes on corporate profits, which are also physically paid by employers, shows that these costs burden both the workers, through lower wages, and capital owners of the firm, through lower capital returns. Therefore, the costs from these taxes need to be allocated to both workers and capital owners.

Estimates vary on how the burden from these taxes are distributed. For instance, Randolph (2006) estimates that "domestic labor bears slightly more than 70 percent of the burden of the corporate income tax" with capital bearing slightly more than 30 percent (these figures sum to more than 100 percent because land owners receive a small tax subsidy).[12] Similarly, Robbins and Robbins (2001) "apportioned indirect business taxes on output based on how much each factor contributes to the production process, roughly two-thirds for labor and one-third for capital economy-wide."[13]

Other studies have found that labor bears a minority share of the burden. For instance, Gravelle and Smetters (2001) found that, in an open economy, most of the long-run incidence from the corporate income tax is borne by capital, not labor.[14] The *Tax Policy Center*, a project of the

Urban Institute and Brookings Institution, "assumes 80 percent of the burden is borne by investment returns (dividends, interest, capital gains, etc.), with the remaining 20 percent weighing on wages and other labor income. These assumptions reflect the full, long-term economic consequences of investors responding to changes in the corporate income tax, such as rate changes."[15]

Gravelle (2011) further noted that "even though the majority of the studies conclude that labor bears a substantial burden of the corporate tax, the various methodological limitations put the reliability of those specific estimates into question. Indeed, trying to address the long-run incidence of general corporate income tax is a daunting task, and these studies have made attempts at using the data available to provide insight into that question. However, it remains unclear where incidence will fall in an open economy."[16]

Given these various estimates, as a compromise we use a middle estimate and allocate one-half of the tax burden to capital and one-half to labor. Tables 4 and 5 below illustrate the calculations for the private economy only.

Table 4 grosses up the current return to workers and owners of capital to account for the lost potential revenues from the taxes paid by businesses. For workers, starting with the $9.2 trillion in compensation costs that include the employer paid payroll taxes, Table 4 adds the estimated potential labor incomes lost including a potential income loss of $671.2 billion from the taxes on production paid by businesses, and a potential income loss of $276.9 billion from the taxes on corporate income paid by businesses. Therefore, had there been no business taxes levied, and based on our tax incidence assumptions, the potential labor income in 2015 was $10.2 trillion, which equate to a 10.3 percent reduction in labor income due to the imposition of these business taxes.

TABLE 4. Private Income for Labor and Capital Including Value of Business Paid Taxes at prices received

2014, 2015
(in billions)

	2014	2015
Labor income (costs paid)	*$8,787.4*	*$9,211.5*
+ Labor share of taxes on production, subsidies, net transfers	$645.6	$671.2
+ Corporate profits taxes	$257.0	$276.9
Labor income including value of employer paid taxes	*$9,689.9*	*$10,159.6*
Gross capital income excluding corporate profits taxes (costs paid)	*$5,005.8*	*$5,026.4*
- Consumption of fixed capital	$(2,227.8)	$(2,308.3)
Net capital income excl. depreciation	*$2,778.0*	*$2,718.1*
+ Capital share of taxes on production, subsidies, net transfers	$645.6	$671.2
+ Corporate profits taxes	$257.0	$276.9
Net capital income including value of employer paid taxes	*$3,680.5*	*$3,666.2*
Labor & net capital income including value of employer paid taxes	**$13,370.4**	**$13,825.7**

Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

With respect to capital income, we net out depreciation of $2.3 trillion to arrive at a net capital income figure of $2.7 trillion. The allocation to capital income of $671.2 billion from taxes on production and $276.9 billion from corporate profits taxes (equal to the same deducted from gross labor income) implies that the $2.7 trillion in net capital income before taxes would have otherwise been $3.7 trillion or 34.9 percent higher based on our incidence assumptions.

In total, the capital and labor income including the opportunity costs of these taxes in 2015 could have been $13.8 trillion instead of the $12.5 trillion that workers and owners of capital actually received ($9.2 trillion in labor income and $3.3 trillion in capital income), a 9.4 percent reduction relative to the potential labor and capital gross earnings.

Table 5 uses these gross income figures, including the opportunity costs of taxes paid by businesses, to calculate the reduction in after-tax earnings due to taxes directly paid by workers and owners of capital that include employer payroll taxes, employee payroll taxes, and income taxes.

TABLE 5. After-tax Private Income by Labor and Capital at Prices Received
2014, 2015
(in billions)

	2014	2015
Labor income including value of employer paid taxes	9,689.9	10,159.6
- Employer paid government social insurance taxes	(441.7)	(460.1)
- Labor share of taxes on production, subsidies, net transfers	(645.6)	(671.2)
- Corporate profits taxes	(257.0)	(276.9)
Labor income net of employer paid taxes	8,345.7	8,751.4
Net capital income including value of employer paid taxes	$3,680.5	$3,666.2
- Labor share of taxes on production, subsidies, net transfers	$(645.6)	$(671.2)
- Corporate profits taxes	$(257.0)	$(276.9)
Net capital income net of employer paid taxes	2,778.0	2,718.1
Private capital and labor income received net employer paid taxes	11,123.7	11,469.5
- Employee paid social insurance taxes	(488.1)	(512.7)
- Personal current taxes	(1,787.0)	(1,938.7)
- Income tax receipts on assets	(152.0)	(128.8)
Capital & Labor income (after personal taxes)	**9,044.6**	**9,260.6**

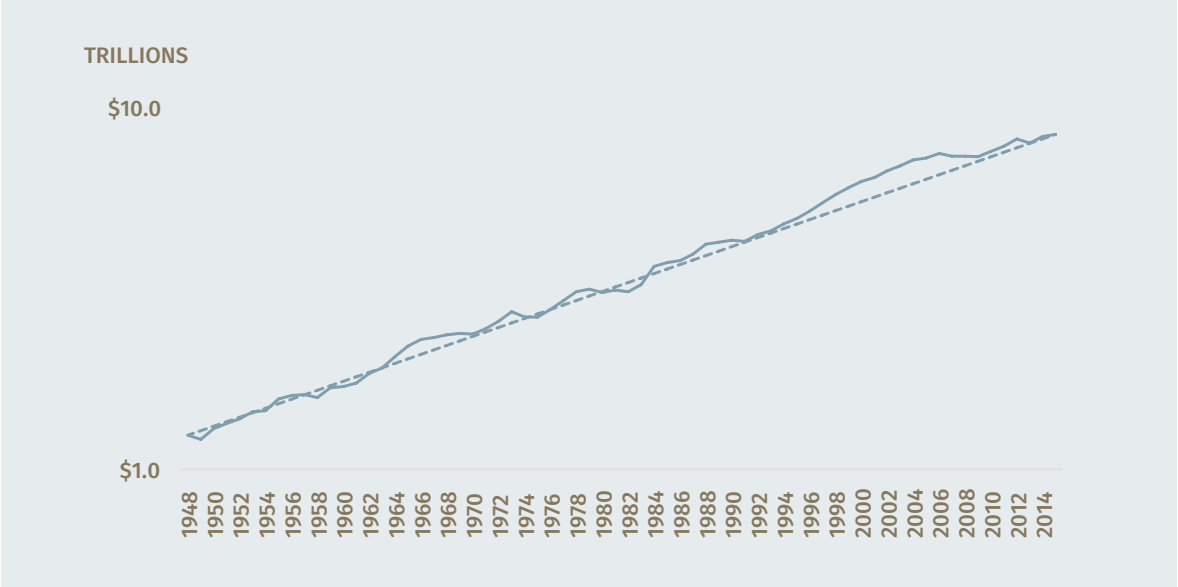
Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Netting out the employer paid taxes that are allocated to labor income, which include the employer paid social insurance taxes (e.g. Social Security and Medicare), labor's share of taxes on production, and labor's share of corporate profits taxes, the return to labor in 2015 falls from $10.2 trillion in prices paid to $8.8 trillion. Net capital income excluding the employer paid social insurance taxes, capital's share of taxes on production, and capital's share of the corporate profits taxes is $2.7 trillion.

These values still do not represent the returns to capital and labor at prices received because the personal income tax payments have not yet been taken into account. Combining the capital and labor income together, the returns to capital and labor netting out all business level taxes and expenses were $11.5 trillion in 2015. Netting out the individual taxes including employee paid social insurance taxes, which equaled $512.7 billion, the personal current taxes, which equaled $1.9 trillion, and the income tax receipts on assets, which equaled $128.8 billion, the total capital and labor income received by people in 2015 was $9.3 trillion.

Based on these reorganized data, it is possible to trace the capital and labor income growth trend. Over time, capital and labor income received, adjusted for inflation, has been uneven, see Figure 4. Relative to the average growth rate of 2.9 percent per year (the pathway represented by the blue dotted line in Figure 4), significant slowdowns in capital and labor income growth occurred during the 1970s, and since 2000, while significant accelerations occurred during the 1960s, 1980s, and especially the late 1990s.

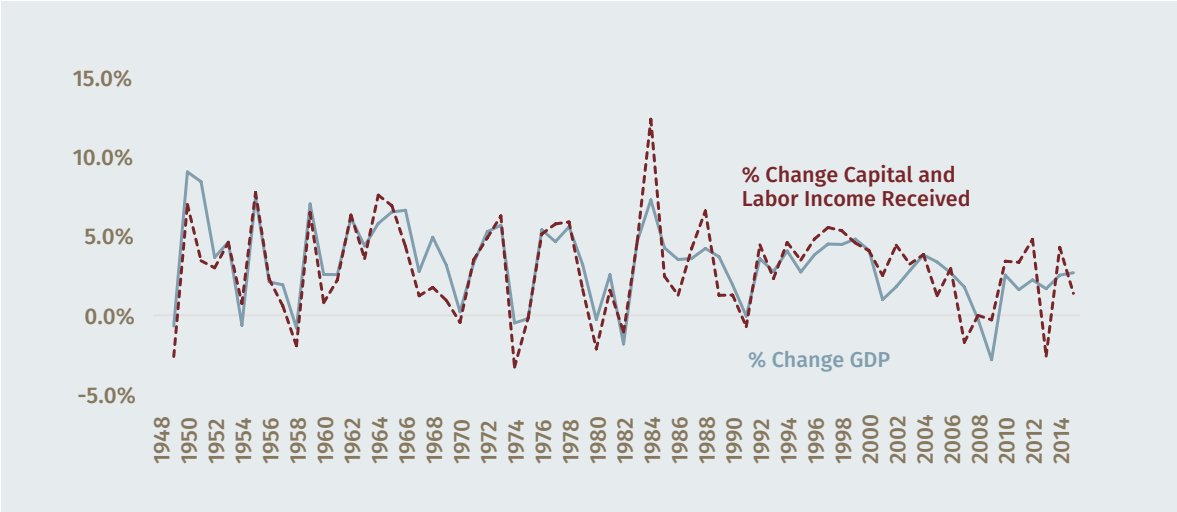
FIGURE 4. Capital and Labor Income Received, Adjusted for Inflation
1948 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

As illustrated in Figure 5, the annual changes in the capital and labor income received are similar to the annual changes in GDP, however, there are meaningful differences as well. We explore the significance of these patterns in the next paper, "The Policy Mix Theory and Historical Evidence".

FIGURE 5. Percent Change in GDP, Adjusted for Inflation Compared to Percent Change in Capital and Labor Income Received, Adjusted for Inflation
1949 – 2015



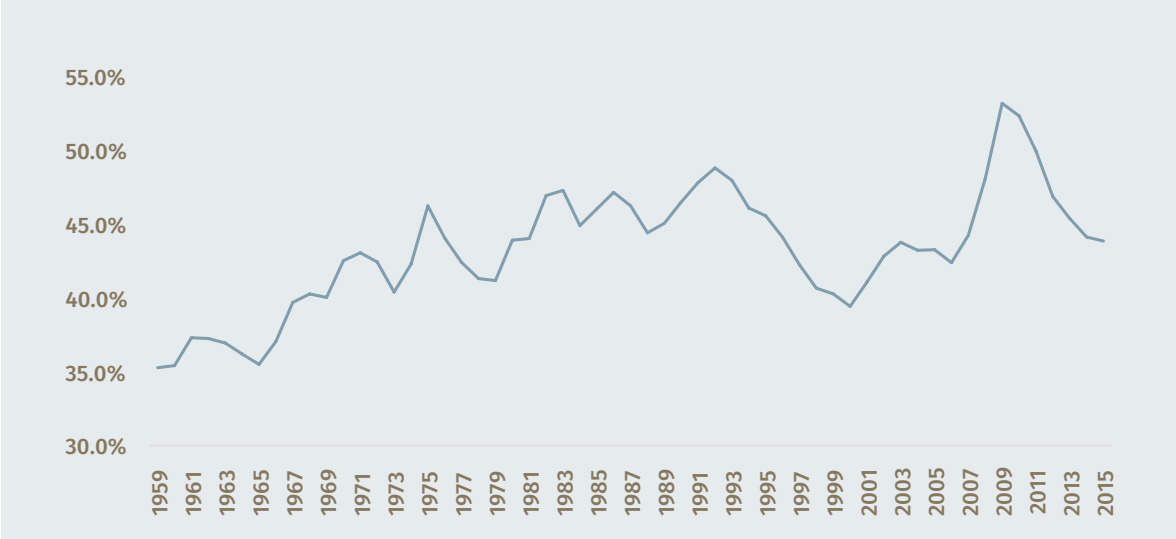
Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Measuring the impact from government on economic incentives

Tracing the net return earned by productive factors over time can provide greater insights regarding the relative burden on the private sector from funding government projects, or the impact on incentives from engaging in risky ventures. For example, the government expenditure burden can be visualized by comparing total government expenditures to the gross income earned by capital and labor in the private sector. The government expenditure burden is presented in Figure 6.

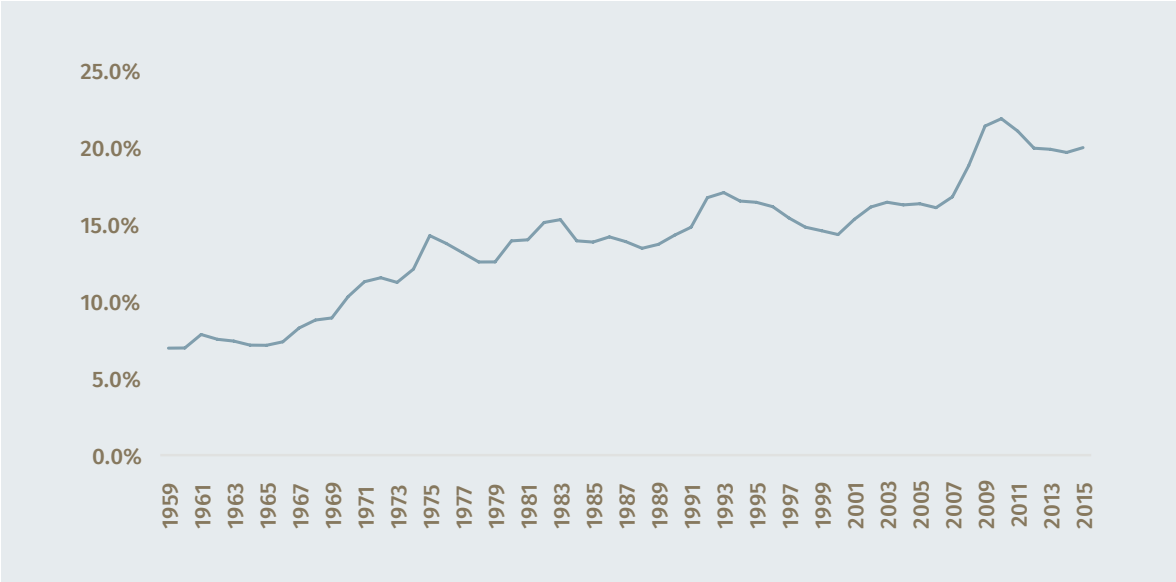
As Figure 6 illustrates, the expenditure burden has been rising over time – meaning, a growing percentage of private income is being diverted to the government. Perhaps even more alarming, the transfer payments' burden, a subset of the expenditure burden is reaching unprecedented highs outside of an economic recession, see Figure 7. The ever-increasing allocation of scarce resources to transfer payments that fund current consumption, even if done for the right reasons, has negative implications for future wealth creation due to the adverse impact on investment.

FIGURE 6. Government Expenditure Burden Relative to Private Capital and Labor Income
1959 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

FIGURE 7. Government Transfer Payment Expenditure Burden Relative to Private Capital and Labor Income
1959 – 2015

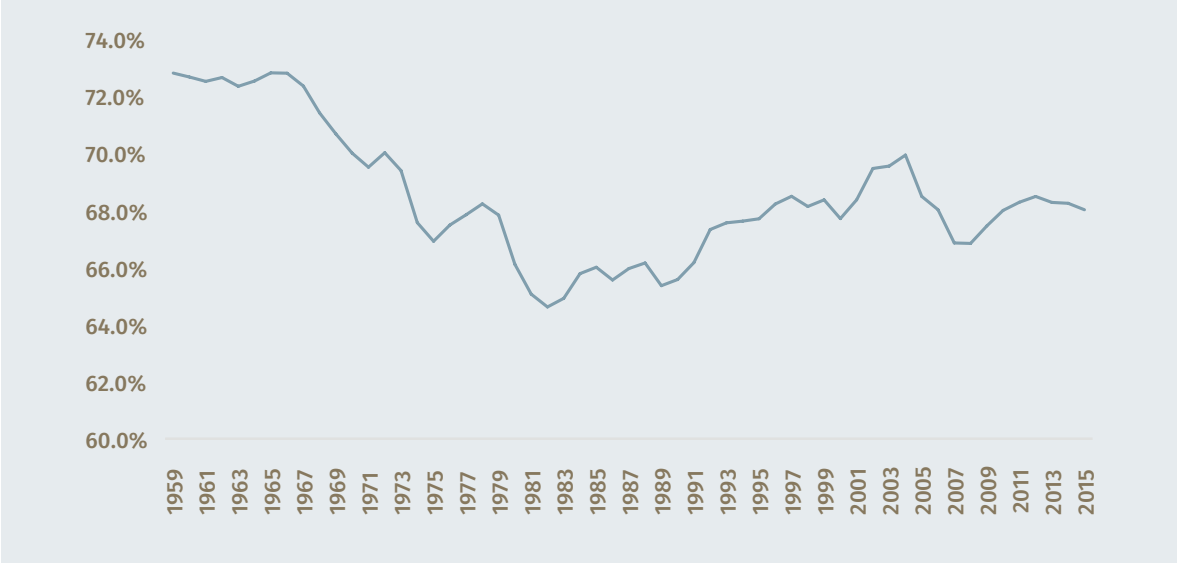


Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

The combination of Figures 6 and 7 illustrates that government spending is at an elevated level relative to the private sector's ability to afford these expenditures, and that the burden on the private sector from transfer payments are at unprecedented levels outside of the 2007-09 recession. Without reforms, these spending trends indicate that any proposed new expenditures (such as increased defense spending or increased spending on infrastructure) will likely come at the expense of pushing these historically high government expenditure burdens even higher.

Beyond the relative burden of government expenditures on the entire private sector, there is value in evaluating the incentives in the private business sector due to its central role in generating economic growth. For example, the percentage of private business income that is available for distribution to labor and capital after depreciation and employer-paid taxes provide a measure of the incentives for private businesses to invest, see Figure 8. The lower the percentage of gross revenues a business is able to keep, the greater the disincentive for private businesses to expand and take on new risky ventures. The volatile, but overall declining direction of private business income relative to overall business income since 2004, which reversed the rising trend that occurred during the 1980s and 1990s, indicates that the incentive for businesses to engage in risky new ventures is declining.

FIGURE 8. Private Business Income Net of Employer-Paid Taxes as a Percentage of Private Business Income 1959 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Just as, if not more, important as these average tax burdens are estimates of the marginal tax rates on economic activity. As Taylor and Taylor (2014) noted, "the vast literature examining tax rates and economic growth strongly suggests that marginal tax rates and GDP growth rates are negatively related. This result is well established both through the use of time series data for

the United States and via large panels of international data." Leveraging accurate estimates of the marginal tax rate can, consequently, provide important additional insights into the impact of policy on economic growth.

Accurately estimating the effective marginal tax rate is complicated, however. Due to the complexity of the U.S. tax system, there are many effective marginal tax rates that depend upon the type of income earned (e.g. wages versus capital gains) as well as the income level of the taxpayer. The National Bureau of Economic Research (NBER), using a tax simulation model, estimates the effective personal income tax rate for the U.S. economy, by year, averaging the effective marginal tax rate across people of different income levels. Table 6 provides the NBER's marginal tax rate estimates from 2011 to 2015 by major income type.

TABLE 6. Average Effective Marginal Federal and State Personal Income Tax Rates
2011 - 2015
(in percent)

YEAR	WAGES	INTEREST RECEIVED	DIVIDENDS	QUALIFIED DIVIDENDS	SHORT-TERM CAPITAL GAINS	LONG-TERM CAPITAL GAINS
2011	26.22	22.97	24.5	16.73	27.03	18.21
2012	26.66	23.64	25.52	17.68	35.20	19.67
2013	27.27	26.22	27.66	21.68	32.88	25.00
2014	27.39	26.19	28.07	21.93	38.76	25.90
2015	27.50	26.33	27.93	21.91	39.04	26.29

Source: National Bureau of Economic Research (NBER)

Using the annual data on national income and total tax receipts, and a methodology pioneered by Koester and Kormendi (1989), we estimated an average effective marginal tax rate for the economy across all income types as a means of summing together the marginal tax rate estimates by income source provided by the NBER. A downside of this estimate, however, is the inability to produce single year estimates – the methodology produces an average marginal tax rate across the years analyzed.[17] Based on the Koester and Kormendi methodology, we estimate that the average marginal tax rate in the U.S. between 1987 and 2015 (the time period since the last big tax reform) is 31.3 percent, which is similar to the rates published by the NBER in Table 6, and comprises the average across all tax revenue sources.

Based on the Koester and Kormendi methodology, we estimate that the average marginal tax rate in the U.S. between 1987 and 2015 is 31.3 percent.

Higher marginal tax rates on income impose greater disincentives to work, save, or invest in a risky endeavor. When the disincentives to engage in productive activities are higher, the underlying economic growth will be lower. The recent increases in marginal tax rates as estimated by the NBER are, consequently, a negative sign with respect to the economy's long-term economic growth.

Measuring prices

Market prices include the final prices consumers pay for goods and services; but, they also include the wholesale prices facing producers, the dollar exchange rates, interest rates, and returns to equities. Prices that are empowered to reflect scarcity, the costs of production, and consumers' desires play an indispensable role in a market economy.

Rising relative prices encourage producers to devote more resources toward producing a good whose price is rising while simultaneously encouraging consumers to consume less of that good, thereby eliminating shortages. Falling relative prices incent the opposite reactions thereby eliminating surpluses. Changes in prices, consequently, lead to observed changes in economic outcomes. Economic policies influence relative prices, and, as a consequence, will meaningfully impact observed economic outcomes. The government's influence on interest rates relative to other prices in the economy exemplify the potential consequences.

Economic policies influence relative prices, and, as a consequence, will meaningfully impact observed economic outcomes.

In response to the Great Recession, the Federal Reserve slashed interest rates from 5.25 percent in 2007 all the way to practically zero percent – the average monthly effective federal funds rate bottomed out at 0.07 percent in December 2011. This had the effect of lowering the weighted average cost of capital (WACC), which is a measure of how much it costs large companies to finance new capital investment. When coupled with other regulatory costs that raised the costs of labor, the price of capital declined relative to the price of labor. And, such a relative price change should be expected to change the amount of labor hired relative to the amount of capital purchased, which it did.

As shown in Table 7, as of January 2008, the average monthly effective federal funds rate was 3.94 percent (towards the beginning of the large reductions in the federal funds rate that occurred because of the Great Recession). By 2015, the average monthly effective federal funds rate was still near zero – officially 0.11 percent. This sustained drop helped reduce the WACC from 9.1 percent as of January 2008 to 6.3 percent as of January 2015.[18] Partly in response to this significant relative price decline, growth in employment (as measured by full-time equivalent

workers) rose by a mere 3.0 percent between 2008 and 2013 compared to an increase of private fixed assets of 19.4 percent. This meant that output per worker and capital per worker increased significantly as companies substituted the now relatively more expensive workers (in part caused by government regulatory policies) for the now relatively less expensive capital (in part caused by government monetary policies).

TABLE 7. Average Effective Marginal Federal and State Personal Income Tax Rates
2011 - 2015
(in percent)

	2008	2015	% CHANGE
Federal Funds Rate (monthly average as of January)	3.94%	0.11%	-97.2%
Weighted Average Cost of Capital (WACC, as of January)	9.1%	6.3%	-30.7%
Private Income (in billions $)	$10,831.6	$13,825.7	27.6%
Full-time equivalent employees	108,947 ,000	112,239,000	3.0%
Private fixed assets (in billions $)	$34,066.4	$40,679.1	19.4%
Output per worker	$99,420.8	$123,180.9	23.9%
Capital per worker	$312,687.8	$362,432.8	15.9%

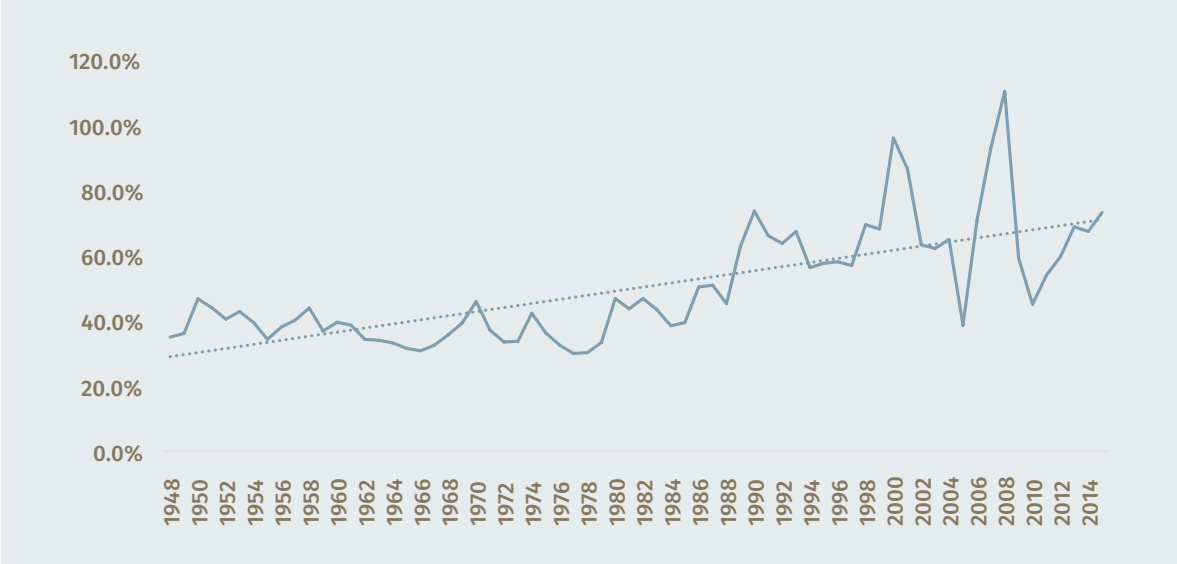
Sources
- Private Income is author calculations based on data from the BEA NIPA Accounts - Full-time equivalent employees are from the BEA NIPA Accounts - Private fixed assets are from the BEA Fixed Asset Tables - Weighted Average Cost of Capital are calculated by Aswath Damodaran, NYU Stern School of Business (http://pages.stern.nyu.edu/~adamodar/) - Federal Funds rate is from the St. Louis Federal Reserve, FRED (https://fred.stlouisfed.org/series/FEDFUNDS)

Table 7 illustrates the importance of measuring changes in relative prices in order to monitor the influence from these policies on relative economic behavior. And, while monitoring relative interest rates and the broader costs of capital are crucial, a similar argument holds for the array of prices across the economy. In short, changes in prices, and certainly changes in prices in response to changes in policy, are an important indicator for future changes in economic activity.

Measuring the structure of production

Typical financial metrics used to evaluate individual businesses or industries can be leveraged that can help interpret the efficiency of the asset base and thus the sustainability of current economic growth trends. For instance, the data provided by the NIPA accounts enable an economy-wide dividend payout ratio to be estimated, see Figure 9.

FIGURE 9. Corporate Business Dividend Payout Ratio
1948 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts

Like most financial ratios, the interpretation of the trend in the dividend payout ratio requires perspective. With respect to a dividend payout ratio there needs to be a balance between directly rewarding shareholders versus retaining income to reinvest in the business. As a general principle, a higher payout ratio is a sign that the growth prospects of the firms are smaller and, therefore, require less investment funds. Based on this perspective, the general upward trend in the payout ratio, when coupled with the number of stock buybacks that companies are executing with a portion of the funds that are retained, is an indication of declining prospects in the corporate sector. Further perspectives on the efficiency of the economy's asset base can be gained by leveraging three other standard financial ratios: the return on assets (ROA), return on equity (ROE), and the asset turnover ratio.

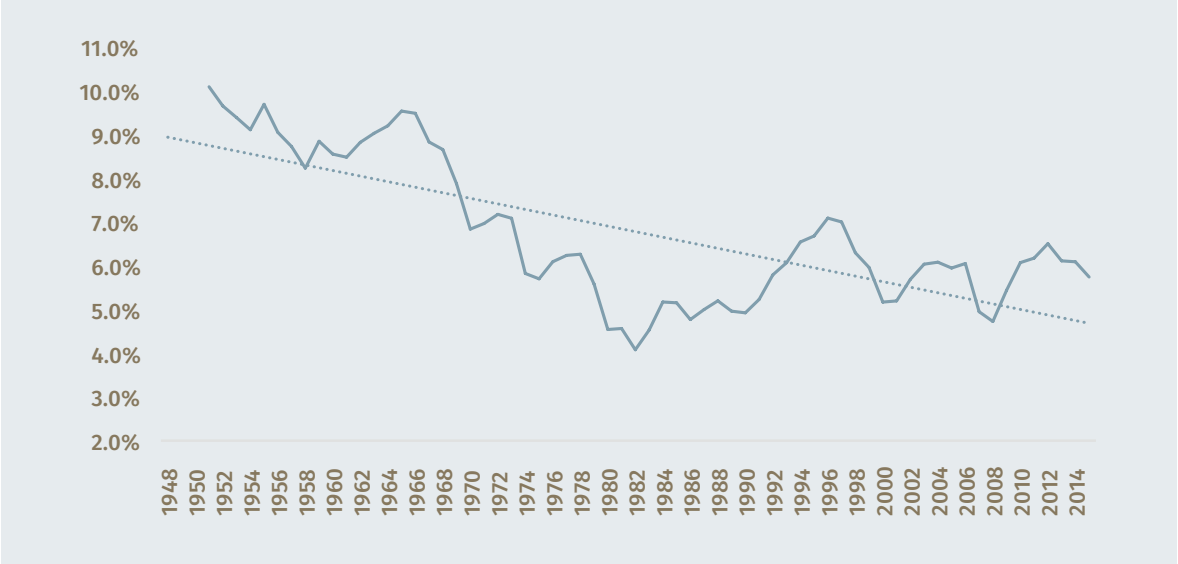
The ROA calculation measures how efficiently companies use their assets to generate a profit, which are an indication that resources are used efficiently. Applying the ROA concept to the broader economy provides perspective on how efficiently corporate and non-corporate businesses are using their assets to generate profits, see Figure 10. A rising aggregate ROA figure indicates improving efficiency, a sign that assets are being put to good use. The reverse indicates a loss of efficiency and underutilization, or perhaps waste, of assets and resources.

The assets used in our ROA calculation is the sum of total assets of the nonfinancial corporate sector and the nonfinancial non-corporate sector as measured by the Federal Reserve's Flow of Funds data.[19] Profits are the sum of the NIPA measures for:

- Corporate profits with the appropriate adjustments for inventory valuation (iva) and capital consumption (ccadj);
- Proprietors' income with capital consumption adjustments (ccadj); and,
- Rental income of persons with capital consumption adjustments (ccadj).

As Figure 10 illustrates, there are three distinct ROA trends between 1951 and 2015: declining asset efficiency between 1951 and 1981 (particularly after 1967), rising asset efficiency between 1981 and 1996, and then generally declining asset efficiency since 1996.

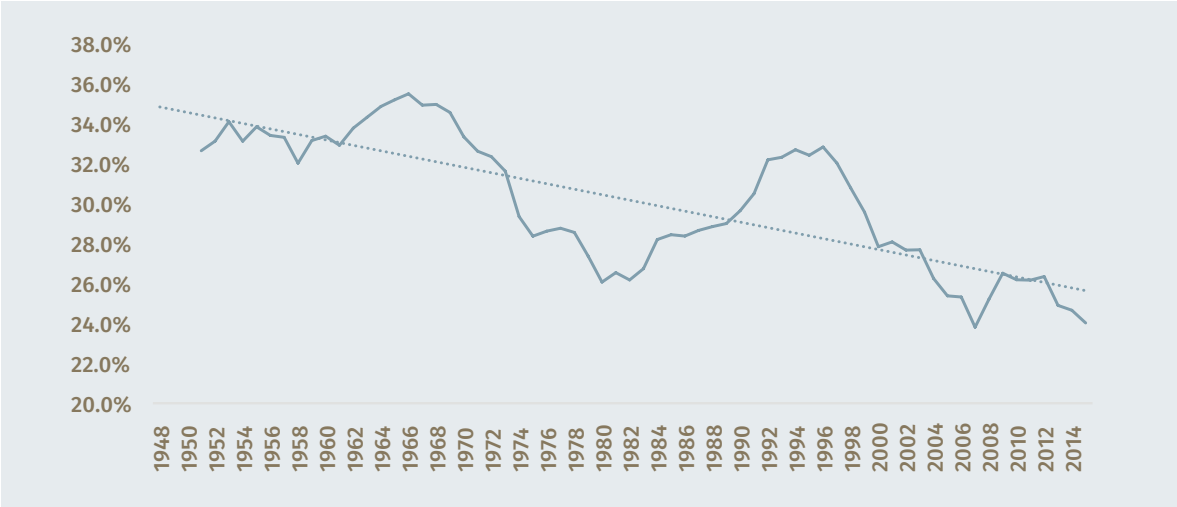
FIGURE 10. Return on Assets: Corporate & Non-Corporate Businesses
1951 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts and Federal Reserve Flow of Funds Accounts

The asset turnover ratio measures the ability of the private sector to use its assets to generate gross revenues – gross revenues measured the sum of gross corporate business revenue and gross noncorporate business revenue. Based on this measure, the efficiency story does not change, see Figure 11.

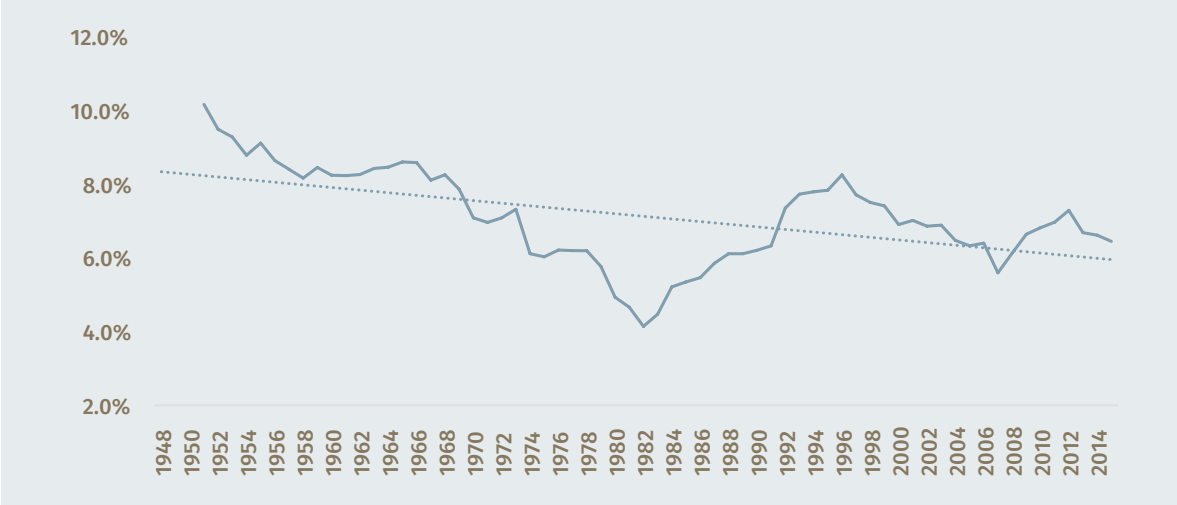
FIGURE 11. Asset Turnover: Corporate & Non-Corporate Businesses
1951 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts and Federal Reserve Flow of Funds Accounts

Return on equity provides a third perspective on resource efficiency, and measures the efficiency of a company to generate profits from each dollar of shareholders' equity. From a macro perspective, the return on equity, which is defined as the asset base used in the ROA calculation minus the liabilities of the nonfinancial, corporate and non-corporate businesses sector as measured by the Federal Reserve's Flow of Funds Accounts, follows a similar trend and confirms the growing economic inefficiency – in this case, the inefficiency of the current economy to generate revenues from the equity base, see Figure 12. Applying these basic financial ratios to the broader economy provides an additional perspective on the current decline in long-term efficiency.

FIGURE 12. Return on Equity: Corporate & Non-Corporate Businesses
1951 – 2015



Source: Author calculations based on data from the Bureau of Economic Analysis, National Income and Product Accounts and Federal Reserve Flow of Funds Accounts

Conclusion

The purpose of this paper on "Measuring Economic Growth" was to provide broader perspectives on measuring the health of the private economy as a means to further our analysis of the larger question of a policy mix that will foster robust and broad-based economic growth. In particular, we presented a reorganization of the Bureau of Economic Analysis' National Income and Product's data that:

- Emphasized net investment over gross investment, explicitly treating depreciation as a type of consumption
- Explicitly accounted for the differences in the prices paid for expenditures relative to the prices received by workers and the owners of capital
- Measured the economy based on the income of the private sector only.

Other measures focused on explicitly accounting for marginal tax rates and relative prices, and applying standard financial ratios to gain insights regarding the effectiveness of the structure of production. Overall, the goal was to develop measures that link economic incentives and the economy's production structure to economic outcomes.

In the next paper in the *Beyond the New Normal* research program, "The Policy Mix Theory and Historical Evidence", we leverage these broader perspectives, along with the measurement insights from the second paper "Accounting for Growth" to illustrate the historical connection between a more efficient policy environment, and a more robust private economy. The purpose of this historical review is to illustrate that the causes of the current underlying slow growth environment are not mysterious. It is simply the expected outcome of the current policy mix.

Endnotes

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About the Authors

Wayne H. Winegarden, Ph.D. is a Senior Fellow in Business and Economics, Pacific Research Institute, as well as the Principal of Capitol Economic Advisors and a Contributing Editor for EconoSTATS at George Mason University.

Dr. Winegarden has 20 years of business, economic, and policy experience with an expertise in applying quantitative and macroeconomic analyses to create greater insights on corporate strategy, public policy, and strategic planning. He advises clients on the economic, business, and investment implications from changes in broader macroeconomic trends and government policies. Clients have included Fortune 500 companies, financial organizations, small businesses, state legislative leaders, political candidates and trade associations.

Dr. Winegarden's columns have been published in the *Wall Street Journal, Chicago Tribune, Investor's Business Daily,* Forbes.com, and Townhall.com. He was previously economics faculty at Marymount University, has testified before the U.S. Congress, has been interviewed and quoted in such media as CNN and Bloomberg Radio, and is asked to present his research findings at policy conferences and meetings. Previously, Dr. Winegarden worked as a business economist in Hong Kong and New York City; and a policy economist for policy and trade associations in Washington D.C. Dr. Winegarden received his Ph.D. in Economics from George Mason University.

Niles Chura is the Founder of Ouray, LLC with responsibility for setting investment strategy and decisions as well as monitoring policies and managing portfolio risk. Mr. Chura is a seasoned finance professional with experience in the asset management, banking and corporate sectors. Prior to working in finance, he served overseas as a field artillery officer in the U.S. Army. Mr. Chura received an M.B.A. with a finance concentration from Yale University and a B.A. in economics and government from The College of William & Mary. His thoughts on macroeconomic risks have been published by Forbes.com and Laffer Associates and he has lectured at several leading universities, including The University of Virginia, Georgetown University and The College of William & Mary.

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