

COLLECTED ESSAYS

# The Costs of Slow Economic Growth

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# Contents

<b>Introduction . . . . .</b>	<b>1</b>
Steven Globerman	
<b>1. Economic Growth: An International Overview of Theory and Data. . . . .</b>	<b>6</b>
Livio Di Matteo	
<b>2. How Strong is the Relationship Between Inequality and Growth?. . . . .</b>	<b>26</b>
Vincent Geloso	
<b>3. Is Low Growth a “New Normal”? . . . . .</b>	<b>42</b>
Art Carden	
About the Authors . . . . .	57
Acknowledgments . . . . .	58
Publishing Information . . . . .	59
Supporting the Fraser Institute . . . . .	60
Purpose, Funding, and Independence . . . . .	60
About the Fraser Institute . . . . .	61
Editorial Advisory Board . . . . .	62

# Introduction

Steven Globerman

Real economic growth is the pathway to higher standards of living. The latter encompasses not just more consumption of goods and services but also more leisure, an improved physical environment, better health and, more generally, a superior quality of life for members of society. Indeed, from the time of Adam Smith, economists have considered the improvement of the “wealth of nations” as the preeminent economic issue facing policymakers.

Unfortunately, recent years have witnessed relatively slow economic growth in developed countries, including Canada. While some see the recent slowdown in real economic growth as a cyclical phenomenon and, therefore, amenable to traditional policy tools such as easier monetary policy, others see the slowdown as a manifestation of “secular stagnation” caused by phenomena such as aging populations and an increased reluctance to invest.<sup>1</sup> In his chapter in this volume, Art Carden outlines the secular stagnation thesis, although he rejects the relevance of the thesis, as well as the policy remedy that is typically called for by those economists who subscribe to it; namely, massive increases in government expenditures in order to increase aggregate demand in the economy.

The data reported in **table 1** highlight the relatively rapid growth in real Gross Domestic Product (GDP) in Canada over the decades of the 1960s and 1970s. In his chapter in this volume, Livio Di Matteo characterizes those decades as a “Golden Age” for economic growth in developed countries.<sup>2</sup> In contrast, for most of the period starting in 1981 and continuing to the present, real economic growth in Canada averaged only slightly more than two percent annually.<sup>3</sup> The period 2001 to 2010 exhibited a somewhat faster rate of growth averaging a bit over three percent per annum, and the growth rate would have been even faster were it not for a substantial slowdown in real GDP growth

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1. Eggertsson, Mahrotra, and Summers (2016) provide a detailed economic discussion of the secular stagnation thesis.

2. Real GDP is the inflation-adjusted value of all goods and services produced in the domestic economy.

3. The post-1981 growth slowdown was not unique to Canada, as Di Matteo documents in his essay.

**Table 1: Average Annual Rate of Growth of Real GDP for Canada**

1961–1970	5.00%
1971–1980	4.21%
1981–1990	2.36%
1991–2000	2.07%
2001–2010	3.08%
2011–2018	2.17%

Source: Author's calculations from data reported in Statistics Canada, *Gross Domestic Product, expenditure-based at 2012 constant prices- annual (x1,000,000)*. <<http://www150statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610036901#timeframe>>

in 2009 related to a severe recession in the US from 2008–2009 which hurt Canadian exports, thereby contributing to a growth slowdown in Canada. Nevertheless, real economic growth over the 2001–2010 period pales in comparison to the four to five percent annual rate of growth from 1961 to 1980.

The persistence of real economic growth in the 2 to 2.5 percent per annum range over most of the post-1980 decades leads Di Matteo to suggest the possibility that this rate of growth is a “norm” rather than an aberration related to secular stagnation. Di Matteo’s essay provides a sweeping overview of real economic growth over a long period of time and across a number of developed countries, and it reinforces the notion that real economic growth rates realized during the decades of the 1960s and 1970s were exceptional in the broad scope of history.

It would obviously be a boon to public policy if the precise causes of the slowdown in real economic growth in the post-1981 period could be readily explained. As Di Matteo discusses in his essay, there are various theories of economic growth and, therefore, various competing explanations of the post-1980’s economic growth slowdown. Prominent among “demand-side” hypotheses of slower economic growth, as Carden notes, is the secular stagnation hypothesis. This demand-side theory essentially maintains that weak aggregate private sector demand for goods and services results in relatively slow economic growth, since producers have limited incentives to hire workers and invest in capital equipment, which limits income growth and further suppresses demand for private sector output. As Geloso discusses in his essay in this volume, one of the factors cited as contributing to secular stagnation is an alleged concentration of income and wealth among a small percentage of the population. While a growing concentration of income and wealth has primarily been identified in the context of the US, a similar pattern (albeit less extreme) is suggested to characterize other developed countries. A concentration of income and wealth among a relatively small number of households contributes to higher overall savings rates, since wealthy households will spend

a smaller percentage of their incomes on goods and services, as consumers' demand for goods and services will arguably be satiated beyond some absolute level of consumption.

In fact, Geloso presents and discusses data that call into serious question the popular belief that incomes in developed countries, particularly the US, have become more concentrated among the top percentage earners. His analysis also disputes the notion that there is a systematic relationship between real economic growth and the distribution of income. Geloso's essay therefore undermines one of the key suggested causes of secular stagnation, i.e. growing income inequality that is contributing to a systematic excess of desired savings over intended investment.

Carden provides a directly focused analysis of the secular stagnation thesis. He suggests that supply-side constraints on productivity growth may be more likely reasons for the recent slowdown in real economic growth in developed countries. Robert Gordon (2014) has popularized the thesis that technological change in recent decades has had diminished economic benefits, for various reasons, compared to earlier decades. While not necessarily disputing Gordon's thesis, Carden argues that the benefits of technological change may be constrained by protectionist government policies including regulations that limit entry into the professions and restrictions on immigration. Both he and Geloso highlight zoning laws and related rules that make housing less affordable in the very urban areas that comprise the economically dynamic centres of national economies.

Without gainsaying the relevance of Carden's call for freer markets as a remedy for slower economic growth, the anomalous behaviour of real GDP growth in the 1960s and 1970s highlighted by Di Matteo arguably reflects phenomena that were specific to that period. They include rapid population and labour force growth associated with the post-WWII baby boom, the recovery of the devastated economies of Europe and Japan, and the expansion of international trade and investment pursuant to the implementation of the General Agreement on Tariffs and Trade (GATT) in 1948. These developments were particularly conducive to promoting economic growth, and they may not be repeated in the future.

Even if real economic growth rates of four and five percent are unlikely to be achievable in the foreseeable future, policymakers should not underestimate the importance of even relatively modest increases in real economic growth. This is because even relatively small increases in the rate of economic growth can have substantial cumulative impacts on standards of living through the phenomenon of compounding. That is, given any annual average rate of economic growth over a given period, total GDP will increase geometrically rather than arithmetically, as the growth between any two years becomes part of the base for further growth in the subsequent year.

**Table 2: Income at End Periods for Alternative Assumed Annual Rates of Growth**  
(Initial Assumed Value = \$100)

	Assumed Growth Rates (%)				
	2.00	2.25	2.50	2.75	3.00
Initial value	100	100	100	100	100
End of 5 years	108.2	109.3	110.4	111.5	112.6
End of 10 years	119.5	122.2	124.9	127.7	130.5
End of 15 years	129.4	136.6	141.3	146.2	151.3
End of 20 years	142.8	152.6	159.9	167.4	175.4

The implications of even modest increases in the rate of real economic growth are illustrated in **table 2**. Specifically, it is assumed that \$100 is invested at the beginning of year one and that this initial investment increases at successively higher growth rates between 2 and 3 percent per annum. This is equivalent to assuming that per capita income is standardized at a value of \$100 at the beginning of the period and then grows annually by the assumed rates of “interest.” Table 2 reports the annual income that would be earned at the end of 5, 10, 15, and 20 years for five different assumed average annual interest or growth rates. It can be seen that even assuming a conservative 2 percent per annum growth rate, income is almost 43 percent higher at the end of 20 years than it would be given no growth over that period. Even increasing the assumed annual growth rate by only one-quarter of one percentage point (from 2.00 to 2.25) results in a ten-percentage point advantage in terms of income at the end of 20 years. If an annual growth rate of 3 percent was realized, income would be fully 75 percent higher than it would be given no economic growth. Furthermore, income at the end of 20 years of 3 percent per annum growth would be about 23 percent higher than income at the end of 20 years of 2 percent growth.

To put these assumed growth rates into perspective, consider that GDP per capita in Canada in 2018 was \$59,879.<sup>4</sup> If we assume for convenience that Canada’s population remains constant, a 2 percent per annum increase in real GDP implies that real per-capita GDP would increase by approximately \$25,630 after 20 years. At a 3 percent per annum rate of growth of real GDP, real per-capita GDP would be approximately \$45,150 greater than it would be if the growth rate was zero. Simply put, increasing the annual growth rate of real GDP from 2 percent to 3 percent would almost double the increase in per-capita income resulting from economic growth. Obviously, this would represent a very substantial improvement in the standard of living of Canadians.

4. The GDP per capita estimate is from OECD.Stat at <[http://www.stats.oecd.org/index.aspx?DataSetCode=PDB\\_LV](http://www.stats.oecd.org/index.aspx?DataSetCode=PDB_LV)>.

It would also arguably contribute to a more socially cohesive and less politically fractious society. Slow economic growth exacerbates tensions and jealousies that contribute to what economists describe as political rent-seeking, i.e. using resources to redistribute income through lobbying government, rather than using the resources to increase real output. Slow growth also helps legitimize calls to protect domestic workers from foreign competition with a resulting cost of reduced productivity to the economy as a whole.

The fact that the average annual rate of growth of real GDP exceeded 3 percent as recently as the decade from 2001 to 2010 suggests that Canada is not necessarily trapped in a “low-level” 2 percent real rate of growth environment. While there is no “magic bullet” for accelerating real economic growth, the essays in this book highlight the importance of and the potential for achieving even modestly faster rates of economic growth.

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# 1. Economic Growth: An International Overview of Theory and Data

Livio Di Matteo

The single greatest determinant of long-term material economic welfare is the rate of economic growth. Economic growth is an increase in an economy's output over time as represented by increases in the amount of goods and services produced and ultimately consumed. By allowing for the production of more goods and services over time, economic growth allows for an increase in personal incomes and in material standards of living and also provides the potential for reducing poverty and economic inequality. Indeed, even small differences in economic growth rates can have a major impact on the standard of living as growth compounds over time.

The industrial era saw an acceleration in the rate of economic growth that led to unprecedented increases in living standards, and rates of growth reached some of their highest values in the postwar economic boom spanning the period 1945 to 1973. While long-term per-capita income growth rates prior to 1750 were almost zero, the industrial era<sup>1</sup> saw higher rates, with the era since 1870 marked by average rates of real per-capita GDP growth close to 2 percent for many countries. In the twentieth century, the period from the end of WWII to the early 1970s was a veritable Golden Age with rates of per-capita income growth close to 4 percent.

The period since the early 1970s has been marked by a productivity slowdown, and there is concern that the entire industrial era leading into the late twentieth century was a high growth aberration and that we are set to enter a period of stagnation and a return to pre-1750 growth rates. For Canada, the post-World War II era was also a high growth period, and the average annual rate of real per capita GDP growth in the 1960s was just under 4 percent. This fell below 3 percent in the 1970s and then closer to 2 percent after the 1980s, where it has remained since.

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1. The industrial era begins in Britain circa 1750 and then accelerates during the period from 1820 to 1914. In much of the developed world, the industrial process comes to maturity over the period 1870 to 1950. In the period since, developed countries in particular have seen a shift away from industrial goods production to services, knowledge, and information industries.



A key recent proponent of this future stagnation view is Robert J. Gordon (2016) and a key argument he makes is that the past 250 years were unique in human history, as the industrial revolution harnessed steam power, hydro-electricity, diesel, gasoline, and the atom to generate a vast array of technological innovations that boosted growth and the standard of living. Fundamental breakthroughs since 1970 in energy production and productivity have declined and as a result growth has faltered. After waves of technological innovation, the low hanging fruit has been picked and Gordon believes that rapid growth fueled by unabated technological change has ended. Consequently, he sees a future of low growth at rates closer to the pre-industrial era.

## Economic Growth: Definitions and Measures

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Economic growth can be defined as increases in GDP over time. Achieving high and stable rates of economic growth is considered important because it represents the single most important factor in raising the average material standard of living over time. Maintaining high rates of economic growth is an important policy objective in all countries and slowdowns in the rate of economic growth reduce the long-term growth of the material standard of living given that such increases compound over time. For example, if the rate of growth is 1 percent, then an income of 100 dollars today will in 30 years be 135 dollars, whereas at 2 percent it would reach 181 dollars and at 3 percent 243 dollars. Across countries, seemingly small differences in growth rates can lead to big differences in wealth and income over the course of decades.

Economic growth, like all matters economic, comes with benefits and costs. The main benefits of growth are increases in the material standard of living over time, as more goods and services are consumed and more potential resources created to alleviate poverty and economic inequality, given that the benefits of economic growth do not always accrue equally to everyone in an economy. A richer society is also better able to handle any damage to the environment that can result from rapid economic growth and development. There are other costs to economic growth. Faster rates of growth in the long term sometimes means sacrificing consumption today in order to divert resources to productive activity. Rapid growth and technological change generate economic changes which can make some machinery and equipment, as well as worker skills, obsolete in the short term, although in the long term,<sup>2</sup> the trend has been for both more capital equipment and more employment.<sup>3</sup>

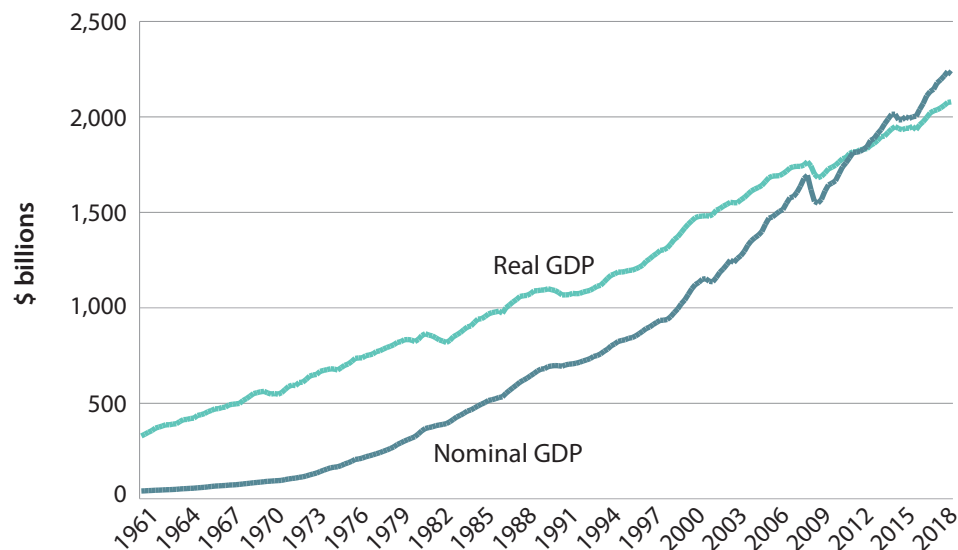
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2. As the first industrial nation, the United Kingdom's experience is informative. Over the long run, the United Kingdom experienced increases in both employment and the labour force. See Stewart, De, and Cole (2015).

3. For additional discussion, see Ragan (2017: 584–88).

Four important indicators are used to measure economic growth. The first is an increase in nominal Gross Domestic Product (GDP)—this is an increase in the value of the total output of goods and services produced by domestically owned resource inputs in an economy in a given year. After adjusting this value for the effects of inflation to obtain the real value of output, one has Real GDP. Of course, it is also important to take population growth into account, since if population grows faster than real output, output per person falls. Dividing Real GDP by population produces a measure of output per person known as Real Per Capita GDP. Finally, if one wishes to also examine the growth in productivity, then dividing Real GDP by the number of workers in an economy—that is employment—gives an estimate of output per worker—that is, labour productivity—termed Real GDP Per Worker.

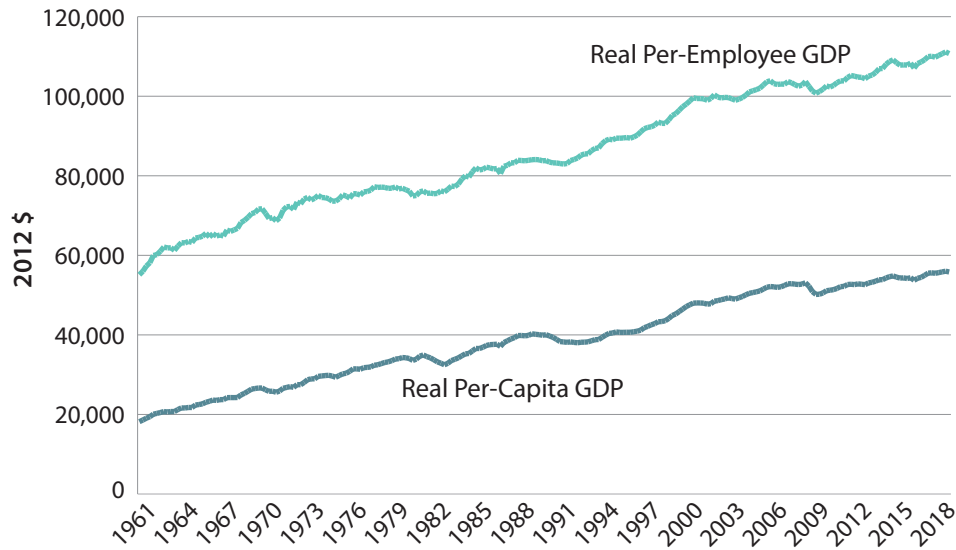
**Figure 1: Quarterly Real and Nominal GDP, Canada, 1961 to 2018**



Source: Statistics Canada, v62305783, v62306896.

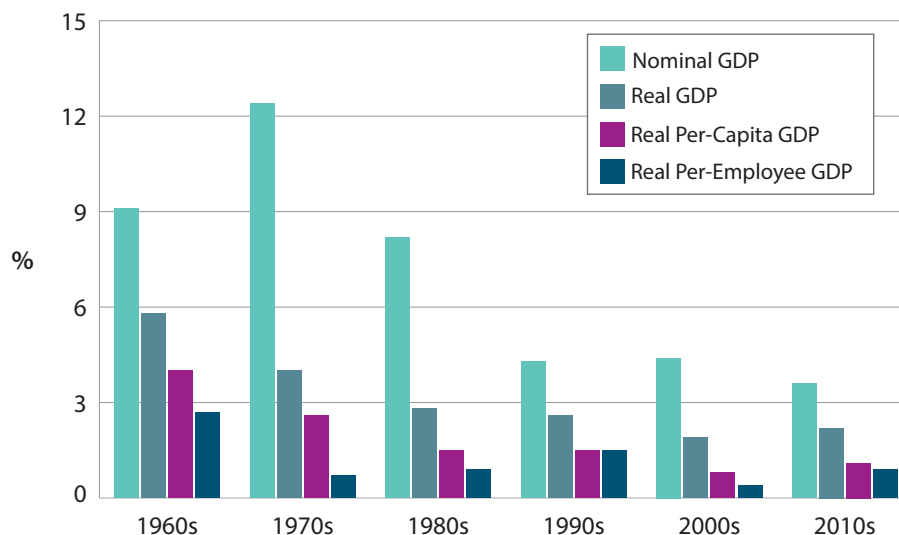
To help illustrate these concepts, **figures 1 and 2** present these measures for Canada for the period 1961 to 2018 using quarterly economic data.<sup>4</sup> Nominal GDP grew from \$40.7 billion in the first quarter of 1961 to reach \$2,223 billion by the fourth quarter of 2018. When converted into constant 2012 dollars, real GDP over the same period rose from \$329 billion to reach \$2,079 billion. Real GDP per capita in \$2012 in the first quarter of 1961 was \$18,185 and by the fourth quarter of 2018 had risen to \$55,817. Meanwhile, real GDP per employee over the same period went from \$55,127 to \$110,716.

4. Quarterly GDP data is available only back to the 1960s.

**Figure 2: Real Per-Capita and Real Per-Employee GDP, Canada, 1961 to 2018**

Source: Statistics Canada, V62306896; V1, FRED LFEMTTTTCAQ647S.

Thus, over a period of nearly 60 years, the nominal total output of the Canadian economy grew 54 times, while after inflation the total output grew six times. Real output per person was three times higher in 2018 than it was in 1961, while output per employee was twice as high. Annual growth rates by decade for nominal and real GDP, as well as real per-capita and per-employee GDP, are presented in **figure 3**. A notable feature of figure 3 is the decline evident in the growth rates of real output in Canada over time.

**Figure 3: Canadian Economic Growth Measures: Annual Averages**

Source: Author's calculations using data from figures 1 and 2.

## Models of Economic Growth

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The process of economic growth is a relationship between inputs of factors of production and output and can be depicted using what is termed a production function. A production function can be represented mathematically as output being a positive function of a set of inputs as follows:

$$(1) \quad Y = f(K_p, K_h, L, N, T, I)$$

Where  $Y$  is output,  $K_p$  is physical capital such as plant, machinery and equipment,  $K_h$  is human capital such as the skill and educational characteristics of labour,  $L$  is the quantity of labour,  $N$  is natural resources and land,  $T$  is technology which can be defined as the available knowledge of how to produce things, and  $I$  is institutions which are the arrangements that people have for dealing with one another with respect to economic activity. Changes in any of the factors of production that are positive will generate an increase in output, meaning that there is economic growth.

The manner in which these factors of production or sources of economic growth actually come together to increase national output is what can be termed a theory of economic growth. All a theory of economic growth does is provide a story explaining how physical and human capital, labour, natural resources, and technology come together to create growing output. The stories fall into two basic genres. First, there are what one might term “grand” or sweeping theories of economic growth and development which tell a very broad and not always precise story with respect to historical sweep or application to a certain type of developing economy. Second, there are what we can term “modern” theories of economic growth, which are modern in the sense that they have been developed more recently but also because they are framed in terms of an explicit mathematical cause and effect variable framework predominant in modern economic theory.<sup>5</sup>

Classical economic theory provides the first and most important grand theory of economic growth. The great classical economists such as Adam Smith, David Ricardo, and John Stuart Mill<sup>6</sup> were predominantly concerned with the causes and nature of economic growth and development—the wealth of nations—and built a story that linked the division of labour and the productivity that emerged from this with saving and accumulation of capital.<sup>7</sup> In the economic development system sketched out by Adam Smith (1776),

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5. See Jones (1975: 4–5).

6. Karl Marx is also considered a Classical economist, but he used the classical framework of capital accumulation to reach an outcome in which the market system eventually collapses.

7. For some overviews of the Classical School see Blaug (1983), Speigal (1983), and Ekelund and Hebert (1990).

consumption is the sole end to production, and the market decides what is consumed and ensures that quantities demanded are supplied.

Self-interested individuals specialize in producing goods whose prices are determined by supply and demand in the market. The market ensures that the quantities demanded are produced, and also generates returns to the labour and capital employed, which flow amongst various alternative uses based on the highest return. Out of these returns, capitalists accumulate wealth and invest it in newer and better production facilities, which leads to an increase in the demand for labour, which bids up wages and reduces profits; however, as population increases, wages fall allowing accumulation by capitalists to resume and the cycle begins again. It is a vast, self-equilibrating system driven by self-interest, with excessive self-interest held in check by the market as if by an “invisible hand.”

The contributions of David Ricardo and John Stuart Mill to this theory included diminishing returns to capital given fixed amounts of land. Ultimately, the share of income taken as rent by landlords would increase, driving down profit and capital accumulation and bringing wages to a subsistence level, thereby “ending growth” and bringing about what was termed the stationary state.<sup>8</sup> This bleak outcome, according to Ricardo (1817/1971), could really only be avoided by reducing costs through reducing subsistence wages, with free trade and imports of cheap food allowing growth to resume.

Other grand theories of economic growth and development include the Staples Approach and Rostow’s Stages Approach. The Staples Approach is particularly applicable to new settler economies such as Canada and Australia, because it sees the natural resource base and the export-led development from those resources as the crucial determinants of economic development and growth.<sup>9</sup> Essentially, the production of the export staple—be it minerals, lumber, or agricultural products—and its exportation generate income via the demand for domestic production inputs and leads to a process of diversification around the export base as population and incomes grow. Key to the “spread effects” of the staple are the extent of the linkages between the export sector and the rest of the economy in the form of investment in the domestic production of inputs into the resource export sector, the use of the resource output as a domestic input, as well as the effects of income generated from the

8. J. S. Mill (1848/1969) also argued that diminishing returns would drive the economy to a stationary state which would end economic growth and accumulation. However, he saw this as a precursor to a society where once the highest levels of material outcomes would be achieved, the focus of life would move to quality rather than quantity of life. For further discussion see Blaug (1989) and Ekelund and Hebert (1990).

9. In terms of staple products: Canada: codfish, fur, timber, and wheat; United States: cotton, indigo, and rice; Australia: wool, gold, and wheat; Argentina: wheat and beef. Classic works on staples include Innis (1930) and Watkins (1963). Other export-led approaches are described by Baldwin (1956) and Caves (1966, 1971).

export sector on final consumer demand.<sup>10</sup> However, such an approach really applies to any type of export-led growth model that makes the export activity of a booming sector a key activity, whether the exports are goods or services.<sup>11</sup>

Rostow's Stages approach is another grand descriptive theory of development that sees economic growth as a process of sequential stages (Rostow, 1977). According to Rostow, every economy must go through a sequential series of development stages starting from a low productivity, largely agricultural traditional society, followed by a preconditions-for-takeoff stage marked by some type of external shock that creates an impetus for change. This is followed by a take-off stage during which economic growth becomes a normal condition of society, as investment output ratios grow and industrial leading sectors in areas such as coal and steel develop. This period is often also accompanied by political and social changes that generate a framework conducive to growth—namely, a market economy. The fourth stage is a drive to economic maturity in which the economy moves beyond its original leading industrial sectors and diversifies into consumer and other manufacturing industries and is marked by higher investment-output ratios and the application of high productivity technology to solve a range of economic problems. The final stage is a high mass consumption stage featuring a steady rise in per-capita GDP and an economic shift to consumer goods and service sector activities. Rostow's development message was that all countries had to pass through these stages and government-led economic development was not an effective short-cut to the development of an economy that required market institutions and sequential stages.

Modern theories of economic growth are “modern” in the sense that they are characterized by mathematical economic models with variables that operate in an explicit cause-and-effect framework in order to explain the determinants of long-run economic growth. Such models are primarily a feature of economic research in the period since World War II. Key variables in such models often include national income or output (GDP), some measure of inputs into production such as capital stock (K) and labour (L) as well as variables for saving, investment, and technology. One of the key models in this category is the Neoclassical Growth Model, whereby saving and investment in capital are tied to the growth of per-capita output. In the Neoclassical growth model, per capita output is ultimately a function of per-capita capital stock, technological change, and population growth making capital deepening via new investment a key driver of long-term growth and new technology (Solow, 1956; Swan, 1956). Economic production is subject to diminishing returns in the long run, making technological change that shifts the production function

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10. These are generally known as backwards, forward, and final demand linkages. See Watkins (1963) for an exposition.

11. For a regional example, see Di Matteo (1993).



“upwards” vital to long term growth and prosperity. At the same time, some newer economic growth models emphasize the role of increasing returns, especially at early stages of economic development, and technological change. These increasing returns are rooted in upfront market development costs, as well as the impact of knowledge and ideas, which produce knowledge-driven growth. This allows new investment to overcome the principle of diminishing returns (Ragan, 2017: 603).

Endogenous growth theory (Romer, 1986; Barro, 1990) relates economic growth to shocks in innovation, technological change, and human capital investment, with technological change in itself being endogenous or a function of variables. Essentially, the implications of endogenous growth theory are that economic growth is the result of rather costly and often risky innovation that, in turn, is a function of economic incentives (Ragan, 2017: 601). Endogenous growth theory models also have several variants which emphasize aspects of the growth innovation process. Learning by doing models focus on the transition from discovery to application of innovations. The diffusion of knowledge and technology is captured by models that build in aspects of knowledge transfer that is based on experience and is costly because it takes time. Government tax and expenditure policies that limit innovation are seen as growth reducing, while increasing the quantity and quality of education and training is growth enhancing. Market structure can also affect innovation, with competition encouraging innovation and monopoly discouraging it, thereby making the case for policies that encourage competition such as lowering tariffs or reducing regulation. Economic shocks such as a sudden rise in costs can also play a role in innovation, in that they can spur the search for productivity enhancements.<sup>12</sup>

There is also a set of literature focusing on other factors such as the importance of institutions, including well-functioning private markets, government, and tax policy.<sup>13</sup> Economic historians such as Douglass North (1987, 1990) have focused on the important role of governmental institutions, such as the rule of law and well-functioning property rights.<sup>14</sup> Economic freedom, trust, low levels of corruption, and well-functioning bureaucracies have also been examined as institutional factors that determine economic growth.<sup>15</sup> Another perspective is that resource-based economies grow less quickly because of growth-reducing effects as exchange rates appreciate from resource booms

<sup>12</sup> For a good general overview, see Ragan (2017: 601–3).

<sup>13</sup> Olson (1996) provides the classic example of North and South Korea, which prior to WWII were one country and have since become separate under very different regimes. The resulting economic growth between the two was dramatically different, with South Korea becoming highly developed, even though prior to 1953, the North was economically advantaged in terms of electricity production and industrial development.

<sup>14</sup> See Rodrik (2000, 2007), Rodrik et al., (2004).

<sup>15</sup> See Ali (2003), Asoni (2008), and Sturm and De Haan (2001). The central roles of trust and social capital are explored in Fukuyama (1996) and Knack and Keefer (1997).



or resource rents that encourage rent seeking behaviour; however, it remains the case that some of the most successful economies have also been resource based.<sup>16</sup>

Another factor that has been explored in new growth theories is the impact of market size and population growth: larger populations may offer long-run economic growth advantages, with larger-population economies accumulating more technological innovation than smaller ones because the return to innovation is higher. In addition, given migration from low to high income regions, long-run economic growth can be enhanced because of the positive relationship between population size and innovation resulting from economies of scale, as well as agglomeration economies (Desmet, Nagy, and Rossi-Hansberg, 2018). However, the beneficial impact of large populations can be replicated by free trade and exchange in a free market environment. As well, having a larger population, but a poor set of institutions can nevertheless result in poor economic growth performance.

Taken together, all of these theories of economic growth are an attempt to find a story that explains the growth of human material welfare over time and ultimately provides some type of guidance for policy makers who would presumably like to increase economic growth. Some of these models provide a pretty explicit recipe for economic growth. The Neoclassical Growth model, for example, emphasizes capital deepening via increasing saving and is essentially a supply side approach to economic growth. It thereby implies efficient financial markets are an important part of economic growth. Institutional approaches put the emphasis on the economic rules and arrangements—such as rule of law, government and markets—that people have for dealing with one another as crucial for creating a growth-oriented environment. Endogenous growth theory puts front and center the role of technological innovation in fostering high rates of economic growth and follows up with the role of government, market structure, and tax policy in maximizing the benefits and effects of new technology on growth. A grand theory such as the Staples Approach emphasizes the role of export demand and export markets in driving economic growth. In reality, economic growth is really a function of the interplay between all the factors highlighted in these models and a more nuanced and complex process over time than is suggested by any single model. Yet, a common theme in all of these approaches is the role of markets in facilitating the process of economic growth.

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16. See Sachs and Warner (1995) for a discussion of the “curse of natural resources.” For evidence on natural resources not necessarily hampering long-term economic growth, see Di Matteo and Petrunia (2018) and Di Matteo, Emery, and Shanahan (2014).

## Evidence on International Economic Growth: 1500 to 2016

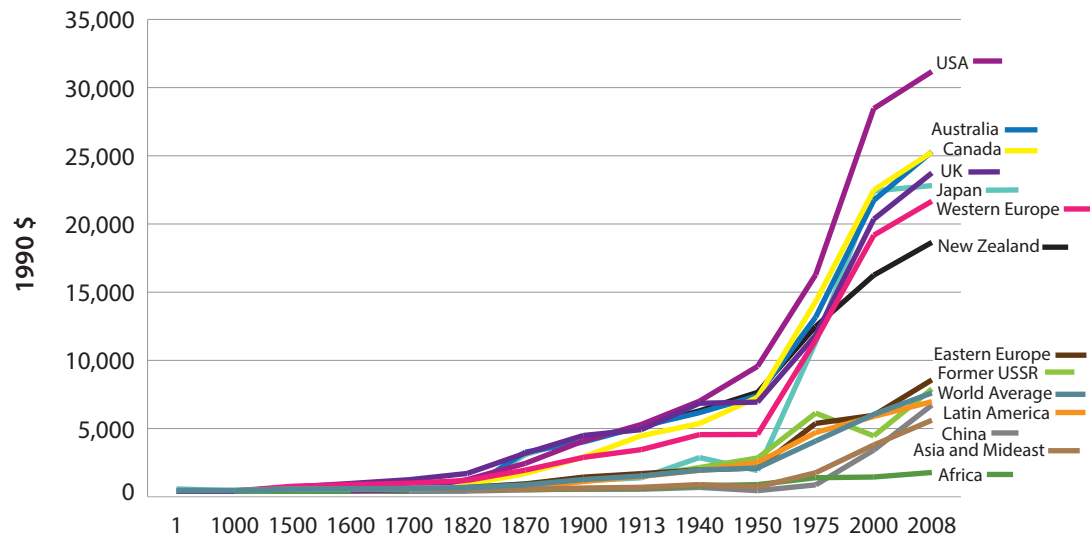
For much of economic history, per-capita income levels around the world were remarkably similar, very low relative to the present era, and marked by quite low growth rates. In a survey of economic growth, Rogers (2003: 112) notes that from the year 1000 to about 1700, countries experienced low and sporadic growth with England, for example, achieving about a 0.3 percent per annum growth rate. Growth accelerated in England and in other countries after 1750 as a result of the transition to industrialisation, although there were so to speak “winners” and “losers” resulting in what can be termed a great divergence in economic growth. Rogers (2003: 113) finds that OECD countries<sup>17</sup> experienced annual growth of GDP per person of about 1.2 percent from 1820 to 1900 and 2.0 percent from 1900 to 2000. In particular, the United States over a period of 150 years, aside from periodic business cycle downturns, exhibited a remarkable stability in real per-capita income growth averaging close to 2 percent. Over the same periods, Rogers (2003: 113) notes that non-OECD countries experienced 0.4 and 0.6 percent respectively.

The result was quite different levels of per-capita income between the more developed and less developed world, as illustrated in **figure 4**. Circa the year 1000, per-capita income was pretty much the same everywhere in the world, but by 1500 there were already differences, with Western Europe having the highest per-capita income in the world. The period after 1820 with the industrial revolution fully underway saw Western Europe and the United Kingdom, along with the natural resource intensive settler economies of the United States, Canada, Australia, and New Zealand pull rapidly away from the rest of the world. It was not simply about continent size economies with access to natural resources, as smaller countries like Switzerland and Japan also experienced substantial economic growth particularly into the 20<sup>th</sup> century.

By 1900, average world per-capita GDP in 1990 dollars had approximately doubled from 1820, from \$666 to \$1,261. However, for Western Europe, the increase was from \$1,194 to \$2,885, for the United Kingdom it was an increase from \$1,706 to \$4,492, and for the United States per-capita GDP rose from \$1,257 to \$4,091. There was a great divergence between the developed and less developed worlds<sup>18</sup> and it is only in the 20<sup>th</sup> century that a narrowing of the gap has occurred as development has spread around the world, with Asian economies in particular experiencing rapid growth. Most successful have been China, Japan, Singapore, and South Korea, which have seen high per-capita economic growth and income levels on par with, if not higher, than some non-Asian OECD countries.

17. In 2003, the 30 OECD member countries were Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States.

18. See Jones (2016), Maddison (1995), Pritchett (1997).

**Figure 4: Per-Capita GDP, Year 1 to 2008**

Source: Maddison, 2008.

A key question is what drove the economic growth divergence of mainly Western economies from the rest of the world from 1500 to the 20<sup>th</sup> century? Landes (1998: 513) argues that the driving force has been the “knowledge, techniques, and the political and social ideologies” of Western civilization, though Landes notes that this story has been interpreted as arrogant and oppressive and a justification for Western domination over the East. Rosenberg and Birdzell (1986) argue that it was not the development of new technology per se that explains how the West diverged from the rest of the world, as China and Islamic nations once had superior science and technology compared to the West. Rather, it was institutional conditions that encouraged innovations in trade and commerce, technological change and its diffusion, as well as the organization of production.

Key to all of this was political pluralism and institutional flexibility, as numerous political entities on the decentralized European continent competed with one another for political and economic dominance. Chief amongst these changes was the move away from centralized political and religious control and the rise of merchants and free markets, whereby private enterprises became the key economic decision makers that, operating in a decentralized framework, carried forth economic change and growth via an expansion of commerce and trade. Indeed, it was the willingness to embrace and adapt to change that is the hallmark of the most successful economies.<sup>19</sup>

<sup>19</sup> Japan is a key example of such an economy which went from a feudalistic traditional economy in the mid-19<sup>th</sup> century to a modern industrialized high-income economy by the mid-20<sup>th</sup> in response to contact with the West.

**Table 1: Average Annual Growth Rate of Real Per-Capita GDP (PPP dollars)**

	1871-2016	1871-1913	1914-1945	1946-1973	1974-1990	1991-2016	1994-2007
United States	2.0	1.9	2.8	1.4	2.0	1.8	2.1
United Kingdom	1.5	1.0	1.2	1.9	1.9	2.1	3.0
Belgium	1.7	1.1	0.4	3.8	2.1	1.7	2.2
Denmark	1.8	1.6	1.0	3.7	1.7	1.1	2.1
France	2.0	1.5	-0.5	6.2	1.9	1.3	1.7
Germany	2.1	1.6	1.1	4.5	1.7	1.7	1.5
Italy	1.9	1.0	-0.9	7.0	2.7	0.7	1.4
Netherlands	1.8	0.9	-0.9	6.3	1.7	1.8	2.4
Norway	2.2	1.4	1.7	3.8	2.9	2.1	2.6
Sweden	2.2	1.8	1.9	3.5	1.6	2.1	3.1
Switzerland	1.7	2.3	0.3	3.3	1.0	1.1	1.4
Canada	2.1	2.4	1.8	2.4	1.9	1.7	2.3
Japan	2.7	1.6	0.7	8.0	3.0	1.2	1.0
Finland	2.2	1.5	1.8	4.3	2.5	1.3	3.6
Portugal	2.0	0.6	1.3	5.0	2.6	1.4	2.0
Spain	2.0	1.4	0.5	4.6	3.0	1.5	2.7
Australia	1.5	1.2	1.0	2.3	1.7	1.8	2.6
<i>Average</i>	2.0	1.5	0.9	4.4	2.1	1.5	2.2
<i>Maximum</i>	2.7	2.4	2.8	8.0	3.0	2.1	3.6
<i>Minimum</i>	1.5	0.6	-0.9	1.4	1.0	0.7	1.0

Source: Author calculations from JST Data Set, 1870 to 2016, <<http://www.macrohistory.net/data/>>.

The era of rapid economic growth was the most pronounced during the post-World War II era from 1945 to approximately the early 1970s, with a decline setting in after the 1970s for most developed countries. **Table 1** presents evidence on 17 countries taken from the Jorda-Schularick-Taylor Macro-History Database, a comprehensive macro-financial panel dataset of developed countries spanning the period 1870 to 2016.<sup>20</sup> It shows the average annual growth rate of real per-capita GDP (in US PPP\$) for all 17 countries for all available years in the first column, as well as broken down by the five specific time periods of analysis in columns 2 to 6. These time periods are the first great globalization from 1871 to 1913, war and depression from 1914 to 1945, the post-war boom era from 1946 to 1973, the productivity slow-down from 1974 to 1990, and the post 1990s coinciding with the second great globalization and the collapse of the Eastern bloc.

Over the period 1871 to 2016, real per-capita GDP across these 17 countries averaged an annual growth rate of 2 percent, ranging from a high of 2.7

20. Accessed June 2018. Data and documentation available at <<http://www.macrohistory.net/data/>>.

percent for Japan to a low of 1.5 percent for the United Kingdom. In terms of performance across sub-periods, average growth rates of per-capita GDP were highest for most countries during the post-war boom era between 1945 and 1973. During the great post-war boom, the average growth rate in per-capita GDP (in US PPP dollars)<sup>21</sup> across these 17 countries was an astounding 4.4 percent, ranging from a high of 8 percent for Japan to a low of 1.4 percent for the United States.

The period from 1974 to 1990 is a period coinciding with the oil price shocks of the 1970s, the era of high unemployment and inflation (known as stagflation), and a slowdown in economic growth across many countries. This period was also marked by a number of serious recessions. The quadrupling of the price of oil in the wake of the first oil shock raised costs of production, thereby slowing average per-capita income growth to 2.1 percent, ranging from a high of 3 percent in Japan to a low of 1 percent in Switzerland. The period from 1991 to 2016 is an era marked by the fall of the Berlin Wall and the economic liberalization of eastern European economies, economic deregulation, globalization, the growth of Asian economies and trade expansion. However, it was also marked by two major downturns (the early 1990s recession and the 2008–09 Great Recession) which lowered the average rate of growth.

Compared to the era from 1946 to 1973, which saw average per capita income growth of 4.4 percent, the period since appears marked by a slowdown in economic growth, as the average across these 17 countries falls to 2.1 percent between 1974 to 1990 and 1.5 percent from 1991 to 2016. However, if the era from 1991 to 2016 is truncated to 1994 to 2007 to eliminate the recession of the early 1990s and the period including and following the financial crisis-related Great Recession of 2008–09, per capita income growth rates rise to an average of 2.2 percent, which is marginally higher than the period 1974 to 1990 but still much lower than the rates of the post-war boom era.

This slowdown since the 1970s has resulted in many taking the view that we are in a new era of secular stagnation. They argue that the era of high growth from 1945 to 1973 was at best an aberration, and that we are reverting to long term historical per-capita growth rates which may approach low pre-industrial growth rates. A key proponent of this view is Robert Gordon (2016, 2018) whose analysis is focused mainly on the United States, but which can be extended to other countries.<sup>22</sup> The decade of the 1960s, according to Gordon, turns out to be the last of a remarkable set of decades followed by two phases of slower growth, the first after 1970 and the second after 2006. The decline in economic growth reflects a decline in economic productivity on Gordon's view, and this is a function of aging populations, rising inequality, a slowing of

21. US dollars using purchasing power equivalent exchange rates.

22. Other proponents of what has been termed a "New Secular Stagnation Hypothesis" of lower long-run economic and productivity growth include Laurence H. Summers, Barry Eichengren and Paul Krugman. See Teulings and Baldwin (2014).

the growth rate of educational attainment and human capital formation, and the maturation of the industrial revolution and the diffusion of innovation.

Essentially, Gordon argues that the past 250 years that saw the acceleration of per-capita income growth around the world were unique in human history as the industrial revolution harnessed a host of new innovations such as steam power, hydro-electricity, diesel, gasoline and the atom to generate a vast array of technological innovations that boosted growth and the standard of living. Fundamental breakthroughs since 1970 in energy production and productivity have declined and as a result growth has faltered. After waves of technological innovation, the low hanging fruit has been picked; Gordon believes that rapid growth fueled by unabated technological change has ended and sees a future of lower growth. It is not that technological progress has halted, but that its impact is reverting to lower historical norms. Despite the technological change of the digital era, this has had less impact on productivity growth than previous waves of technological change and we are now on the verge of an explosion of robotic technology and artificial intelligence that will destroy employment on a massive scale (Gordon, 2018). This will be amplified by aging populations, a decline in the growth rate of education levels as the era of mass educational expansion ends, and rising income inequality.

This pessimistic view of the future of economic growth has been countered on a number of levels. To start with, while many countries saw much higher economic growth rates in the post-World War II period, this was driven by reconstruction efforts in many European countries devastated by war as well as by the demographic impact of an expanding labour force brought about by the baby boom and increased female labour force participation. Thus, while 2 percent growth may seem poor compared to the Golden Age from 1946 to 1973, it is that era that is perhaps the aberration rather than the entire industrial era, which seems to be marked by steadier 2 percent growth over the long term. Indeed, Jones (2016: 6) remarks on the long-term stability of US economic growth over the period 1870 to 2007 at close to 2 percent suggesting continued long-term sustained growth. This of course would mean that there really was no productivity slowdown after 1973, nor are we facing an era of secular stagnation.

Indeed, it can also be argued that the high growth rates recorded for 1946 to 1973 may be partly the result of a statistical anomaly for two reasons, making the post-1973 economic slowdown more a perception based on statistical artefact. First, households have grown increasingly smaller over the course of the twentieth century, meaning that larger households before 1945, even with a lower per-capita income, would have benefited from economies of scale with respect to expenditures such as housing and meal preparation. This implies that effective per-capita income was really higher if based on household heads or adults. As Kufenko, Geloso, and Prettnner (2018) note, if you adjust economic growth rates to reflect these changes in household size, growth in living standards in the 20<sup>th</sup> century is actually slower as compared to measures based on



per-capita GDP.<sup>23</sup> Second, economic growth in the period after 1940 was also affected by the demographic and labour force phenomenon of increased formal female labour force participation—meaning work which was unmeasured previously came to be measured and reflected in economic statistics. Thus, the boom in female labour supply and paid employment in the post-World War II era may be an additional reason for higher measured economic growth rates from 1946 to 1973.<sup>24</sup>

One could also add that much of the current growth pessimism is rooted in the slow recovery from the 2008–09 Great Recession rather than a long-term view of growth statistics. Crafts notes that in the wake of the Great Depression there was a similar pessimism and concerns with secular stagnation, but these turned out to be without foundation. Crafts (2014: 92) states that: “It must be said that once again, this could well turn out to be hypochondria rather than far-sighted prediction. Even after downward revisions, mainstream projections for growth over the next ten years or so in the US cluster around 2.1% per year for GDP and 1.6% per year for labour productivity. This productivity growth rate would basically be a continuation of the average performance of the last 40 years ...”

With respect to rates of future technological change, it cannot reliably be forecast that rates of change are going to slow down. Mokyr (2014) argues that innovations underway in information and digital technology, quantum computing, bio-technology, genetics and new materials will revolutionize economic productivity in coming years at an increasingly rapid pace. However, their contributions to our standard of living are not being fully captured by statistics designed to measure tangible industrial outcomes rather than the intangibles of the information age.

Finally, as for the fear that new technology will phase out employment, history is once again the best evidence as to why this fear may also be misplaced. Indeed, long run technological change appears to create more jobs than are destroyed as documented in one study of census results for the United Kingdom since 1871 (Stewart, De, and Cole, 2015). As the first industrial nation, the United Kingdom experienced increases in both employment and its labour force. Stewart, De, and Cole argue that the technology debate is skewed towards discussion of job destruction when in fact technological change is also accompanied by substantial job creation. Using census employment records on employment in England and Wales since 1871 and Labour Force Survey Data from 1992, they show major declines in occupations such as agricultural labourers, washers, launderers, telephonists, and telegraph operators, both in absolute numbers and as a share of employment. At the same time, there are increases in other occupations such as accountants, bar staff, hairdressers and other services.

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<sup>23</sup>. See also Geloso, Kufenko, and Prettnner (2016).

<sup>24</sup>. For discussions of these types of changes and their effects in economic history, see Wagman and Folbre (1996), Folbre (2009), and Landefeld and McCulla (2000).



Finally, current evidence suggests that despite what is popularly perceived as a quickening pace of technologically induced job destruction in the wake of the 2008–09 Great Recession, it remains the case that at present, much of the world appears to be undergoing what can only be termed a jobs boom. Unemployment rates in the OECD have fallen below 6 percent and the United States and Japan in particular are below 4 percent. Indeed, over the last five years, the OECD has added 43 million jobs, as documented in a recent issue of *The Economist* (2019) discussing the surge in employment creation.

## Conclusion

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For much of human history, real per-capita GDP and standards of living were quite uniform around the world. The start of the industrial revolution saw a leap in economic performance, particularly in Western industrializing countries, as new technologies were developed and rapid growth rates ensued that raised material standards of living immensely. As the benefits of industrialization and technological change spread, the world economy saw increases in real per-capita GDP at growth rates for many countries during the mid-the twentieth century that exceeded 2 percent. However, economic growth slowed during the 1970s, a slowdown that has persisted for several decades, leading to a pessimistic view that we are going to return to a period of low growth or secular stagnation. In many respects, this type of view is but an updated reiteration of the Classical School's prognosis of a stationary state that would see the end of growth.

Indeed, the stagnation hypothesis may be overly pessimistic, especially with respect to expectations of a slowdown in future technological progress. Technological change was indeed the largest contributor to the surge in per-capita income and standards of living over the last two centuries, and just as one cannot forecast future breakthroughs, one also cannot forecast that there will be no more massive improvements in technology. Moreover, technological change alone is a necessary but not a sufficient condition for growth given that innovation needs to be translated into applications and diffused. This process is a function of good institutions, such as stable government and quality financial institutions, well-functioning markets, and a willingness to embrace change.

Information technology, biotechnology and new material manufacture seem to be proceeding by leaps and bounds and yet economic growth appears to be slow. It may be that current statistical techniques that evolved in response to measuring a manufacturing-based economy are not capturing their full impact. Or, it could be that their effect has yet to fully diffuse and affect the economy. For example, while television was invented in the 1920s, it was not until the 1950s that it began to make significant inroads into broader consumer culture and spending.

A long-term growth rate of 2 percent may appear low when compared to the Golden Age of the 1946 to 1973 era, but that was probably a unique period during which much of the institutional and physical infrastructure of the world economy was rebuilt after an era marked by two world wars and the Great Depression. Moreover, it is unclear whether these growth rates do actually reflect higher economic growth or are partly a statistical artefact driven by the demographic factors of the era. Along with an expansion of trade and the start of new moves towards globalization, this era was also marked by an expansion of the labour force via increased female labour force participation, and by a baby boom. A 2 percent growth rate of real per-capita income is in keeping with the average for the 150-year period since 1870, and there is no reason why it cannot continue. Policy should not necessarily be driven by trying to replicate the growth rates of 1946–1973 given they may indeed be unique. Rather, if a 2 percent growth rate is a long-term “iron rule of growth”, then we might be better served by ensuring that we do not fall below this growth rate.

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## 2. How Strong is the Relationship Between Inequality and Growth?

Vincent Geloso

Many of those who bemoan the slowdown of economic growth believe that they have a corollary argument to bolster their case: inequality has been rising (Gordon, 2016: 605–39; Lindert and Williamson, 2016; Ostry, Loungani, and Berg, 2019). Sometimes, they will even extend their claim to argue that slower rates of economic growth are systematically linked to the distribution of income (Pichelmann, 2015; Jackson, 2019; Eggertsson, Mehrotra, and Robbins, 2019). The links they draw depend on the mechanism they believe is the most relevant. Some, such as Nobel prize winner Joseph Stiglitz (2012), tend to emphasize the political power wielded by the rich. Others tend to argue that a skewed distribution of income affects aggregate demand in ways that slow down growth (Eggertsson, Mehrotra, and Robbins, 2019). In essence, they argue that prior income distribution alters subsequent growth. This latter argument has recently gained in popularity—in part because it is a logical conclusion from some of the most popular works on inequality (e.g., Thomas Piketty’s *Capital in the Twenty-First Century*).

All of these individuals rely on the same historical narrative: income inequality was high (and increasing) (Stelzner, 2015) until 1920 (Piketty and Saez, 2003). After that point, there was a great leveling of income during which inequality fell and it remained at a low plateau until the mid-1970s. From that point onwards, inequality has steadily increased back to levels observed in the 1920s. The U-shaped evolution of inequality broadly imitates the path of economic growth as presented by those who argue for secular stagnation: growth picked up as the levelling occurred and reached a high-plateau in the 1970s only to start decelerating thereafter. The movements of the two are believed to be so similar that they have to be tied together.

However, there are reasons to be skeptical of this narrative. First, it is not clear that inequality increased until 1920. There was rising *nominal* inequality which does not correct for price disparities (i.e., different costs of living across



income levels and across space). *Real* inequality (correcting for the cost of living across the income distribution and across space) was probably falling until 1920. A similar issue plagues measures of income inequality today. Second, both the levelling of inequality to 1970 and its increase since then are overstated. Third, when these facts are taken into account and combined with other known historical facts, the theoretical ties between growth and inequality appear to be weak.

## Real or Nominal Income Inequality?

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The evolution of income inequality is probably much more muted than what is generally argued. An important issue with this attempt to tie growth slow-down and inequality together is that the measurements nearly always hinge on *nominal* inequality: the distribution of all incomes without any adjustments for the cost of living. This is a very problematic methodological flaw. An annual income of \$40,000 in Vancouver is quite different from the same income in rural Nova Scotia as a result of geographic differences in the cost of living. There is thus a difference between *nominal* and *real* (i.e., adjusting for prices) inequality. Estimates of current inequality that account for these differences find lower levels of inequality (Geloso and Msaid, 2018). These adjustments not only affect the level of inequality, they also affect the trend of inequality as they tend to show smaller increases over the last decades than the nominal figures.<sup>1</sup> This is quite important historically as geographic price differences were markedly greater in the past (Emery and Levitt, 2002; Mitchener and McLean, 1999). As such, we are consistently overstating the level of real inequality and the overstatement is probably greater in the past as historical data reveal larger intranational price differences than today (Mitchener and McLean, 1999; Geloso, 2018).

While relatively straightforward, this adjustment for geographic differences in cost of living is the least important of the adjustments that need to be made to measure real inequality. The most important adjustment stems from the fact that rich and poor do not consume the same baskets of goods and services. If the cost of living of the rich increases while the cost of living of the poor falls (or increases at a slower pace), then there will be a mitigating force on nominal income inequality.

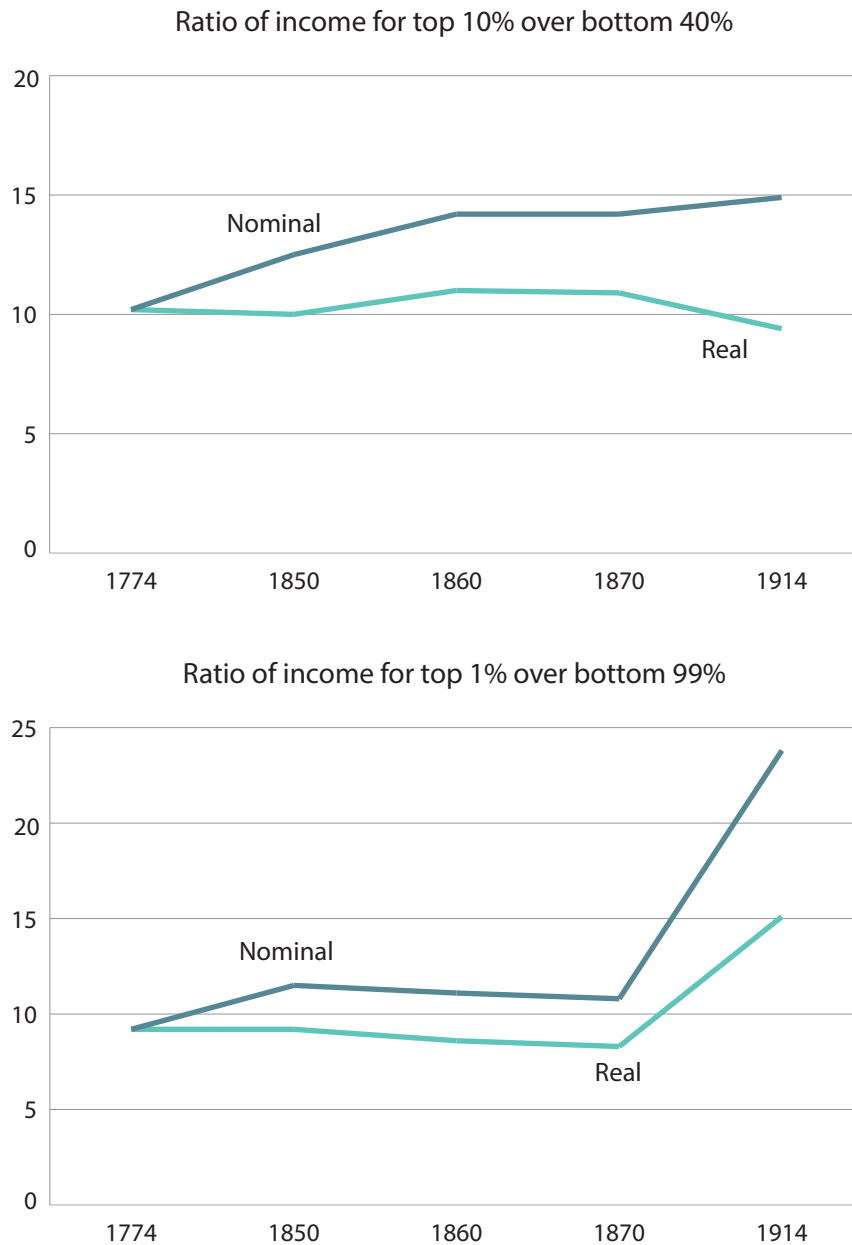
From the early 1800s until 1914, countries like Canada, the United States, the United Kingdom, and Australia experienced egalitarian trends in the cost of living (i.e., the cost of living of the poor fell relative to that of the rich; Hoffman, Jacks, Levin, and Lindert, 2002; Geloso and Lindert, 2019). When income inequality figures are adjusted for these differing price trends, we either find appreciably smaller increases in inequality or outright declines (**figure 1**).

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1. See Pendakur (2002) for evidence specific to Canada. Otherwise, there is work specific to many other countries, such as China, that point to similar problems (Démurger, Fournier, and Li, 2006).



**Figure 1: Effects of Adjusting Nominal Income Inequality Estimates for Inequality in the Cost of Living, 1774–1914 in the United States**



Source: Geloso and Lindert, 2019.

Note: Geloso and Lindert present evidence for Britain suggesting a fall in inequality over the second half of the 19<sup>th</sup> century and early decades of the 20<sup>th</sup> century. Their results point in the same direction for Britain as those of Jeffrey Williamson (1992: 64).

This throws into contention the claim that inequality was rising to the first years of the 20<sup>th</sup> century. In fact, it raises the possibility that inequality was falling in an era with little to no redistributive efforts on the part of governments.

The need for this adjustment applies to the present day as well. Enrico Moretti found that college graduates, those who are at the top of the income distribution, experienced larger increases in the cost of living since the 1980s than individuals with at least a high school degree (i.e., those who tend to be at the bottom of the income distribution). This results from the fact that more educated individuals tend to live in cities where the cost of living is higher (and increasing faster). Once the differences in the cost of living are properly accounted for, the *real* differences between the two groups have grown significantly less than the *nominal* differences (Moretti, 2013).

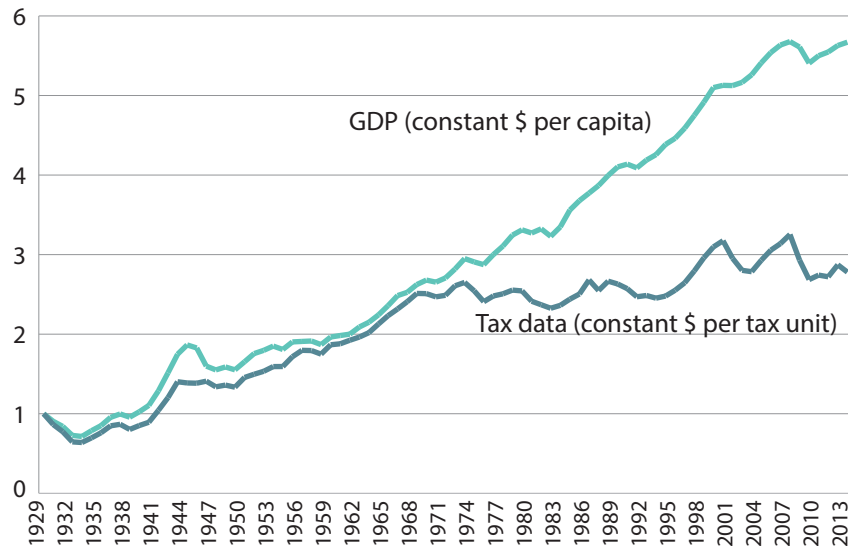
As such, it seems that straightforward and uncontroversial methodological changes meant to properly measure the *real* income of individuals across the income distribution mutes the movement of inequality. This muting makes it harder to sustain the narrative needed to tie inequality with the slowdown in economic growth.

## The Extent of the Fall and Rise of Income Inequality

The case for tying the evolution of inequality to the slowdown in economic growth is further weakened when we consider the type of data used to generate measures of inequality over time. Most of the existing studies tend to use tax data. As such, the income reported on tax returns is used to measure inequality. This is problematic for a number of reasons which, when adjustments are made, suggest further muting of the evolution of inequality.

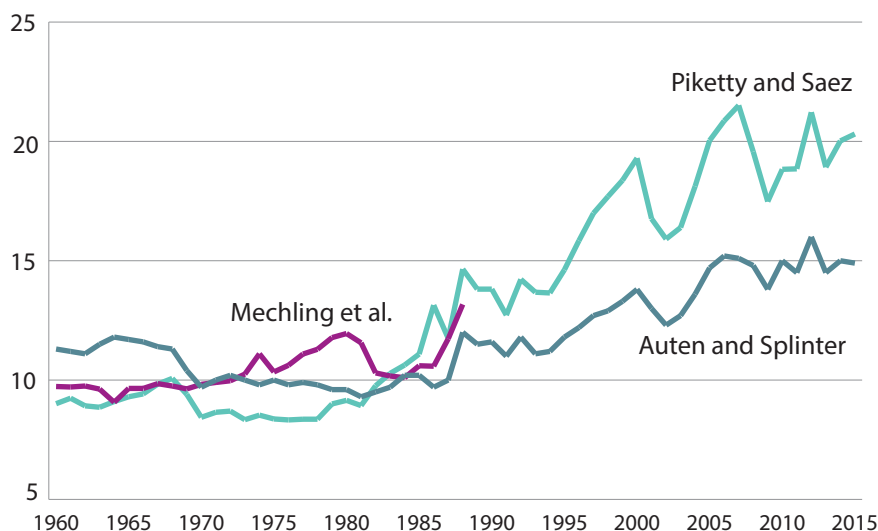
First, many households at the bottom of the income distribution receive transfer payments and in-kind compensation (e.g., employer-provided insurance or other items) that are not accounted for in tax returns (Rose, 2018). Once those sources of incomes are accounted for, especially since they weigh more heavily in the budget of households on lower rungs of the income ladder, scholars tend to find that the level of inequality is lower (Armour, Burkhauser, and Larrimore, 2014, 2013) and that the reported increase of recent decades is heavily moderated (Bricker, Henriques, Krimmel, and Sabelhaus, 2016; Mulholland and Shupe, 2018). This finding is reinforced by the fact that when we shift our gaze from income inequality to consumption inequality, we find smaller increases in inequality (Meyer and Sullivan, 2017; Pendakur, 1998; Sarlo, 2009). Focusing on consumption rather than income, mitigates some of the problems mentioned above and therefore provides a more accurate measurement of inequality. Another way to express the magnitude of the problem of relying on tax-reported income is to compare its evolution relative to GDP (**figure 2**). As can be seen, there is a growing discordance between the two series over time which should increase wariness towards estimates of inequality based on tax data.

**Figure 2: Are Tax Data Reliable Indicators? Comparing Total Tax-Reported Income Per Tax Unit With GDP Per Capita (index to 1929 = 1) in the United States since 1929**



Source: Frank, 2014. Updated data provided by Frank on request.

To interpret the divergence between the two series in the figure above, it is important to understand that the reporting of income on tax forms is heavily affected by changes in the tax code and tax rates. If tax rates go up, one is more likely to try to hide some income so as to reduce tax liabilities. If there are more sources of income sheltering, an increase in tax rates will increase their uses by taxpayers. One famous example to illustrate this point is the American tax reforms of the 1980s. Prior to 1986, the personal income tax rate was higher than the corporate income tax rate. As a result, households with higher incomes reported some personal income as corporate income and passed some personal expenditures as business expenditures. In 1986, there was an important tax reform which inverted the ratio of the two rates so that households changed the way they reported income. Specifically, business income has been increasingly reclassified as personal income through the earnings given to owners of sole proprietorship firms, partnerships, and limited liability companies. More and more firms in the United States reorganized themselves to make their business income subjected to the personal income instead of the corporate income tax. In 1980, more than 85 percent of business income was subjected to corporate income tax. Immediately after the 1986 tax reform, this proportion fell to 75 percent. The proportion has since been on a downward trend since and now stands at less than 65 percent (Sharma, 2015: 7). However, since the tax data measures inequality using *personal* income tax data, the shift in reporting was measured as a net increase in inequality while it was only a statistical artifact resulting from biases in the data.

**Figure 3: Adjusting Top Income Shares (Top 1%) For Changes in Tax Codes in the United States, 1960–2015**

Sources: Piketty and Saez, 2003 (online update to 2015 available at <<https://eml.berkeley.edu/~saez/TabFig2017.xls>>); Mechling, Miller, and Konecny, 2017; Auten and Splinter, 2018.

In **figure 3**, we show what happens to estimates when adjustments to the share of total income earned by the top one percent are made. These adjustments are made in two different ways. The first is accomplished by mixing different administrative databases to properly identify the income of individuals. In figure 3, this is the line labelled “Auten and Splinter” (named after the authors of the corrections). The second is to adjust by correcting for the changes in corporate and personal income tax rates. In figure 3, this is the line labelled “Mechling et al.” Compare these two adjustments with the most often used series, that of Thomas Piketty and Emmanuel Saez. First, we can see that the case for a supposed golden age of equality is overstated (Mechling, Miller, and Konecny, 2017; Auten and Splinter, 2018; Auten, Splinter and Nelson, 2016; Magness, 2019a). When corrected, the level of inequality is higher than presented in the most popular data series (that of Piketty and Saez). Second, we can also see that the increase is less pronounced with the adjusted series than with the unadjusted series.

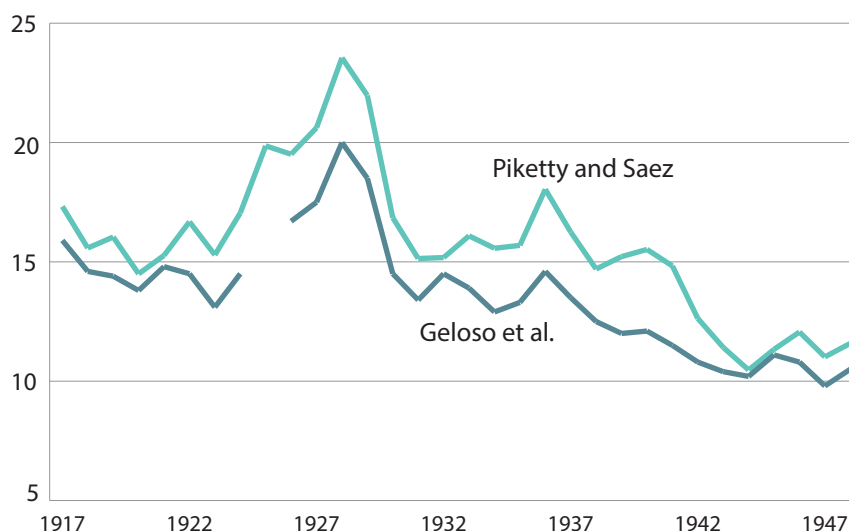
It may be tempting to dismiss this set of corrections by pointing out that this applies only to the United States. However, similar problems exist for other countries such as Canada and the United Kingdom (Sarlo, Clemens, and Emes, 2017; Magness, 2019b). In the case of Canada, the evidence is more damning as it shows that it is not only tax records that suffer from misreported income, but surveys produced by Statistics Canada also suffer from this problem (Dunbar and Fu, 2015). In fact, there is a near systematic finding across countries that the most publicized measures of income inequality are deflated when different databases are mixed together to avoid the problems mentioned above

(Bricker, Henriques, Krimmel, and Sabelhaus, 2016a, 2016b; Dahl, DeLeire, and Schwabish, 2011; Meyer and Mittag, 2019; Meyer, Mok, and Sullivan, 2015; Galbraith, 2019).

Similar problems exist with tax data for the period before 1960. For example, in the case of the United States, the Internal Revenue Service (IRS) used to report “net income” before 1944. This is income after the removal of itemized deductions such as gifts, interest payments, state and local taxes, etc. After 1944, the data is reported as adjusted gross income. These are two significantly different definitions of income, which means that an adjustment is necessary to make the pre-1944 data consistent with the post-1944 data. To adjust them, the net income estimates must be augmented to include the deductions that were netted out. Initially, fixed assumptions were made to make the adjustment: top income shares would be increased by arbitrary factors. The most well-known estimates, namely those of Thomas Piketty and Emmanuel Saez, are those that use such fixed assumptions. However, more recent estimates provided by Geloso et al. (2018) that rely on actual deductions data to make the adjustment show that these assumptions overstate the share of income going to the richest one percent.

Another problem with the existing series for the pre-1960 era is that the income reported on tax returns need to be divided by the income of the whole population. The sum of all taxable income, as we saw above in figure 2, cannot be taken to be a reliable denominator to estimate the share of all income going to the richest. There is a need to adjust the different component of what is known as the system of national accounts (i.e., what allows us to estimate the size of the economy and total income) to make things consistent. In recent work, Geloso et al. (2018) have found that the existing series made definitional and accounting errors that systematically overstate the level of inequality by understating the denominator. Combining these problems with those that affect the adjustment for tax deductions suggests a much lower level of inequality than otherwise stated. In [figure 4](#), we show the cumulative effects of these adjustments for the richest one percent made by Geloso et al. compared with the initial estimates of Piketty and Saez. As one can see, the revised estimates of the income share of the richest one percent are lower and have a less pronounced downward trend.

Finally, the IRS data before 1943 is itself in doubt. It is not only the methodological assumptions needed to use them that are flawed—the data is also flawed. Many states had their own separate income tax regimes and some of them, like Wisconsin and Delaware, offered many important advantages over the data of the federal IRS data. They present the data with both the net income and adjusted gross income definitions. They also had lower personal exemptions and more stable rates which means that more tax reports were filled. There is also evidence that these states enforced their systems more diligently. This point about enforcement is particularly important because

**Figure 4: Effects of Methodological Errors in Estimates of Income Inequality in the United States, 1917–1948**

Source: Geloso et al, 2018.

incomes were self-reported prior to 1943 (when pay withholding was introduced). The wild fluctuations in federal tax rates wildly between 1913 and 1943 meant that incentives to underreport income grew stronger when tax rates rose and became weaker when tax rates were lowered (Smiley, 2000). This means that the movements and levels of inequality will be inaccurate. As the states had better enforcement as well as lower and more stable rates, their data will be more accurate. When estimates of income inequality are generated using the data of the state income tax systems, they are noticeably less pronounced than those derived from the IRS data for the same states (Geloso and Magness, 2019). As such, it seems that the level of inequality before the 1940s is overstated in the same way that the increase since the 1970s is overstated.

### Can the Link Really be Sustained Seriously?

The sum of methodological and data problems with existing estimates of inequality suggests a much more muted evolution of inequality. Rather than a pronounced U-curve, we find more ground to support an image of a shallow tea saucer of inequality. This empirical reconsideration is an important dent in attempts to tie the evolution of inequality to the slowdown in economic growth. When combined with historical facts, the link appears impossible to maintain seriously.

The levelling that takes place until 1945 occurs largely during the Great Depression and World War II. Neither of these periods are periods of increases in real living standards (Higgs, 1992). As can be seen in [table 1](#), the two periods

**Table 1: Decomposing the Periods During the Fall in the Income Share of the Top 1%, 1917–1948**

	Geloso et al.	Piketty and Saez
Average Annual Change, 1917-1948	-1.01%	-0.83%
During Roaring 1920s	2.82%	3.60%
During Great Depression	-3.84%	-3.06%
During World War II	-1.58%	-3.34%

Source: See figure 4.

of falling living standards are also periods of falling inequality. With the corrected measures of inequality (those of Geloso et al.), the Great Depression explains the vast majority of the reduction in inequality. This makes it harder to sustain the idea that rising inequality and falling growth are tied. This is to be complemented with the evidence that shifting from estimates of nominal income inequality to estimates of real income inequality (described in section 1) leads to probably falling levels of income inequality for the period from 1870 to 1914.

To summarize how the empirical evidence suggests a weak case for tying inequality and growth, **table 2** proposes four episodes of American economic history. These episodes are more or less those used by Robert Gordon in his work on the fall of American economic growth. The USA is selected as this is the country for which the most evidence is available. In the period from 1870 to 1914, the signs suggest that the income share of the richest 10 percent—when using estimates of *real* inequality—was falling (or at the very least remained stable). During that period, the data on GDP per capita provided by the Maddison Project Database proposes an average annual growth of 1.7 percent. During the period after the First World War and up to the first years

**Table 2: Stylized Facts of Changes in Income Inequality and Economic Growth in the United States, 1870–2015**

	Evolution of the income share of richest 10%	Economic growth
1870-1914	Falling or Stable	1.7%
1918-1948 (excluding war years)	Falling	1.5%
1948-1975	Stable	2.3%
1975-2015	Rising	1.7%

Sources: Source for inequality: see text. Source for economic growth: Bolt, Inklaar, de Jong and Luiten van Zanden, 2018.



after the Second World War, inequality continued to fall.<sup>2</sup> However, economic growth also fell during the period: down to 1.5 percent per year. During the period from 1948 to 1975, inequality was stable but growth was faster (2.3 percent). Only in the period after 1975 does economic growth slow down (back to levels observed between 1870 and 1914) while inequality rises. This presentation of the data makes it hard to see a pattern tying inequality to economic growth.

The case is even weaker when one considers the multiple contributing factors of rising inequality. Some of these factors can be benign and will say very little about economic growth. Consider the case of population aging. When the population of a country ages, older individuals, who tend to have greater earnings and wealth, represent a growing share of the population. As a result, it creates an upward pressure on inequality. However, this is known as a composition bias as it results entirely from changes in the demographic composition of a particular country. In other words, all individuals could have the *same* increase in income (which would mean no change in inequality) but because the total population share of the richest is growing, we will be left with the impression that some incomes are growing faster than others (Paglin, 1975). Adjusting for changes in the age structure of the population reduces the increase in inequality since the 1970s (Schirle, 2012) so that there is very little actual increase in inequality in the period after 1971 (Almås, Havnes, and Mogstad, 2011; Almås and Mogstad, 2012).

For economic growth, population aging constitutes no particularly damning problem. As fewer and fewer workers are available for work, the cost of labor and the price of capital goods relative to labor will fall. Producers will substitute labor for capital. Consequently, while population aging will cause demographic structures to change in ways that increase inequality, the change will not affect economic growth. Moreover, the estimates that try to net out the effect of population aging on inequality do not account for recent empirical work that moderates the evolution of income inequality. If they did account for such work, population aging would explain a larger share of a smaller increase and thus render the argument tying economic growth to income inequality less tenable.

Consider another factor known to contribute to rising inequality: immigration. When immigrants settle in a new country, they tend to have lower incomes than the native population (even if their incomes increase following the decision to immigrate). As such, they increase the skewness of the income distribution by swelling the poorest section. If the proportion of immigrants within the total population increases, then it will by definition increase

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2. No estimate of real inequality exists for the period. However, there are no signs of changes in inequality of the cost of living unlike the period 1870 to 1914 (or at the very least, there are no signs of changes of a magnitude as large as the period from 1870 to 1914).

inequality. Some economists such as David Card found for the United States that 5 percent of the increase in inequality can be explained by rising rates of immigration (Card, 2009). There is similar evidence for Canada (Moore and Pacey, 2003). Other economists, such as Peter Lindert and Jeffrey Williamson (2016: 209), suggest that an important portion of the reduction in inequality between the 1940s and 1970s can be explained by *falling* rates of immigration during the period. This effect is purely mathematical and is quite similar to the effect of aging (i.e., changing demographic structures that create composition biases). However, the literature on the effects of immigration on the rate of economic growth in the host country tends to find either no significant effect or a modest positive effect. As such, we have another source of rising inequality that is unrelated to economic growth (or, if the effect is positive, related in a different direction than that proposed by those who attempt to draw a link between growth and inequality).

To be sure, certain sources of rising inequality are related to reductions in economic growth. Consider for example the role of land use restrictions and zoning laws that reduce the supply of housing units. These policies tend to increase the price of housing, which disproportionately impacts the budgets of the poorest—which means that richer households who own real estate obtain gains in their wealth. These policies increase inequality and reduce economic growth as a by-product. Specifically, land use restrictions and zoning laws, by making cities more expensive, lock out poorer people from living in cities. Since urban locations tend to be characterized by higher levels of productivity, poorer workers are thus denied the opportunity of achieving higher wages by moving to productive urban locations. As a result, the main effect of land use policies is to reduce the pace of economic growth and create a spurious correlation to increased income inequality.

Some studies find that, because land use laws limit the effective mobility of poorer workers, their growth-reducing effects are heavily concentrated amongst the poorest. This phenomenon explains roughly 10 percent of the increase in income inequality in the last few decades. As such, there is an indirect link to be made between inequality and economic growth but the link is the consequence of poor economic policies rather than a structural economic relationship.

## Conclusion

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Many of those who are skeptical of the extent of the slowdown in economic growth tend to point to issues with the empirical accuracy of the portrait drawn by those who claim there is such a slowdown. The same skepticism should extend to the empirical accuracy with regards to the evolution of income inequality. For many, the fact that the golden age of economic growth—the

postwar years—occurred during a great levelling (i.e., falling income inequality) is tantamount to proving that rising inequality will slow down economic growth. As such, the slowdown they perceive today can easily be tied to inequality. The problem as we pointed out is that the empirical portrait is fuzzy. When adjustments are made to account for either well-known economic problems or to improve upon empirical methodology, we find a more muted evolution of inequality. This more modest evolution makes the case for tying growth to inequality harder. When theoretical elements are brought into consideration with regards to the contributors of rising inequality in recent decades, the case is even harder to sustain.

It is a laudable objective to seek to improve the living conditions of those at the bottom of the income ladder. However, to justify such an objective and to formulate policy proposals based on the link between growth and inequality is not necessary. In fact, it appears inaccurate.

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### 3. Is Low Growth a “New Normal”?

Art Carden

The slow recovery from the Great Recession has resurrected the specter of “secular stagnation,” originally proposed by Alvin Hansen in 1939 and brought back to prominence by Lawrence Summers in response to a lackluster recovery from the Great Recession.<sup>1</sup> Economic growth has slowed since 1970 and especially since the Great Recession of 2007–2009, and this has some analysts wondering whether or not this portends a “new normal” of slow growth in the United States and Europe (Gordon, 2018: 2).<sup>2</sup> Others demur and argue that secular stagnation is unlikely.<sup>3</sup> What is secular stagnation? Is it on the horizon? If so, what can be done about it?

While some economists have explored the implications of secular stagnation for macroeconomic policy, others have developed a parallel stream of research estimating economic losses from resource misallocation.<sup>4</sup> These losses are apparently quite substantial, which means that there are presumably large bills on the sidewalk to be picked up by those who successfully reallocate the misallocated resources to their highest-valued uses. Some workers, for example, who could be very profitably employed in Silicon Valley, New York, or Boston live elsewhere due to housing supply restrictions in the places where they would be more productive matches.

If there are big bills on the sidewalk, however, why aren’t they being picked up? At least part of the answer comes from restrictions on economic freedom—barriers to exchange that prevent what Adam Smith called the “obvious and simple system of natural liberty” from operating effectively.<sup>5</sup> Restrictions on economic freedom keep factors of production from getting into the hands that will use them most efficiently. The restrictions on economic freedom that prevent efficient

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1. See Hansen (1939) and Summers (2014a, 2014b, 2015).

2. See also the essays in Baldwin and Teulings (2014).

3. Cf. Mokyr (2014, 2018) and Gomme et al. (2015).

4. See Restuccia (2013), Jones (2013), and Restuccia and Rogerson (2017) for summaries.

5. Smith uses this phrase in Book 4, Chapter 9 of *The Wealth of Nations*: <[https://www.econlib.org/library/Smith/smWN.html?chapter\\_num=34#book-reader](https://www.econlib.org/library/Smith/smWN.html?chapter_num=34#book-reader)>.

resource allocation and slow economic growth include labor market restrictions like occupational licensing and laws making it difficult for firms to dismiss workers, as well as interventions into the loanable funds market that direct capital away from the economically efficient and toward the politically favored. The United States housing market is an important example, with tax policy and an array of other financing interventions distorting patterns of housing supply and demand.

Of all these restrictions, barriers to movement of workers out of poor countries and into rich countries is likely the source of the largest distortion. By preventing people from crossing borders, Michael Clemens (2011) argues that the world is leaving “trillion-dollar bills on the sidewalk.” The thousands of dollars people pay to be smuggled into the United States and western Europe and the wage differential between high- and low-income countries suggest that there is a lot to be gained from greater global labor market integration. Even if effects on the native-born are modest, increased immigration would still be a growth-booster.

This chapter offers a brief survey and synthesis of these three bodies of research. Long-run growth stagnation is a possibility, but the empirical literature on misallocation, economic freedom, and immigration suggests that there is a lot of room to liberalize markets and increase economic growth over the long run.<sup>6</sup> First, we have to understand what is meant by secular stagnation and what some scholars propose as remedies.

## Social and Political Consequences of Stagnation and Slowdown

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A slow growth “new normal” would likely have social and political consequences going beyond the merely material. Economic, political, and social systems only persist insofar as they are ideologically legitimate, and while the revaluation of bourgeois commerce identified by Deirdre McCloskey (2006, 2010, 2016) has been halting and incomplete, it has at least been sufficient for unprecedented economic progress and unprecedented liberty and dignity. Bourgeois people, like all people, are a mixed bag. The bourgeois virtues of buying low, selling high, and innovating, however, are the very wellspring of modern prosperity.

It’s a wellspring that can be clogged completely if we are not careful. The economic and political liberalism that flourished in the nineteenth century faced stiff opposition from left and right in the twentieth, culminating in what McCloskey calls the “European Civil War” that began with the guns of August, 1914 and ended when the Berlin Wall fell in 1989. What Andrei Shleifer calls “the Age of Milton Friedman” has been an age of widespread economic progress in traditionally low-income economies (Shleifer, 2009).

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6. See Di Matteo (2019) in this volume for a survey of the theory and evidence on long-run economic growth.

The Great Recession brought with it an outpouring of public commentary about how capitalism had failed. Tepid growth in the wake of the Great Recession has reinforced this notion and led to populist backlashes against economic liberalism from both the left and the right. Left-wing populism has made a resurgence in the United States with increased interest in and self-identification with “socialism,” most clearly in the 2016 and 2020 Presidential campaigns of Bernie Sanders and the rise to prominence of self-described “democratic socialist” Alexandra Ocasio-Cortez. While no one in the US political mainstream is advocating outright central planning, the relatively lackluster recovery from the Great Recession combined with rising inequality and rising costs of housing, health care, and college have left a great many millennials more open to “socialism”—at least rhetorically.

Elements of the American right are also repudiating the liberal project as is evident in the rise of free-market-rejecting “national conservatism.” It is not limited to the United States as the rise of right-wing populist Jair Bolsonaro in Brazil shares much in common with the rise of right-wing populist Donald Trump in the United States. Their ascension may simply be the foreshocks of a global populist earthquake.

Trump and his acolytes on the American right have trained their sights on foreigners, as people are wont to do when things go badly for them. Specifically, American crackdowns on illegal immigrants have proceeded apace, and the relatively slow recovery from the Great Recession coupled with high unemployment in Europe has fueled an anti-immigrant, anti-refugee backlash.

Barry Eichengreen has explored the causes and consequences of populist movements in the twentieth century, and he has argued that higher economic growth is an important part of heading off a further descent into populism in the 21<sup>st</sup> century. As he writes,

The characteristic economic policies of populist leaders are damaging and destructive, and the impact of populists on political institutions is corrosive. The attitudes they animate bring out the worst in their followers. Populism arrays the people against the intelligentsia, natives against foreigners, and dominant ethnic, religious, and racial groups against minorities. It is divisive by nature. It can be dangerously conducive to bellicose nationalism. (Eichengreen, 2018: x)

Economic insecurity is among the drivers of populist sentiment. When things go badly, it is easy to look for someone to blame—and it is typically easy to blame foreigners for low wage growth, rising rents in large cities, rising budget deficits, and fiscal unsustainability. Bryan Caplan documents what he calls “anti-foreign bias” in the American electorate, and populist movements tend toward nativism (from the right) and anti-elitism (from the left) (Caplan, 2007; Eichengreen, 2018: 10).

In the United States, the unemployment rate has fallen precipitously, but this has been driven by a similarly precipitous drop in labor force participation, which seems to have leveled out at around 63 percent following a drop from 65–66 percent during the Great Recession.<sup>7</sup> The labor force activity rate for males between the ages of 25 and 54 has been falling since 1960, and the good news is that it appears to have rebounded somewhat since its April 2014 nadir of 87.9 percent.<sup>8</sup> Nonetheless, the drop in labor market activity for prime working-age males has been one of the stories of the Great Recession and its aftermath. Furthermore, the “deaths of despair” related to suicide and the opioid epidemic in the United States have become common enough that they are affecting American life expectancies (Gordon, 2018, discussing Case and Deaton, 2017). These deaths are purportedly fueled by a perceived lack of economic opportunity, particularly at the bottom of the skill distribution. These, according to Robert Gordon, are some of the consequences of the productivity growth slowdown that some are calling secular stagnation.

## Secular Stagnation

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Secular stagnation has a relatively straightforward workable definition as the idea “that negative real interest rates are needed to equate saving and investment with full employment” with “the key worry” being “that secular stagnation makes it much harder to achieve full employment with low inflation and a zero lower bound (ZLB) on policy interest rates” (Baldwin and Teulings, 2014: 2).<sup>9</sup> Population aging is usually correlated with higher economic growth, but the relationship breaks down when the Zero Lower Bound prevents the emergence of the full-employment (negative) interest rate—as it did during the 2008–2015 “secular stagnation regime” (Eggertsson, Lancastre, and Summers, forthcoming).

Economists studying secular stagnation think the Zero Lower Bound, low inflation, and the gap between actual and potential output indicate that it is largely a demand-side phenomenon. The Zero Lower Bound therefore constrains monetary policy: to address the demand side, secular stagnationists suggest a credible increase in central banks’ inflation targets combined with more debt and greater spending on Social Security.<sup>10</sup> One drawback, of course, is that a higher inflation target would be a potentially destabilizing departure

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7. <<https://fred.stlouisfed.org/series/CIVPART>> accessed August 23, 2019.

8. <<https://fred.stlouisfed.org/series/LRAC25MAUSM156S>> accessed August 23, 2019.

9. See also the other essays in their edited volume as well as Gibbs (2018) and Jackson (2019).

10. See, e.g., Eggertsson, Mehrotra, and Robbins (2019: 43–44) and Eggertsson and Mehrotra (2014). See also Michau (2018: 552), who recommends a higher inflation ceiling in addition to a wealth tax and capital subsidies.

from hard-won credible commitments to low inflation made by the US Federal Reserve and the European Central Bank.

On the supply side, Robert Gordon emphasizes “headwinds” that explain why the “productivity miracle” of the 1920s through the 1950s is unlikely to be repeated. First, an aging population means more retirees and fewer workers. Second, a rising ratio of debt to GDP in the US restricts policymakers’ flexibility with respect to fiscal policy. Third, Gordon argues that the US education system needs an overhaul—and the gains from mass secondary education, like the gains from electricity, indoor plumbing, and the internal combustion engine, are unlikely to be repeated. Finally, Gordon worries about inequality and the growing concentrations of income and wealth.

Importantly, Gordon stresses that his story does not rely on an anticipated *slowdown* in technological progress. Rather, he argues that technology will progress at its current rate, but overall productivity growth will fall in the face of the headwinds. By contrast, his colleague at Northwestern University, Joel Mokyr (2014, 2018), believes that Gordon and others are underestimating the potential of nanotechnology, genetic engineering, and artificial intelligence to overcome the headwinds and lead to a productivity growth acceleration as they diffuse throughout more and more parts of the global economy.

Moreover, the evidence for the secular stagnation thesis might not be as overwhelming as it might at first appear. The return on productive capital is far higher than the return on government debt (Gomme et al., 2015: 3). Be that as it may, Deirdre McCloskey argues that an ongoing ethical change whereby more and more people are embracing economic liberty and social dignity for entrepreneurs and innovators has the potential to continue what she calls “the Great Enrichment” of the world indefinitely (McCloskey, 2006, 2010, 2016; Carden & McCloskey, 2018).

## Misallocation

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That is, we will continue the Great Enrichment if, McCloskey suggests, we keep our ethical wits about us and do not dispense with liberal politics or liberal economics (McCloskey, 2006, 2010, 2016; Carden & McCloskey, 2018). One of the well-known virtues of the market process is that it encourages profit-seeking entrepreneurs to seek the highest-valued use of productive resources, but a growing body of empirical research suggests that differences in total factor productivity and economic growth across countries is due to systematic resource misallocation.<sup>11</sup>

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11. This summary is suggestive but not exhaustive. Again, see Restuccia (2013), Jones (2013), and Restuccia and Rogerson (2017) for summaries of the literature. 16(1) of the Review of Economic Dynamics is a special issue on Misallocation and Productivity.



In an early study, the economists Chang-Tai Hsieh and Peter Klenow (2009: 1403) estimated that efficient allocation on par with what is observed in the United States would raise Chinese manufacturing TFP by 30–50 percent and Indian manufacturing TFP by 40–60 percent.<sup>12</sup> Studies of South Korea, Portugal, Ukraine, and Italy are consistent with the “misallocation” thesis, with data from Portugal suggesting that misallocation is largest in the service sector.<sup>13</sup> Eliminating misallocation could raise productivity by 62 percent in low- and middle-income countries; while this would not completely close the gap between these countries and the United States, it is still a large productivity increase (Inklaar et al., 2017: 733).

The debate over firm-level misallocation remains a cutting-edge sub-area within economics. John Haltiwanger, Robert Kulick, and Chad Syverson argue the misallocation literature relies on strong assumptions and is sensitive to model specification (Haltiwanger et al., 2018). Even if the losses from misallocation at the firm level are not as large as some estimates indicate, there are still problems of spatial misallocation within countries. Chang-Tai Hsieh and Enrico Moretti (2019) point to misallocations due to housing supply restrictions in high-productivity, high-wage regions like New York, Boston, and the San Francisco Bay area that effectively keeps labor out and prevents greater labor market integration. Some of the misallocation in India is due to the absence of formal markets for insurance and, therefore, reliance on informal insurance mechanisms. Kaivan Munshi and Mark Rosenzweig (2016: 46), for example, argue that “small improvements in formal insurance decrease the spatial misallocation of labor by substantially increasing migration.” It is reasonable to suspect that similar forces are at play elsewhere. At the national and sub-national level, these misallocations can likely be addressed by eliminating (or at least substantially reducing) urban land use restrictions and by eliminating (or at least substantially reducing) subsidies to rural areas.

The biggest and most persistent misallocation globally, however, is the mismatch between where labor is located and where it would be most profitably employed that is reinforced by immigration policies in high-income countries.<sup>14</sup> The economist Michael Clemens (2011) reports that eliminating migration restrictions could raise global output by 50–150 percent. Marco Delogu, Frederic Docquier, and Joel Macado (2018) also point to potentially large gains from labor market liberalization, particularly over the long run. There might be some reductions in earnings at the very bottom of high-income country distributions, but the increase in global output should, in principle, be more than enough to arrange the taxes and transfers needed to make the change more politically palatable.

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12. Kehoe and Prescott (2007) collect essays emphasizing the importance of government policies that discourage labor, capital accumulation, and international trade.

13. On South Korea, see Kim, Oh, and Shin (2017). On Portugal, see Dias et al. (2019). Calligaris (2015) and Calligaris et al. (2018) study Italy, and Rhyzenkov (2016) studies Ukraine.

14. The Winter 2012 and Fall 2017 issues of the *Cato Journal* are devoted to the economics of immigration.

## Economic Freedom and Prospects for Long-Run Growth

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Immigration restrictions are not the only incursions on economic freedom that, if eliminated, would likely increase economic growth and address the possibility of secular stagnation. For all the debate between economists, this is actually one area where there is a lot more agreement than might at first be apparent. Economists prescribe varying degrees of government intervention to address canonical market failures like externalities and monopoly, but fundamentally, the failure and collapse of the USSR settled once and for all the question of whether decisions about production should be decided in decentralized markets or in the offices of central planners. Even the “democratic socialists” resurgent in the United States are enthusiasts for high taxes and large welfare states rather than dispensing with markets entirely.

The comparative empirical work is difficult, but economists and other social scientists have made great strides in constructing indexes that allow us to compare countries’ market orientation and learn that, for example, allegedly socialist Sweden actually has a lot of economic freedom compared to other countries. Along with the other Scandinavian welfare states, it is fundamentally a free-market economy. Globally, economic freedom has increased somewhat, and with the increases in economic freedom have come improvements in economic growth.<sup>15</sup>

Merely easing up on the aforementioned restrictions in the US housing market would carry us some way toward addressing secular stagnation. Hsieh and Moretti (2019: 1) argue that these restrictions “lowered aggregate US growth by 36 percent from 1964 to 2009.” It is hard to believe that scholars would be discussing secular stagnation had this growth actually happened instead of being sacrificed to land-use and housing restrictions. Vincent Geloso and Youcef Msaïd (2018) argue that this has been especially deleterious for people at the bottom of the income distribution, and that lifting supply constraints in the US housing market would mitigate at least some rising inequality.

A substantial and growing body of empirical research supports the notion that there are growth gains to be had from reducing the role of government at all levels.<sup>16</sup> Scholars using stochastic frontier techniques have argued that economic freedom increases the efficiency with which a society allocates its resources (Adkins, Moomaw, and Savvides, 2002; Klein and Luu, 2003). John Dawson and John Seater (2013) attribute the post-1970 slowdowns in productivity growth and capital accumulation to increasing federal regulation and changes in marginal tax rates. In a study of US cities, Daniel J. Bennett (2019)

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15. See <[www.freetheworld.com](http://www.freetheworld.com)>, a project of the Fraser Institute, for information and data on economic freedom.

16. Hall and Lawson (2014) and Hall et al. (2014) survey the literature. See Cox (2017) for an explanation of the importance of “economic liberty” to European economic development.

argues that more economic freedom means more new firms and new jobs but no offsetting “destruction” of firms and jobs.

Licensing requirements are barriers to the efficient allocation of labor. While they are often justified in the name of public safety, Morris M. Kleiner, Allison Marier, Kyoung Won Park, and Coady Wing (2016) study relaxations of rules that had previously prohibited nurse practitioners from doing some of the things doctors do. They found that removing the restrictions increase nurse practitioner wages and reduced doctors’ wages, but most importantly reduced costs to consumers without offsetting reductions in quality. Specific policies that make it harder to fire workers, policies that target larger firms like the coverage rules and requirements in American health care that kick in once a firm gets large enough, restrictions on property rights, and trade barriers lead to misallocation in the labor and capital markets (Restuccia and Rogerson, 2017: 162ff).

Labor regulation also affects the pattern of technological change. Greater labor market regulation generally means more technological advancement in low-skill as opposed to high-skill occupations (Alesina et al., 2018). Banking deregulation, meanwhile, gets resources into the hands of those who are best able to use them productively and raises total factor productivity and factor accumulation (Jermankowski, 2017: 97). Economic freedom more generally increases human capital accumulation (Feldman, 2017). International data suggest “a significant and persistent degree of misallocation” but also “a remarkable movement toward efficiency during the last 35 years, associated with the elimination of interventionist policies and driven by domestic accumulation” (Monge-Naranjo et al., 2019).

Studying US states, Ryan Compton, Daniel Giedeman, and Gary Hoover (2011) argue that economic freedom raises growth. Similar work by Rok Spruk and Aleksandar Keseljevic (2019) uses data on German districts to examine growth-increasing effects of economic freedom. Travis Wiseman argues that more economic freedom leads to more economic growth, particularly for the bottom 90 percent of the income distribution, and Minoo Farhadi, Md. Rabiul Islam, and Solmaz Moslehi (2015) find that resource-rich countries have better economic growth with more economic freedom. Getting more economic freedom is perhaps a more difficult matter, as Islam (2018) argues that inequality likely reduces economic freedom, while democratization is likely to lead to more pro-market reforms. Christian Bjornskov (2017) argues that “growth effects of inequality turn more positive with more economic freedom.” He also reports results that are encouraging for studies of macroeconomic volatility and business cycle recovery: apparently, more economic freedom means shorter recovery times from recessions (Bjornskov, 2016).

On the aggregate demand side, credible commitment to increased economic freedom would likely increase consumers’ and investors’ confidence. Robert Higgs (1997, 2006) puts “regime uncertainty” among the reasons

the Great Depression lasted as long as it did.<sup>17</sup> By “regime uncertainty,” he means that business leaders and investors were *uncertain* as to what Franklin D. Roosevelt’s policies would mean for their property rights and, therefore, their ability to realize returns on their investments. Hence, investment plummeted and helped turn what could have been a run-of-the-mill contraction into a breathtaking economic cataclysm. As Steven Horwitz (2009: 109) argues, regime uncertainty contributed to the “greatness” of the Great Recession: regime uncertainty impedes the microeconomic adjustments needed to restore macroeconomic order.

## Conclusion

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In 1988, Robert Lucas (1988: 5) wrote that once one starts to think about the causes and consequences of economic growth, “it is hard to think about else.” Over time, very small differences in economic growth rates mean very large differences in economic outcomes, and Eichengreen (2018: x) suggests that “policymakers . . . do what they can to reinvigorate economic growth” in order to ease rising populist pressure.

Policymakers, scholars, and analysts should remain mindful of the possibility of a low-growth future, even secular stagnation; however, it is unclear that unconventional macroeconomic management is an appropriate solution. Indeed, it is unclear whether or not the macroeconomy needs to be “managed” at all in light of the relationship between institutional impediments to efficient resource allocation in markets for labor, capital, and other factors of production.

Research on resource misallocation, immigration, and economic freedom suggests that eliminating institutional impediments to efficient resource allocation, and eliminating infringements on economic freedom that reduce incentives to innovate and invest in factors of production, should play a central role in efforts to overcome slow growth. Further research into the sources of secular stagnation would do well to explore the relationship between investment demand, economic freedom, and regime uncertainty. Credible commitments to secure property rights and the other elements of economic freedom would increase expected returns on long-term investments and therefore increase investment demand—though the magnitude of the effect is unclear.

Are we condemned to a “new normal” of slow economic growth? Maybe not. While there are “headwinds” pushing against increases in US productivity growth and while there are structural, institutional barriers preventing labor and capital from being allocated to their highest-valued uses, they can be overcome.

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17. See Buono and Formai (2018) for discussion of financial uncertainty.

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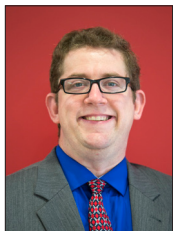
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