Comparing Personal Financial Well-Being in the U.S.: Bretton Woods Gold Standard vs. Fiat Currency System

Carol Wang
Wright State University,
carol.wang@wright.edu

Wei Rowe
Nebraska Bankers Association
Endowed Professor University of Nebraska at Omaha,
wrowe@unomaha.edu

Tom Vogel
Indiana Wesleyan University
tomvogel@sbcglobal.net

Abstract

This study compares Americans' financial well-being between the Bretton Woods Gold Standard (BWGS) and Fiat currency periods using Bureau of Economic Analysis data. We observe the following characteristics associated with the Fiat period in comparison to the BWGS period:

1. While employment rates were higher, wages, personal income, and disposable income growth slowed, especially when adjusted for currency supply and working hours.
2. Real consumption expenditure increased relative to disposable income but became more volatile and sharply declined relative to currency supply, indicating that inflated prices eroded purchasing power and forced consumers to spend more on essentials, challenging the Wealth Effect Theory.
3. Personal savings relative to disposable income declined significantly, likely due to easy credits and higher consumption costs, leaving less income for savings.
4. Equity holders saw positive nominal, but lower inflation-adjusted returns, with increased market volatility, making the overall investment climate more risk-laden.
5. The increased money supply did not proportionately enhance economic growth and personal financial health, revealing inefficiencies in human capital productivity. Conversely, the BWGS period saw stronger and more stable growth in income and investment returns, contributing to better financial planning and robust economic performance.

This study incorporates Agency Theory to illustrate how the constraints imposed on regulatory agents under the gold standard better align their interests with those of the general public and reduce agency costs, making gold standard a more transparent and effective system than the fiat currency system. The findings provide empirical evidence and highlight the need for further policy adjustments.

Introduction

Recently, BRICS countries (Brazil, Russia, India, China, and South Africa) have advanced their de-dollarization efforts by introducing a gold-backed currency for global trade. The idea of returning to a gold standard is gaining increasing attention as a potential challenge to the established fiat dollar system in global investment and trading. Given the longstanding role of the U.S. dollar as the dominant global reserve currency in facilitating international trade and finance, concerns have emerged about the potential impact on the dollar's status. Some argue that moving away from fiat currency could lead to economic hardships for the U.S. economy, significantly lowering the standard of living, and creating prolonged difficulties for American families.

In this study, we investigate the economic impacts of two different monetary systems on the financial well-being of American households across two significant monetary periods: the Bretton Woods Gold Standard (BWGS) period (1948– 1972) [1] versus the post-BWGS fiat currency period (1973 – 2023). Our primary objective is to explore and gain more insights into how these two monetary systems have influenced income distribution, consumer spending habits, savings behaviors, and investment returns, therefore affecting the long-term financial strength of Americans.

The primary difference between the gold standard and a fiat currency system lies in their underlying basis of value determinants for currencies. Under the gold standard, the value of a currency is directly linked to a specific amount of gold reserve. This means that governments hold gold reserves and currency can be exchanged for gold at a fixed rate. In a fiat currency system, the value of currency is not backed by a tangible or physical commodity. This provides governments more flexibility in monetary policy, including the ability to control money

[1] The Bretton Woods System was formally established in 1944 and remained in effect until 1971. We selected the sample period from 1948 to 1972 for the Bretton Woods Gold Standard period. This choice is based on the availability of BEA data on total working hours for full-time and part-time employees, starting from 1948. Since labor input in working hours is a key variable in this study, as the time factor being a crucial component of human capital, is central to the research. Additionally, the Bretton Woods System was extended through the Smithsonian Agreement, which aimed to adjust gold and U.S. dollar exchange rates and lasted until 1972.

supply and to some degree, interest rates. The currency has value because the government maintains it as legal tender and people have confidence in its value.

We understand that some scholars consider the Bretton Woods system a pseudo gold standard, because although this system pegged the U.S. dollar to gold, it lacked a free mark-to-market trading mechanism for gold pricing. Instead, the global monetary system relied on the U.S. dollar as the primary reserve asset rather than gold itself. This reliance on the U.S. dollar, rather than direct gold convertibility, is why the Bretton Woods system is not viewed as a true gold standard (Eichengreen, 1992; Bergsten and others, 1996; and Salerno, 1999). Nevertheless, this study focuses on comparing the economic impacts of the fiat currency system with the Bretton Woods Gold Standard, which, while not a perfect gold standard, imposed certain constraints on the central monetary authority regarding the money supply. This is contrasted with the lack of such constraints in a fiat system. The analysis is based on a unique historical period during which more recent and comprehensive economic statistics are available.

Our comparative analysis reveals that despite higher employment rates and increased growth in nominal consumption expenditures during the Fiat period, the rapid expansion of currency in circulation led to higher inflation and economic instability, as indicated by significantly larger standard deviations across the board. Consequently, real GDP and income growth often lagged behind inflation, resulting in greater financial uncertainty and reduced purchasing power, as reflected in a larger proportion of personal consumption expenditures relative to disposable income. The increased money supply during the Fiat period did not translate into proportional gains in individual financial benefits or productivity, leading to a slowdown in the personal saving rate, heightened market volatility, and lower investment returns, as measured by S&P 500 performance.

Conversely, under the Bretton Woods Gold Standard, American households enjoyed greater financial stability, characterized by higher growth in real disposable income, increased purchasing power, improved saving rates, and enhanced investment returns. This advantage becomes even more pronounced after adjusting for labor input based on total working hours.

Americans benefited from stable prices and lower inflation, which supported more consistent economic growth and wealth accumulation. This evidence challenges the Wealth Effect Theory under a fiat currency system, which states that perceived increases in wealth lead to higher spending and boosted economic activities.

Our findings support the Austrian and classic economic perspective that central governments and monetary regulators have more disciplinary control over monetary policy with the gold monetary standard. Additionally, our conclusion aligns with the Agency Theory, which posits that conflicts of interest may cause central regulators (agents) to pursue actions that diverge from the public's (principal's) best interests given their flexibility of monetary control. This misalignment can result in decisions that favor the regulators, potentially leading to adverse outcomes, such as declining individual wealth and increasing economic volatility due to resource misallocation.

It is also worth noting that the three largest gold reserve holders among BRICS nations, Russia, China, and India, together account for over 40 percent of global gold production. Commodity-market behavior suggests that coordinated producers can exert outsized influence on global markets even without a majority share, raising concerns that China and Russia could affect global liquidity conditions and potentially interfere with the U.S. money supply.

We acknowledge that concentration in global gold production can enhance the geopolitical influence of major producers; however, historical experience demonstrates that the bullion abundance does not automatically confer monetary authority. For instance, the Qing dynasty of China held the world's largest stock of silver by the early 19th century due to massive trade inflows. Despite this wealth, Qing China was unable to translate its silver holdings into sustained monetary leadership or long-term economic resilience, and the empire ultimately collapsed in the early 20th century. This example illustrates that centralized bureaucratic inefficiency, weak incentives for technological innovation, and the absence of formal legal and financial institutions prevented the accumulation of precious metals of Qing China from securing enduring monetary autonomy.

From an Agency Theory perspective, a gold standard primarily reshapes the discretion of domestic monetary agents rather than delegating power to foreign gold producers. More broadly, a currency's strength depends on a country's financial credibility and economic fundamentals. Large reserves may reflect a country's wealth balance, capturing a snapshot of accumulated assets rather than indicating sustained economic strength. Without robust economic fundamentals, productive capacity, and institutional credibility, even massive holdings cannot secure lasting monetary power.

Trust in gold is rooted in its tangible and universally recognized value, which provides a stable benchmark for economic exchange. In contrast, fiat currencies derive their value from the central authority, making them susceptible to serious agency costs, mismanagement, or inflationary pressures. Such vulnerabilities can gradually erode both domestic and international confidence in the currency, undermining its credibility and long-term stability.

As the markets seek stability, confidence, and a reliable store of value, they may increasingly gravitate toward gold. Over time, adopting a gold standard may not result from a deliberate policy decision but rather emerge as the natural consequence of the collective behavior of the market participants in a highly interconnected global system. Reevaluating economic efficiency across different monetary systems and identifying effective monetary policies are crucial for fostering international trade amid shifting geopolitical relationships. This study provides empirical evidence on the gold standard's unique strengths, highlighting its impact on financial freedom, quality of life, and productivity, with implications for the future well-being of Americans.

The remainder of this article is organized as follows: Section 2 provides a literature review. Section 3 presents the comparative summary statistics on various economic and personal finance indicators between the BWGS and the Fiat periods. Section 4 explores the counterarguments to the Wealth Effect Theory within the Fiat period. Finally, Section 5 concludes with key findings and discussion for future related research.

Literature Review

The evolution of monetary systems has been a driving force in the development of civilizations, profoundly shaping global economies and influencing the financial well-being of individuals throughout history. The gold standard, in which a currency's value was directly tied to gold, was widely used until the end of the Bretton Woods Gold Standard (BWGS) in the early 1970s. In contrast, the fiat currency system, in which money derives its value from government decree, is the prevailing global standard today.

The debate between the gold standard and the fiat currency system has persisted since the early 20th century. Historically, the gold standard has provided a strong foundation for global economic trust and stability, supporting international trade with fixed currency exchange rates. Support for gold-backed currency as sound money has been championed by a few Austrian economists. For instance, Mises (1953) emphasizes the role of gold standard in limiting government interference in the monetary system and maintaining economic stability and individual freedom. Similarly, Rothbard (1963) critiques the shift from gold to fiat currency, contending that the abandonment of the gold standard led to increased government control over the economy, resulting in artificial inflation. Salerno (1999) examines the gold standard's alignment with free-market principles, pointing out that it provides a reliable measure of value compared to fiat systems.

Bordo (1981) offers an historical analysis of the gold standard, emphasizing its success in stabilizing exchange rates and controlling inflation. Bordo, Dittmar, and Gavin (2007) show that the gold standard was crucial in anchoring long-term inflation expectations, contributing to economic stability. White (2008) and Polleit (2011) compare the gold standard with fiat currency systems, concluding that the gold standard offers significant advantages in terms of price stability and inflation control. They advocate for a return to the gold standard to achieve monetary stability and curb the excesses of fiat money, arguing that it enforces discipline in monetary policy and protects against inflation and currency devaluation.

Collectively, these studies contend that the gold standard helps limit government intervention, reduces the risk of speculative bubbles, and discourages reckless monetary

policies that lead to economic instability. It also enables countries to engage in international trade without the fear of volatile currency fluctuations. As Salerno (2015) remarks, the gold standard constrains central power and acts as "golden handcuffs on government," preventing arbitrary manipulation of the money supply.

On the contrary, a large body of Keynesian economists and proponents of Modern Monetary Theory (MMT) advocate for a fiat money system, offering critical perspectives on the gold standard's limitations. They conclude that while the gold standard provided long-term price stability, it did so at the expense of economic flexibility. This rigidity, they contend, hindered the expansion of the money supply during downturns, exacerbating recessions and contributing to prolonged economic hardship. They suggest that central bank intervention is crucial for maintaining currency value and managing economic imbalances between demand and supply, thereby stabilizing prices and reducing unemployment.

In his seminal work, Keynes (1936) revolutionized economic thought by challenging Austrian economics. He argues that the gold standard contributed to the severity of the Great Depression by preventing necessary adjustments in monetary policy and therefore government intervention necessary to manage economic cycles and mitigate recessions. Similarly, Robinson (1962) criticizes the gold standard for its role in creating economic instability and limiting the effectiveness of monetary policy, deeming it an outdated system and detrimental to economic growth.

Friedman (1968) critiques the effectiveness of monetary policy under the gold standard, advocating for a predictable, rule-based approach to monetary policy. Friedman and Schwartz (1986), Minsky (1986), and Eichengreen (1992) argue that the rigidities imposed by the gold standard prevented necessary monetary adjustments, thereby deepening and prolonging economic downturns. Mosler (2010), Wray (2015), and Kelton (2020) view the gold standard as a constraint on economic policy, limiting the government's ability to address crises and manage the money supply. They conclude that the gold standard restricts government fiscal policy and economic flexibility, advocating for a more adaptable fiat system.

The debate between the gold standard and fiat currency system continues to be active, with ongoing discussions and analyses of their respective strengths and weaknesses. By analyzing key economic indicators associated with the two different systems, this study demonstrates the gold standard's inherent advantages in fostering economic stability and protecting national wealth, lending strong support to Austrian economists' arguments in favor of the gold standard.

Specifically, we find that the Fiat period is associated with lower growth rates for wages, personal income and disposable income per working hour, negative growth in disposable income relative to currency, higher consumption relative to disposable income, reduced personal savings relative to disposable income, and significantly greater volatility in these metrics. These phenomena challenge the validity of the Wealth Effect Theory within the Fiat currency system.

Our conclusion is also consistent with the Agency Theory developed by Jensen and Meckling (1976) and further extended by Jensen (1983). This theory stresses the need for incentive alignment and the reduction of agency costs in economic frameworks. From this perspective, the gold standard is regarded as a superior system for aligning the interests of agents (e.g., government officials and central banks) with those of principals (e.g., the general public and investors), leading to fewer economic inefficiencies compared to the fiat currency system.

Under Agency Theory, linking currency value to a physical asset like gold imposes economic discipline by restricting the government's ability to inflate currency, thus reducing opportunistic behavior and economic instability. In contrast, a fiat currency system, based on government decree, offers flexibility but often incurs higher agency costs. Excessive currency creation in a fiat system can lead to inflation, reduced purchasing power, and economic instability due to conflicting short-term political incentives.

The gold standard minimizes agency costs by providing a transparent and stable monetary environment, reducing the need for constant adjustments by businesses and individuals. It fosters fiscal responsibility and long-term stability by aligning various interests of

economic agents. While the fiat system offers short-term flexibility, it may jeopardize long-term economic stability and fair wealth distribution. Thus, the gold standard offers a more effective framework for sustained economic stability and shared prosperity.

Empirical Results Based on Summary Statistics

The sample period for this study spans from December 1948 to December 2023. It is divided into two distinct phases: the BWGS period, from 1948 to 1972 (24 years), and the Fiat period, from 1973 to 2023 (51 years). We obtain the data on economic indicators including Gross Domestic Product (GDP), Consumer Price Index (CPI), employment, income and outlays, and personal and private savings from the Bureau of Economic Analysis (BEA) at https://apps.bea.gov/. Data on currency in circulation come from the Federal Reserve Bank of St. Louis at https://fred.stlouisfed.org/series/CURRCIR. S&P 500 returns are available at https://www.slickcharts.com/sp500/returns/details#google_vignette and have been verified with information from Robert Shiller's website at http://www.econ.yale.edu/~shiller/data.htm.

Economic Outcome and Employment

Table 1 presents comparative growth rates for various economic metrics, showing percentage differences between the BWGS and Fiat periods. Figure 1 illustrates these significant differences in a bar chart, where the black bars represent data from the BWGS period and the white bars represent data from the Fiat period.

Table 1: Comparative Growth Rates of Economic Indicators between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
CPI	2.4%	4.0%	70.1%
GDP - Nominal Value	6.7%	6.2%	-6.6%
GDP - Real Value	4.0%	2.7%	-32.2%
Currency in Circulation - Nominal Value	3.4%	7.4%	116.5%
Currency in Circulation - Real Value	0.8%	3.9%	370.0%
GDP-to-Currency in Circulation Ratio	3.2%	-1.0%	-132.5%

Figure 1: Comparative Growth Rates of Economic Indicators between the BWGS (1948–1972) and Fiat (1973–2023) Periods

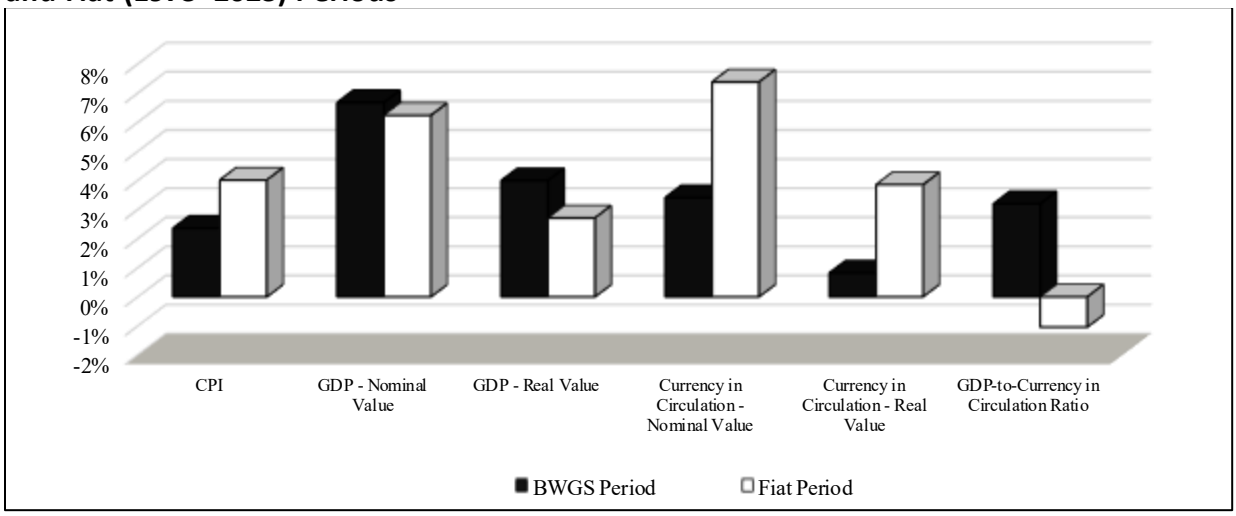
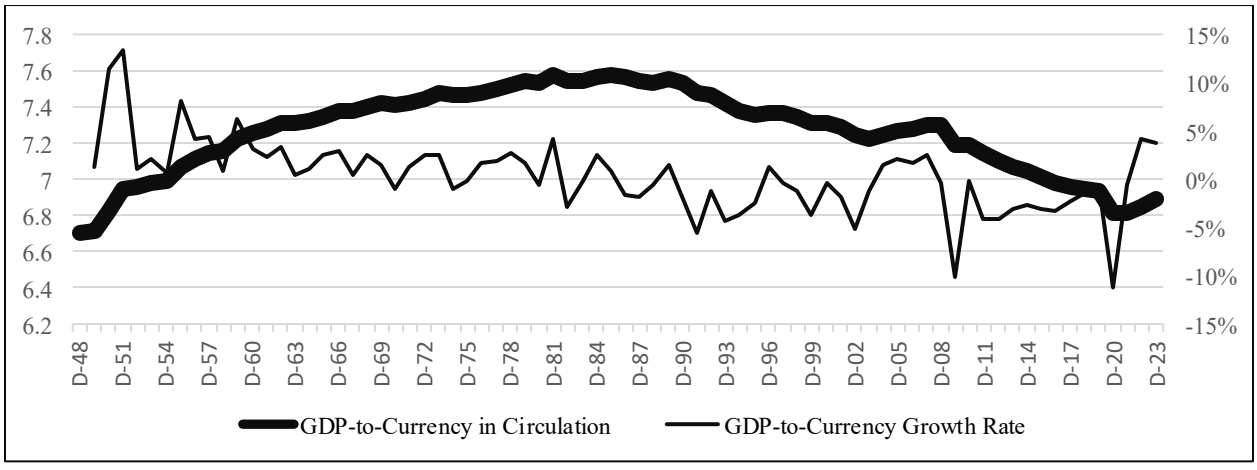


Table 1 and Figure 1 highlight a notable shift in economic dynamics between the BWGS and Fiat periods. The inflation rate, measured by CPI growth, rose sharply by 70% in the Fiat period (4.0%) compared to the BWGS period (2.4%). Nominal GDP growth slightly declined by 7.0% in the Fiat period (6.2%) versus the BWGS period (6.7%). Real GDP growth, adjusted for inflation, dropped significantly by 32.0% in the Fiat period (2.7%) compared to the BWGS period (4.0%), indicating a substantial slowdown in real economic growth during the Fiat period.

During the Fiat period, the growth rate of nominal currency in circulation more than doubled, increasing by 116.5% (from 3.4% to 7.4%). In real terms, the growth rate surged by 370.0% (from 0.8% to 3.9%), indicating more aggressive monetary policies. However, despite this expansion, real GDP growth slowed, and the GDP-to-currency ratio sharply declined by 132%, turning negative in the Fiat period (from 3.2% to -1.0%). This suggests inefficiencies in financial resource allocation and potential inflationary pressures as the money supply outpaced economic growth.

Figure 2 illustrates the historical trend of the GDP-to-currency ratio shown in the thick curve line on the left y-axis and its growth rate in the thin curve line on the right y-axis, spanning the period from 1948 to 2023. The GDP-to-currency curve shows a steady upward trend until it peaks in 1985, highlighting a period in which GDP level consistently outpaced the expansion of the currency supply. However, after reaching this peak, this ratio begins to decline, indicating a shift at which point currency supply started to grow faster than GDP, likely due to more expansive monetary policies or a slowdown in GDP level under the Fiat system. The think curve line, which represents the growth rate of GDP-to-currency ratio, exhibits noticeable volatility. There are positive spikes during periods of economic boom (e.g., early 1950s, 1960s) and sharp negative dips during downturns (e.g., early 1980s, 1990s, 2020), reflecting the influence of fiscal and monetary policies on economic performance.

Figure 2: GDP-to-Currency in Circulation Ratio (1948 – 2023)



It is well known that the 1974 and 1979 OPEC-induced repricing of oil materially altered the inflationary landscape by sharply increasing energy costs and reshaping relative prices across the economy. These oil shocks raised gasoline prices and production costs in energy-intensive sectors, thereby affecting measured productivity and input relationships.

Although our analysis does not explicitly reference OPEC or gasoline prices, these effects are implicitly captured by the metric used: GDP per dollar of money supply, which reflects economy-wide price pressures rather than sector-specific movements. This measure scales GDP by the total money supply, capturing relative price pressures, including those arising from gasoline price. In this framework, GDP per dollar of money supply reflects that the overall money supply expanded disproportionately relative to economic output.

In an environment with a fixed money supply, a reallocation of spending toward more expensive energy would be expected to exert downward pressure on prices in non-energy sectors. However, our data show no such offsetting decline. Instead, prices across the broader economy continued to rise, indicating that the money supply expanded disproportionately relative to output. This evidence suggests that while oil shocks significantly altered relative prices and production structures, the sustained and generalized inflation of the period cannot be explained by gasoline repricing alone.

Table 2 compares annual growth rates of human capital indicators between the BWGS and Fiat periods. Population growth was 38% higher during the BWGS period (1.5% vs. 0.9%). Growth rates for persons engaged in production were nearly identical, with the BWGS period slightly ahead by 3.0%. Full-time equivalent employees grew 23% faster during the BWGS period (1.8% vs. 1.4%). Hours worked by employees also saw a 25% decrease in growth from 1.6% during BWGS to 1.2% in the Fiat period. However, the growth rate for self-employed persons dramatically increased by 146%, shifting from a decline of -1.4% in the BWGS period to a 0.7% rise in the Fiat period. Overall, most indicators show slower growth in the Fiat period, except for the significant increase in self-employment growth. Figure 3 presents the bar chart for this comparison.

Table 2: Comparative Growth Rates of Employment Indicators between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Population	1.5%	0.9%	-38.2%
Persons Engaged in Production	1.4%	1.3%	-3.1%
Full-Time Equivalent Employees	1.8%	1.4%	-23.0%
Hours worked by full-time and part-time employees	1.6%	1.2%	-24.9%
Self-Employed Persons	-1.4%	0.6%	145.8%

Figure 3: Comparative Growth Rates of Employment Indicators between the BWGS (1948–1972) and Fiat (1973–2023) Periods

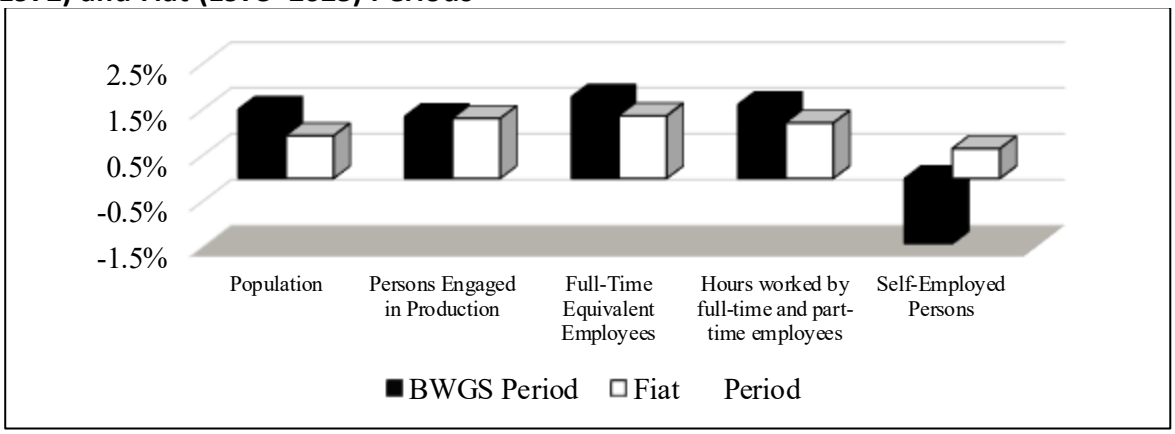


Table 3 compares employment-to-population ratios between the BWGS and Fiat periods. The ratio of people engaged in production relative to population increased from 37.6% to 43.6%, while the full-time employee-to-population ratio rose by 22%, from 32.8% to 40.1%, during the Fiat period. This suggests higher workforce participation, possibly due to inflation, economic instability, and increased industrialization, which provided more stable full-time jobs. In comparison, the self-employment ratio dropped by 25%, from 4.7% to 3.5%, indicating a smaller proportion of self-employed individuals in the Fiat period.

Table 3: Comparative Employment-to-Population Ratios between the BWGS (1948–1972) and Fiat (1973–2023) Periods

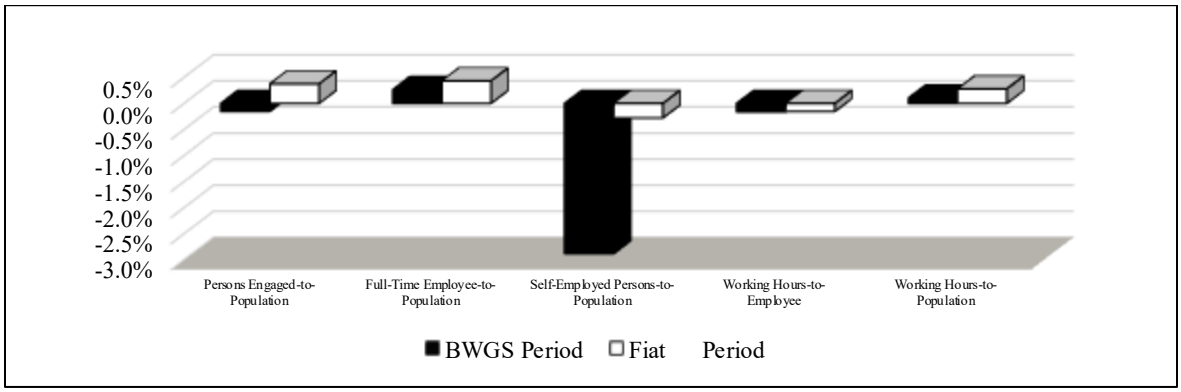
Ratio	BWGS Period	Fiat Period	Percentage Difference
Persons Engaged-to-Population	37.6%	43.6%	16.2%
Full-Time Employee-to-Population	32.8%	40.1%	22.2%
Self-Employed Persons-to-Population	4.7%	3.5%	-25.2%

Table 4 shows the annual growth rates of the employment relative to population ratios. Figure 4 provides a graphic illustration of Table 4. The growth rate of workforce participation improved significantly in the Fiat period (0.3%) compared to the BWGS period (-0.2%). The growth rate of full-time employees also rose (0.4% vs. 0.3%). The self-employment growth rate remained negative in both periods, but it declined more slowly during the Fiat period (-2.9% vs. -0.3%). The decline in self-employment likely stems from the rise of large corporations and a shift away from agriculture and small businesses, as more people moved to salaried jobs in an industrialized, urbanized economy.

Table 4: Comparative Growth Rates of Employment-to-Population Ratios between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Persons Engaged-to-Population	-0.2%	0.4%	347%
Full-Time Employee-to-Population	0.3%	0.4%	63%
Self-Employed Persons-to-Population	-2.9%	-0.3%	90%
Working Hours-to-Employee	-0.16%	-0.15%	-6.0%
Working Hours-to-Population	0.1%	0.3%	166%

Figure 4: Comparative Growth Rates of Employment-to-Population Ratios between the BWGS (1948–1972) and Fiat (1973–2023) Periods



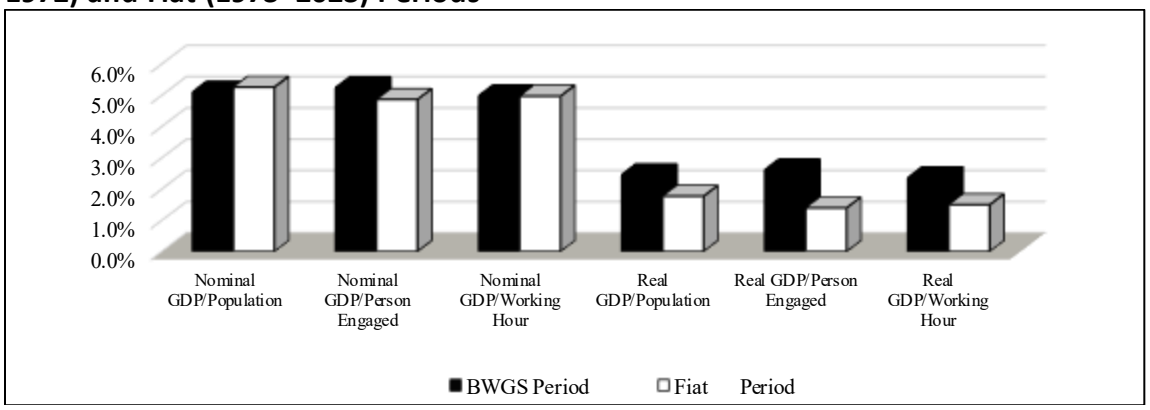
Both periods experienced a slight reduction in working hours per employee (-0.16% vs. -0.15%), possibly due to enhanced productivity from technology, improved labor regulations, and a better work-life balance, indicating gradual improvements in working conditions. However, working hours per capita increased, especially during the Fiat period (0.1% vs. 0.3%). This reflects higher workforce participation despite a decline in average hours per employee. The rise in per capita hours may be attributed to the expanding industrial and service sectors, greater diversification, and the increased inclusion of women and minorities, leading to more job opportunities and higher participation.

Table 5 highlights key differences in growth rates of GDP relative to labor force metrics between the BWGS and Fiat periods. Figure 5 exhibits the differing growth rates between nominal and real terms across the two periods. Nominal GDP per capita grew slightly from 5.1% to 5.3%, but nominal GDP per person engaged decreased from 5.2% to 4.9%, with nominal GDP per working hour unchanged. In contrast, real GDP metrics fell sharply: real GDP per capita dropped from 2.5% to 1.8%, real GDP per person engaged from 2.6% to 1.4%, and real GDP per working hour from 2.4% to 1.5% in the Fiat period. These declines indicate that, despite stable nominal GDP growth, real economic productivity diminished. The divergence between nominal and real growth is likely attributable to the Fiat period's propensity for increasing currency supply, which leads to higher inflation. While this inflation inflates nominal GDP figures, it does not enhance real economic growth. The resulting inflationary pressures can undermine productivity growth and adversely affect long-term financial stability by restricting investment in essential services and negatively impacting workforce skills and health.

Table 5: Comparative Growth Rates of GDP to Labor Force Ratios between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Nominal GDP/Population	5.1%	5.3%	3.1%
Nominal GDP/Person Engaged	5.2%	4.9%	-7.3%
Nominal GDP/Working Hour	4.98%	4.97%	-0.3%
Real GDP/Population	2.5%	1.8%	-28.1%
Real GDP/Person Engaged	2.6%	1.4%	-46.6%
Real GDP/Working Hour	2.4%	1.5%	-36.7%

Figure 5: Comparative Growth Rates of GDP to Labor Force Ratios between the BWGS (1948–1972) and Fiat (1973–2023) Periods



Income and Labor Input

Table 6 shows a clear trend of declining growth rates of wages and salaries, income and disposable income during the Fiat period compared to the BWGS period. **Nominal wage and salary** growth decreased by 12%, from 6.7% during the BWGS period to 5.9% in the Fiat period. Similarly, **nominal income** growth saw a reduction of 6.8%, from 6.8% to 6.3%. **Nominal disposable income** also fell by 4.5%, from 6.6% to 6.3% in the Fiat period.

Table 6: Comparative Growth Rates of Wages, Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Nominal Wages and Salaries	6.7%	5.9%	-12.0%
Nominal Income	6.8%	6.3%	-6.8%
Nominal Disposable Income	6.6%	6.3%	-4.5%
Real Wages and Salaries	4.0%	2.4%	-40.2%
Real Income	4.2%	2.6%	-38.8%
Real Disposable Income	4.3%	2.8%	-35.3%

The decline in growth is even more pronounced in the real income measures. **Real wage and salary** growth experienced a steep decline of 40.2%, from 4.0% in the BWGS period to just 2.4% in the Fiat period. **Real income** and **real disposable income** also saw significant reductions, with growth rates falling by 38.8% (from 4.2% to 2.6%) and 35.3% (from 4.3% to 2.8%), respectively. This contrast between nominal and real incomes indicates that, while nominal income experienced moderate decreases, all related metrics, when adjusted for inflation, declined more substantially during the Fiat period. Figure 6 presents this evident contrast more clearly in a bar chart.

Figure 6: Comparative Growth Rates of Wages, Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods

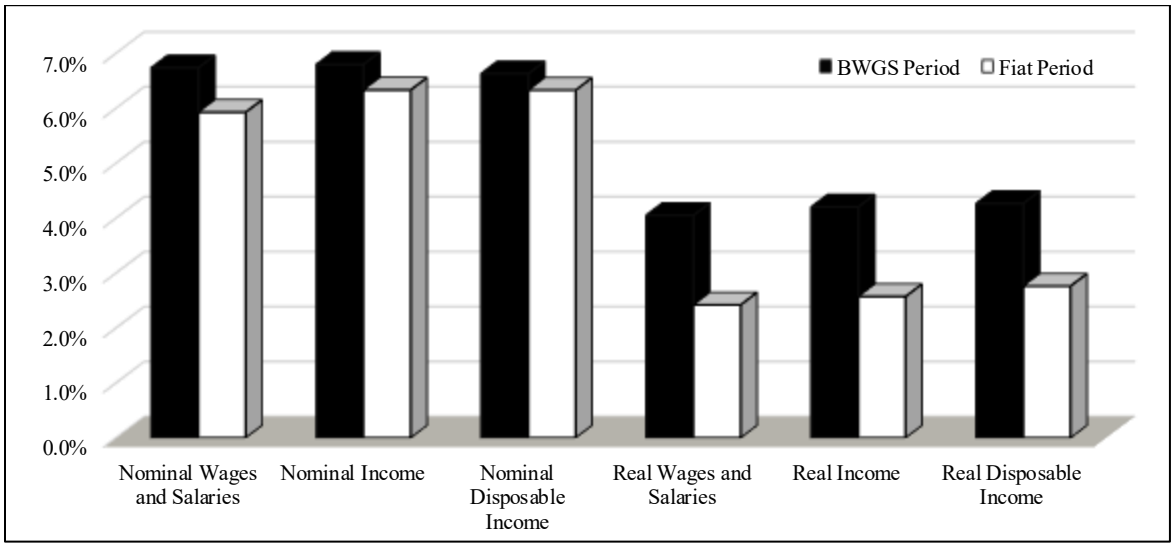


Table 7 examines the growth rates of income metrics on a per-working-hour basis. **Nominal wage and salaries per working hour** saw a slight decline of 7%, from 5.03% to 4.66% in the Fiat period. While n**ominal personal income per working hour** remained nearly constant (5.12% vs. 5.11%), n**ominal disposable income per working hour** increased slightly by 1.7%, from 4.97% to 5.06%.

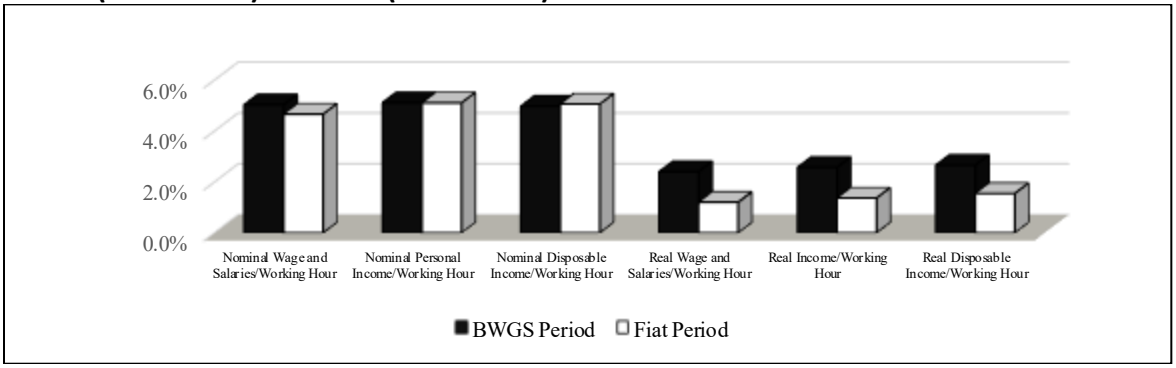
Table 7: Comparative Growth Rates of Wages, Income and Disposable Income per Working Hour between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Nominal Wage and Salaries/Working Hour	5.0%	4.7%	-7.4%
Nominal Personal Income/Working Hour	5.1%	5.1%	-0.2%
Nominal Disposable Income/Working Hour	5.0%	5.1%	1.7%
Real Wage and Salaries/Working Hour	2.4%	1.2%	-50.0%
Real Income/Working Hour	2.6%	1.4%	-46.8%
Real Disposable Income/Working Hour	2.7%	1.5%	-41.9%

In real terms, the growth in income measures per working hour showed significant declines. **Real wage and salaries per working hour** dropped sharply by 50.0%, from 2.4% to just

1.2% in the Fiat period. Real **personal income per working hour** fell by 46.8%, from 2.6% to 1.4%, while **real disposable income per working hour** declined by 41.9%, from 2.7% to 1.6% during the Fiat period. These figures suggest that despite a marginal improvement in nominal disposable income, the real value of all forms of income relative to work effort has deteriorated significantly. Figures 6 and 7 show the differentiations, respectively.

Figure 7: Comparative Growth Rates of Wages, Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods



Although the annual difference in growth rates of hourly wages and salaries may seem minor, compounding this difference over 50 years results in a dramatic impact. The lower wage growth rate of 1.2% during the Fiat period, compared to 2.4% during the BWGS period, suggests that, ceteris paribus, it would require 80% more labor hours to achieve the same real wages over 50 years as those earned during the BWGS period. This compounding effect leads to a significant decline in cumulative earnings and purchasing power for individuals. As a result, many households now need dual incomes to maintain the standard of living that could previously be sustained with a single income during the BWGS period. The slower wage growth under the Fiat system has diminished the financial power of American households, highlighting the considerably negative economic impact of moving away from the gold standard.

Table 8 shows increased standard deviations, indicating greater volatility in the growth rates of hourly income measures during the Fiat period. During the Fiat period, the standard deviation of the growth rate for nominal wages and salaries per hour increased by 45.7%, from 1.5% to 2.2%. Similarly, the standard deviation of the growth rate for nominal personal income

per working hour rose by 69.0%, from 1.8% to 3.0%. N**ominal disposable income per working hour** experienced a 51.0% increase in standard deviation on its growth rate (from 2.2% to 3.3%). The volatility in real terms also rose sharply. **Real wages and salaries per working hour** saw a 54.7% increase in the standard deviation of their growth rates (0.9% vs. 1.4%). Real income per working hour and disposable income per working hour both experienced increased volatility, with standard deviations of their growth rates rising by 51.4% and 24.5%, respectively. These reductions indicate that income growth relative to labor input became more unsecured during the Fiat period.

Table 8: Comparative Standard Deviations of Growth Rates for Wages, Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Standard Deviation of Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Nominal Wages and Salaries/Hour	1.5%	2.2%	45.7%
Nominal Personal Income/Working Hour	1.8%	3.0%	69.0%
Nominal Disposable Income/Working Hour	2.2%	3.3%	51.0%
Real Wage and Salaries/Hour	0.9%	1.4%	54.7%
Real Income/Working Hour	1.0%	1.5%	51.4%
Real Disposable Income/Working Hour	2.2%	2.8%	24.5%

Table 9 compares key income metrics relative to GDP ratios and their growth rates along with the standard deviations across two distinct periods. During the BWGS period, the real personal income-to-GDP ratio was 72.6%, slightly higher than the 71.2% observed during the Fiat period. Despite the minor change in the ratio, the standard deviation increased by 28.2% during the Fiat period, rising from 1.0% to 1.3%.

Table 9: Comparative Ratios, Growth Rates, and Standard Deviations of Income Relative to GDP Between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Part A: Income to GDP Ratio	BWGS Period	Fiat Period	Percentage Difference
Real Personal Income-to-GDP	72.6%	71.2%	-2.0%
Standard Deviation - Real Personal Income-to-GDP	1.0%	1.3%	28.2%
Real Disposable Income-to-GDP	69.3%	73.2%	5.6%
Standard Deviation - Real Disposable Income-to-GDP	1.8%	2.1%	18.3%
Part B: Income to GDP Ratio Growth Rate	**BWGS Period**	**Fiat Period**	**Percentage Difference**
Real Personal Income-to-GDP Growth Rate	0.2%	-0.1%	-162.2%
Standard Deviation - Real Personal Income-to-GDP Growth Rate	1.2%	1.7%	39.9%
Real Disposable Income-to-GDP Growth Rate	0.3%	0.1%	-74.5%
Standard Deviation - Real Disposable Income-to-GDP Growth Rate	1.7%	2.2%	24.4%

The real disposable income as a percentage of GDP showed an increase from 69.3% in the BWGS period to 73.2% in the Fiat period. However, this increase in the ratio was accompanied by a rise in its standard deviation by 18.3%, which went from 1.8% in the BWGS period to 2.1% in the Fiat period, indicating greater economic instability or income fluctuations compared to the BWGS period. During the Fiat period, the growth rate of the real personal income-to-GDP ratio deteriorated dramatically by 162.2%, changing from a positive 0.2% during the BWGS period to a negative 0.1%. Meanwhile, the standard deviation of the real personal income-to-GDP ratio rose from 1.2% to 1.7% during the Fiat period, reflecting a 39.9% increase in variability. Similarly, the real disposable income-to-GDP ratio grew by 0.3% per year during the BWGS period but slowed to 0.1% in the Fiat period, representing a substantial 74.5% reduction in growth. The standard deviation for this growth rate increased from 1.7% to 2.1% during the Fiat period, indicating a 24.4% rise in volatility. The sharp downturn in real personal income-to-GDP growth and the significant slowdown in real disposable income-to-GDP growth

suggest that individuals' incomes did not keep pace with GDP growth during the Fiat period. Additionally, the increased standard deviations indicate that the movement of these income measures relative to GDP became more erratic, leading to a less stable economic environment and employment climate during this period.

Table 10 displays the annual growth rates and standard deviations for various income measures relative to currency-in-circulation ratios in real terms for the two periods. The growth rate of wage-to-currency ratio dropped by 1.3% during the Fiat period from a positive growth of 3.3% during the BWGS period, a 140.6% decrease. This drastic shift, coupled with a slightly lower standard deviation of 3.1% compared to 3.5% of the BWGS period, indicates that wage growth consistently failed to keep pace with the increase in currency circulation during the Fiat period.

The personal income-to-currency ratio shifted from a positive growth rate of 3.4% during the BWGS period to a negative 1.2% during the Fiat period, marking a 134.4% decrease. Similarly, the real disposable income-to-currency ratio grew by 3.5% in the BWGS period but declined by 1% in the Fiat period, representing a significant 128.9% decrease. This result reveals that growth in both personal income and disposable income significantly lagged behind the expansion of currency in circulation during the Fiat period. However, the standard deviations of these growth rates were slightly lower during the Fiat period, revealing a more predictable declining trend in income levels relative to the money supply during this time.

Table 10: Comparative Ratios, Growth Rates, and Standard Deviations of Income-to-Currency in Circulation between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Part A: Income to Currency Ratio Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Real Wage-to-Currency in Circulation Growth Rate	3.3%	-1.3%	-140.6%
Real Personal Income-to-Currency in Circulation Growth Rate	3.4%	-1.2%	-134.4%
Real Disposable Income-to-Currency in Circulation Growth Rate	3.5%	-1.0%	-128.9%
Part B: Standard Deviation of Income Ratio Growth Rate	**BWGS Period**	**Fiat Period**	**Percentage Difference**
Real Wage-to-Currency in Circulation Growth Rate	3.5%	3.1%	-12.4%
Real Personal Income-to-Currency in Circulation Growth Rate	3.3%	3.2%	-3.8%
Real Disposable Income-to-Currency in Circulation Growth Rate	2.7%	2.6%	-6.3%

Table 11 compares the real disposable income-to-personal income ratio, its growth rate, and standard deviation between the two periods. During the Fiat period, the ratio increased from 95.4% to 102.1%, indicating a higher portion of personal income available as disposable income after taxes. However, this higher ratio was accompanied by a significantly greater standard deviation, which rose by 166.2% during the Fiat period. Additionally, the growth rate of this ratio improved approximately by 110.4%, from 0.1% to 0.2%, suggesting that disposable income grew faster than personal income, potentially owing to more favorable tax policies. However, this growth also came with a 33.4% increase in the standard deviation, reflecting greater economic instability.

Table 11: Comparative Ratios, Growth Rates, and Standard Deviations of Disposable Income-to-Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Real Income Ratio and Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Disposable Income-to-Personal Income	95.4%	102.8%	7.7%
Standard Deviation - Disposable-to-Personal Income	1.4%	3.7%	166.2%
Disposable Income-to-Personal Income Growth Rate	0.1%	0.2%	110.4%
Standard Deviation - Disposable-to-Personal Income Growth Rate	1.4%	1.8%	33.4%

It is worth noting that the increase in the disposable income-to-personal income ratio during the Fiat period can be attributed to the decreased personal income relative to both currency supply and GDP. In essence, while personal income growth slowed or even declined in comparison to the overall economic activity and the expanding currency supply, disposable income did not drop to the same extent as personal income. As a result, although personal income taxes mighty appear to be slightly lower during the Fiat period, the expanded currency supply effectively eroded the real value of income, ultimately leading to a significant loss to income earners in real terms.

Consumption

Table 12 consists of various aspects of consumption expenditure across the two periods. Nominal personal consumption expenditure rose slightly from 6.4% in the BWGS period to 6.5% in the Fiat period, but the variability in growth rate increased significantly by 44.1% (standard deviation of 2.2% vs. 3.1%). In real terms, the growth rate for personal consumption expenditure incurred a remarkable decline of 27.8% during the Fiat period, falling from 4.0% to 2.9%. The standard deviation also slightly increased in the Fiat period (1.8% vs.1.9%).

The ratio of real consumption expenditure-to-GDP increased from 60.4% during the BWGS period to 65.2% during the Fiat period, alongside a higher standard deviation of 2.2% compared to 1.4%. The growth rate of this ratio also surged by 204.0%, rising from 0.1% to 0.2%. Despite this increase, the standard deviation of the growth rate decreased by 48.4%,

suggesting greater stability in consumption growth during the Fiat period. This stability may be attributed to a consumption-driven economy, potentially due to increased availability of credit and consumer goods.

The ratio of real consumption expenditure-to-disposable income, reflecting the proportion of disposable income spent on consumption, saw a modest rise of 2% from 87.2% to 89.0% during the Fiat period. This increase was accompanied by a 70.3% rise in standard deviation, from 1.6% to 2.7%. The growth rate of this ratio surged by 196.4%, from -0.2% in the BWGS period to 0.2% in the Fiat period, with the standard deviation of the growth rate rising by 86.4%, from 1.2% to 2.2%. This shift may be due to increased credit availability during the Fiat period, enabling higher consumer spending relative to disposable income, or rising consumer goods prices, which might have led consumers to allocate a larger portion of their disposable income to essential goods and services.

Table 12: Comparative Ratios, Growth Rates and Standard Deviations for Consumption Expenditure relative to GDP and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) periods

Part A: Consumption Annual Growth Rate	BWGS Period	Fiat Period	Percentage Difference
Nominal Personal Consumption Expenditure Growth	6.4%	6.5%	1.7%
Standard Deviation - Nominal Consumption Growth	2.2%	3.1%	44.1%
Real Consumption Expenditure Growth	4.0%	2.9%	-27.8%
Standard Deviation - Real Consumption Expenditure Growth	1.8%	1.9%	7.2%
Part B: Real Consumption Ratio	**BWGS Period**	**Fiat Period**	**Percentage Difference**
Consumption Expenditure-to-GDP	60.4%	65.2%	7.8%
Standard Deviation - Consumption Expenditure-to-GDP	1.3%	2.2%	62.8%
Consumption Expenditure-to-Disposable Income	87.2%	89.0%	2.0%
Standard Deviation - Consumption Expenditure-to-Disposable Income Ratio	1.6%	2.7%	70.3%
Part C: Consumption Ratio Growth Rate	**BWGS Period**	**Fiat Period**	**Percentage Difference**
Consumption Expenditure-to-GDP Growth	0.1%	0.2%	204.0%
Standard Deviation - Consumption Expenditure-to-GDP Growth	1.8%	0.9%	-48.4%
Personal Consumption Expenditure-to-Disposable Income Growth	-0.2%	0.2%	196.4%
Standard Deviation - Personal Consumption Expenditure-to-Disposable Income Growth	1.2%	2.2%	86.4%
Consumption Expenditure-to-Currency Growth	3.2%	-0.8%	-126.3%
Standard Deviation - Consumption Expenditure-to-Currency Growth	2.3%	3.0%	26.2%

Conversely, the ratio of real consumption expenditure-to-currency supply declined sharply, with the growth rate dropping from 3.2% during the BWGS period to -0.9% during the Fiat period, a 126.3% decrease. This trend indicates that consumers were spending less in real

terms relative to the currency in circulation, likely due to inflation diminishing the value of money and reducing purchasing power. Additionally, the standard deviation of the growth rate increased by 26.2% during the Fiat period, reflecting greater variability in currency use for consumption. This variability may stem from fluctuating inflation rates, speculative behavior, or changing consumer confidence in the fiat system.

The observed discrepancy in growth rates and variability in consumption expenditure suggests that despite a higher money supply, it did not result in a proportional increase in GDP or disposable income. This implies that the additional currency in circulation may not have effectively stimulated economic growth or enhanced personal financial strength, potentially due to inefficiencies in asset allocation and the unintended consequences of inflation.

3.4 Personal Saving and Equity Investment Return

Table 13 and Figure 8 highlight the differences in personal savings and net private savings relative to personal income and disposable income in real terms between the BWGS and the Fiat periods.

Table 13: Comparative Ratios for Personal Saving Relative to Personal Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods

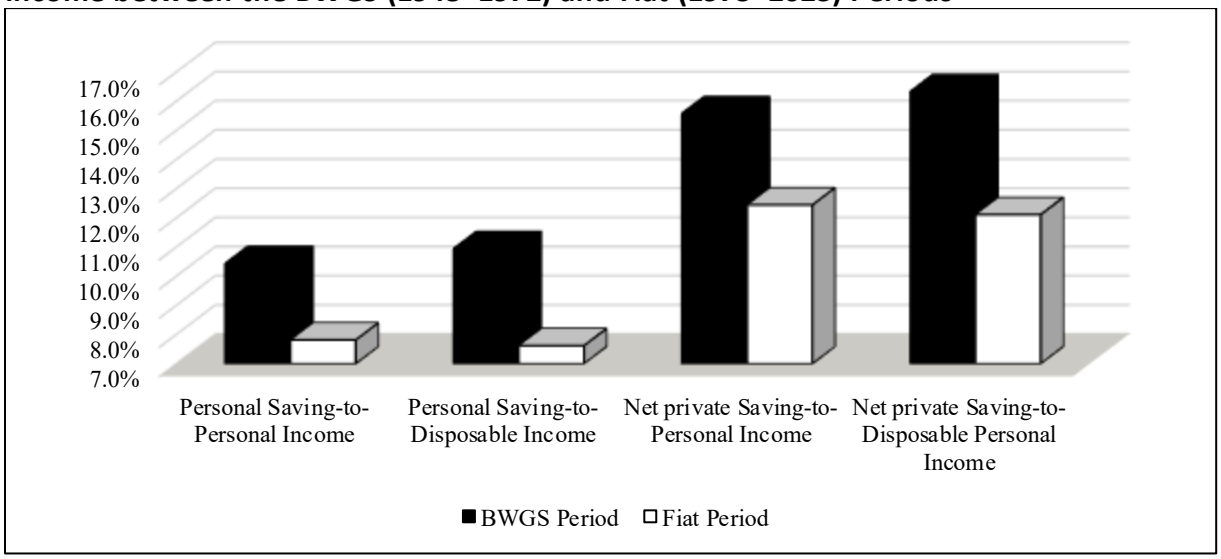
Ratio	BWGS Period	Fiat Period	Percentage Difference
Personal Saving-to-Personal Income	10.4%	7.8%	-25.1%
Personal Saving-to-Disposable Income	10.9%	7.6%	-30.4%
Net private Saving-to-Personal Income	15.6%	12.4%	-20.1%
Net private Saving-to-Disposable Personal Income	16.3%	12.1%	-25.8%

During the BWGS period, personal savings comprised 10.4% of personal income, but dropped to 7.8% in the Fiat period, a 25.1% decrease. This decrease suggests that people saved less during the Fiat period, possibly due to lower interest rates, a greater reliance on credit or higher consumer spending as they attempted to keep up with inflation. In addition, it suggests

that consumers might be making a rational decision to "buy now" instead of deferring purchases to a later date when prices are anticipated to increase.

The variability in this savings rate also increased enormously, with the standard deviation rising by 171.3% (from 1.2% to 3.1%), indicating more inconsistent saving patterns. A similar trend is observed in the personal saving-to-disposable income ratio, which decreased from 10.9% to 7.6%. The standard deviation for this ratio increased by 159.1% (from 1.2% to 3.0%), reflecting more erratic savings behavior during the Fiat period, likely due to economic uncertainty or shifts in personal financial capacity.

Figure 8: Comparative Ratios for Personal Saving Relative to Personal Income and Disposable Income between the BWGS (1948–1972) and Fiat (1973–2023) Periods



Similarly, net private savings as a percentage of personal income decreased by 20.1%, from 15.6% to 12.4%, with the standard deviation of this ratio increasing by 134.7%, from 1.4% to 3.2% during the Fiat period. The net private saving-to-disposable income ratio also dropped by 25.8%, from 16.3% to 12.1%, underscoring the trend of reduced savings. Additionally, the standard deviation for this ratio rose by 124.4%, from 1.4% to 3.1%, reflecting more unpredictable saving behavior, likely driven by unstable economic conditions and expansionary monetary policy during the Fiat period.

Table 14 highlights key differences in both nominal and inflation-adjusted returns of the S&P 500 across the two periods. During the BWGS period, the annual return on the S&P 500, including dividends reinvested, was 14.3%, compared to 12.1% during the Fiat period, marking a 15% difference for equity investors between the two monetary regimes. Additionally, the standard deviation of returns increased from 16.5% to 17.6% in the Fiat period, indicating a slightly more volatile and riskier investment environment for public investors.

Table 14: Comparative annual returns and standard deviations of S&P 500 with Dividends Reinvested between the BWGS (1948–1972) and Fiat (1973–2023) Periods

Annual Return	BWGS Period	Fiat Period	Percentage Difference
S&P 500 Return including dividends reinvested	14.3%	12.1%	-15.0%
Standard Deviation - S&P 500 Return including dividends reinvested	16.3%	17.6%	8.3%
Inflation Adjusted S&P 500 Return including dividend reinvested	12.3%	8.1%	-33.9%
Standard Deviation - Inflation Adjusted S&P 500 Return including dividends reinvested	17.1%	18.3%	6.6%

When adjusting for inflation, the S&P 500 returns reveal an even more distinct contrast. The inflation-adjusted annual return during the BWGS period was 12.3%, which fell sharply to 8.1% in the Fiat period, a substantial 33.9% decrease. This significant reduction in real returns indicates that inflation eroded much of the investment gains during the Fiat period, making it a less favorable period for maintaining financial gains through stock market investments. The standard deviation of real S&P 500 returns also increased slightly, from 17.1% to 18.3% in the Fiat period. In summary, the BWGS period delivered higher nominal and inflation-adjusted returns with lower volatility compared to the Fiat period. Although the Fiat period still offered positive returns, it was marked by increased market volatility and lower real returns, highlighting the challenges investors faced in achieving stable real returns during this time.

Evidence Challenging the Wealth Effect Theory during the Fiat Period

The transition from the gold standard to a fiat currency system has significantly impacted disposable income, consumption, and the wealth accumulation among American households. According to the Wealth Effect theory (Pigou, 1943; Keynes, 1936; Shiller, 1981), increases in wealth lead to higher consumption, thereby stimulating aggregate demand and promoting economic growth. During the BWGS period, stable income growth supported higher savings and a more pronounced Wealth Effect. In contrast, the Fiat period has observed increased economic volatility and inflation, with rising household expenditures despite a decline in real disposable income per hour. This trend raises concerns about the long-term sustainability of consumption-driven economic growth, considering the limitation of everyone's finite time per day as a crucial aspect of human capital, and thus questions the assumptions of the Wealth Effect theory.

During the Fiat period, people are spending more not because they are feeling wealthier, but because they are forced to cover rising costs of essentials like housing, healthcare, and education, etc. This financial strain limits both spending and savings, further weakening consumer confidence and long-term economic stability. As a larger share of disposable income is consumed by inflated prices, less is available for discretionary spending and savings, especially if people anticipate further price increases. To cope with the financial stress, many rely more on credits, creating a downward spiral in which debt further reduces net disposable income over time, as a larger share goes toward repaying loans and interest expenses at a compounding rate, thus eroding the link between perceived wealth and consumption. The decline in savings not only jeopardizes individual financial security but also reduces capital available for investment, potentially hindering long-term economic growth.

Additionally, the substantial decline in disposable income per hour during the Fiat period compels American workers to take on longer hours or multiple jobs to meet basic expenses. This increased workload can lead to physical and mental exhaustion, severely limiting the time available for rest, leisure, and family activities. As individuals become overextended, their ability to engage in economic activities and discretionary spending diminishes. The resultant fatigue and time constraints create a feedback loop in which reduced personal well-

being further stifles economic engagement. This phenomenon not only undermines individual quality of life but also weakens overall economic growth by reducing aggregate consumption, thereby challenging the sustainability of a consumption-driven economy.

As disposable incomes lag behind inflation and savings buffers shrink, households become more vulnerable to economic downturns. The increased volatility in income and spending growth further complicates the ability to maintain stable consumption driven by perceived wealth, thus shaking consumer confidence and diminishing the wealth effect. This scenario, therefore, challenges the core premise of the Wealth Effect theory within the context of the Fiat currency system.

Findings and Conclusions

This study demonstrates the formidable differences between the Bretton Woods Gold Standard (BWGS) period and the Fiat period, illustrating how different monetary systems influence economic stability and personal financial strength. The Bretton Woods Gold Standard (BWGS) period was characterized by stable currency circulation and low inflation, which facilitated robust economic growth, enhanced purchasing power, and fostered more predictable investment returns. Consumers experienced increased financial stability and purchasing power, while investors benefited from reduced market volatility and superior real returns.

On the other hand, the Fiat period, marked by rapid increases in currency supply and inflation, did not yield commensurate benefits in economic growth or personal financial well-being. Despite elevated employment rates, real income growth lagged, and key economic indicators, such as the real GDP-to-currency ratio, deteriorated. The heightened economic volatility and rising consumer prices led to increased financial strain and uncertainty for households. Although investment returns remained positive, they were accompanied by greater market fluctuations, raising questions about the effectiveness of the Fiat monetary system in promoting sustainable economic growth.

The BWGS period observed a more stable and beneficial environment for Americans, whether as workers, consumers, or investors. The predictability of the gold standard system led to lower agency costs and a more efficient economic framework by aligning the interests of central regulators with those of the public. This alignment minimized conflicts of interest, fostering greater trust and stability in economic policies. These observations underscore the importance of a reliable and transparent monetary system for ensuring long-term financial health across all economic participants.

Future research should extend similar studies to other economies that participated in the Bretton Woods system and assess whether the impact of monetary systems on economic growth is consistent across different institutional contexts globally. In addition, it is important to analyze how various monetary systems influence different economic sectors, such as asset owners versus income earners and public versus private entities, within the same institution. Such research could provide regulators with valuable insights for optimizing governance structures and minimizing agency costs associated with diverse monetary policies. Moreover, future studies should focus on enhancing financial literacy among Americans and equipping individuals with the skills necessary for making sound financial decisions in an increasingly financialized era. Improved financial literacy enables people to navigate economic uncertainties effectively, thereby safeguarding personal financial freedom and strengthening collective economic power.

Reference

Bergsten, C. Fredberg, & others. (1996). *A History of the International Monetary System: From the Gold Standard to the Present Day*. Institute for International Economics.

Bordo, Michael D. (1981). The Classical Gold Standard: Some Lessons for Today. *Federal Reserve Bank of St. Louis Review, 63*(5), 2-17. DOI: 10.20955/r.63.2-17

Bordo, Michael D., Dittmar, Robert F., & Gavin, William T. (2007). Gold, Fiat Money, and Price Stability. *Economic Inquiry, 45*(4), 563-577. DOI: 10.1111/j.1465-7295.2007.00079.x

Eichengreen, Barry. (1992). The Gold Standard and the Bretton Woods System: A Reconsideration. National Bureau of Economic Research. DOI: 10.3386/w4118

Eichengreen, Barry. (1992). *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939*. Oxford University Press.

Friedman, Milton. (1968). The Role of Monetary Policy. *The American Economic Review, 58*(1), 1-17. DOI: 10.2307/1808129

Friedman, Milton, & Schwartz, Anna J. (1986). Has Government Any Role in Money?. *Journal of Monetary Economics, 17*(1), 37-62. DOI: 10.1016/0304-3932(86)90051-3

Kelton, Stephanie. (2020). *The Deficit Myth: Modern Monetary Theory and the Birth of the People's Economy*. Public Affairs.

Jensen, Michael C., & Meckling, William H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics, 3*(4), 305-360. DOI: 10.1016/0304-405X(76)90026-X

Jensen, Michael C. (1983). Organization Theory and Methodology. *Journal of Financial Economics, 12*(4), 235-272. DOI: 10.1016/0304-405X(83)90004-1

Keynes, John Maynard. (1936). *The General Theory of Employment, Interest, and Money*. Harcourt Brace.

Minsky, Hyman P. (1986). *Stabilizing an Unstable Economy*. Yale University Press.

Mises, Ludwig von. (1953). *The Theory of Money and Credit* (Chapter 21). Yale University Press.

Mosler, Warren. (2010). *The 7 Deadly Innocent Frauds of Economic Policy*. Mosler Economics.

Pigou, Arthur Cecil. (1943). *The Economics of Welfare.* Macmillan and Co., Ltd.

Polleit, Thorsten. (2011). *The Case for the Gold Standard*. Ludwig von Mises Institute.

Robinson, Joan. (1962). *Economic Philosophy*. Penguin Books.

Rothbard, Murray N. (1963). *What Has Government Done to Our Money?*. Ludwig von Mises Institute.

Salerno, Joseph T. (1999). *Gold Standard and the Free Market*. Ludwig von Mises Institute.

Shiller, Robert J. (1981). *Do Stock Prices Move Too Much to be Justified by Subsequent Changes in Dividends? The American Economic Review, 71*(3), 421-436.

White, Lawrence H. (2008). Is the Gold Standard Still the Gold Standard among Monetary Systems?. *Cato Institute Briefing Papers*, No. 100.

Wray, L. Randall. (2015). *Modern Money Theory: A Primer on Macroeconomics for Sovereign Monetary Systems*. Palgrave Macmillan.

Appendix A – Summary of Variables Supporting the BWGS Standard over the Fiat Standard

#	Variable	BWGS Period	Fiat Period	Table Source
1	CPI	2.4%	4.0%	Table 1
2	GDP - Nominal Value	6.7%	6.2%	Table 1
3	GDP - Real Value	4.0%	2.7%	Table 1
4	Currency in Circulation - Nominal Value	3.4%	7.4%	Table 1
5	Currency in Circulation - Real Value	0.8%	3.9%	Table 1
6	GDP-to-Currency in Circulation Ratio	3.2%	-1.0%	Table 1
7	Population Growth Rate	1.5%	0.9%	Table 2
8	Persons in Production Growth Rate	1.4%	1.3%	Table 2
9	Full-Time Employee Growth Rate	1.8%	1.4%	Table 2
10	Worked Hours Growth Rate	1.6%	1.2%	Table 2
11	Self-Employed Persons-to-Population	4.7%	3.5%	Table 3
12	Nominal GDP/Person in Production	5.2%	4.9%	table 5
13	Nominal GDP/Working Hour	4.98%	4.97%	table 5
14	Real GDP/Population	2.5%	1.8%	table 5
15	Real GDP/Person in Production	2.6%	1.4%	table 5
16	Real GDP/Working Hour	2.4%	1.5%	table 5
17	Nominal Wages and Salaries Growth Rate	6.7%	5.9%	table 6
18	Nominal Income Growth Rate	6.8%	6.3%	table 6

Appendix A – Summary of Variables Supporting the BWGS Standard over the Fiat Standard (Continued)

#	Variable	BWGS Period	Fiat Period	Table Source
19	Nominal Disposable Income Growth Rate	6.6%	6.3%	table 6
20	Real Wages and Salaries Growth Rate	4.0%	2.4%	table 6
21	Real Income Growth Rate	4.2%	2.6%	table 6
22	Real Disposable Income Growth Rate	4.3%	2.8%	table 6
23	Nominal Wage and Salaries/Working Hour Growth Rate	5.0%	4.7%	Table 7
24	Nominal Personal Income/Working Hour Growth Rate	5.115%	5.106%	Table 7
25	Real Wage and Salaries/Working Hour Growth Rate	2.4%	1.2%	Table 7
26	Real Income/Working Hour Growth Rate	2.6%	1.4%	Table 7
27	Real Disposable Income/Working Hour Growth Rate	2.7%	1.5%	Table 7
28	Standard Deviation - Nominal Wages and Salaries/Hour Growth Rate	1.5%	2.2%	Table 8
29	Standard Deviation - Nominal Personal Income/Working Hour Growth Rate	1.8%	3.0%	Table 8
30	Standard Deviation - Nominal Disposable Income/Working Hour Growth Rate	2.2%	3.3%	Table 8
31	Standard Deviation - Real Wage and Salaries/Hour	0.9%	1.4%	Table 8
32	Standard Deviation - Real Income/Working Hour	1.0%	1.5%	Table 8
33	Standard Deviation - Real Disposable Income/Working Hour	2.2%	2.8%	Table 8
34	Real Personal Income-to-GDP	72.6%	71.2%	Table 9
35	Standard Deviation - Real Personal Income-to-GDP	1.0%	1.3%	Table 9
36	Standard Deviation - Real Disposable Income-to-GDP	1.8%	2.1%	Table 9

Appendix A – Summary of Variables Supporting the BWGS Standard over the Fiat Standard (Continued)

37	Real Personal Income-to-GDP	0.2%	-0.1%	Table 9
38	Standard Deviation - Real Personal Income-to-GDP Growth Rate	1.2%	1.7%	Table 9
39	Real Disposable Income-to-GDP Growth Rate	0.3%	0.1%	Table 9
40	Standard Deviation - Real Disposable Income-to-GDP Growth Rate	1.7%	2.2%	Table 9
41	Real Wage-to-Currency in Circulation	3.3%	-1.3%	Table 10
42	Real Personal Income-to-Currency in Circulation	3.4%	-1.2%	Table 10
43	Real Disposable Income-to-Currency in Circulation	3.5%	-1.0%	Table 10
44	Standard Deviation - Disposable-to-Personal Income	1.4%	3.7%	Table 11
45	Standard Deviation - Disposable-to-Personal Income Growth Rate	1.4%	1.8%	Table 11
46	Standard Deviation - Nominal Personal Consumption Expenditure Growth	2.2%	3.1%	Table 12
47	Real Consumption Expenditure Growth Rate	4.0%	2.9%	Table 12
48	Standard Deviation - Real Consumption Expenditure Growth	1.8%	1.9%	Table 12
49	Standard Deviation - Consumption Expenditure-to-GDP	1.3%	2.2%	Table 12
50	Consumption Expenditure-to-Disposable Income	87.2%	89.0%	Table 12
51	Standard Deviation - Consumption Expenditure-to-Disposable Income Ratio	1.6%	2.7%	Table 12
52	Consumption Expenditure-to-Disposable Income Growth Rate	-0.2%	0.2%	Table 12

Appendix A – Summary of Variables Supporting the BWGS Standard over the Fiat Standard (Continued)

53	Standard Deviation - Consumption Expenditure-to-Disposable Income Growth Rate	1.2%	2.2%	Table 12
54	Consumption Expenditure-to-Currency Supply Growth Rate	3.2%	-0.8%	Table 12
55	Standard Deviation - Consumption Expenditure-to-Currency Supply Growth Rate	2.3%	3.0%	Table 12
56	Personal Saving-to-Personal Income	10.4%	7.8%	Table 13
57	Personal Saving-to-Disposable Income	10.9%	7.6%	Table 13
58	Net private Saving-to-Personal Income	15.6%	12.4%	Table 13
59	Net private Saving-to-Disposable Personal Income	16.3%	12.1%	Table 13
60	S&P 500 Return including dividends reinvested	14.3%	12.1%	Table 14
61	Standard Deviation - S&P 500 Return including dividends reinvested	16.3%	17.6%	Table 14
62	Inflation Adjusted S&P 500 Return including dividend reinvested	12.3%	8.1%	Table 14
63	Standard Deviation - Inflation Adjusted S&P 500 Return including dividends reinvested	17.1%	18.3%	Table 14

Appendix B – Summary of Variables Supporting the Fiat Standard over the BWGS Standard

#	Variable	BWGS Period	Fiat Period	Table Source
1	Self-Employed Persons Growth Rate	-1.4%	0.6%	Table 2
2	Persons Engaged-to-Population	37.6%	43.6%	Table 3
3	Full-Time Employee-to-Population	32.8%	40.1%	Table 3
4	Persons in Productin-to-Population Growth Rate	-0.2%	0.4%	table 4
5	Full-Time Employee-to-Population Growth Rate	0.3%	0.4%	table 4
6	Self-Employed Persons-to-Population Growth Rate	-2.9%	-0.3%	table 4
7	Working Hours-to-Employee Growth Rate	-0.16%	-0.15%	table 4
8	Working Hours-to-Population Growth Rate	0.1%	0.3%	table 4
9	Nominal GDP/Population	5.1%	5.3%	table 5
10	Nominal Disposable Income/Working Hour	5.0%	5.1%	Table 7
11	Real Disposable Income-to-GDP	69.3%	73.2%	Table 9
12	Standard Deviation - Real Wage-to-Currency in Circulation Growth Rate	3.5%	3.1%	Table 10
13	Standard Deviation - Real Personal Income-to-Currency in Circulation Growth Rate	3.3%	3.2%	Table 10
14	Standard Deviation - Real Disposable Income-to-Currency in Circulation Growth Rate	2.7%	2.6%	Table 10
15	Disposable Income-to-Personal Income	95.4%	102.8%	Table 11
16	Disposable Income-to-Personal Income Growth Rate	0.1%	0.2%	Table 11
17	Nominal Personal Consumption Expenditure Growth	6.4%	6.5%	Table 12
18	Consumption Expenditure-to-GDP	60.4%	65.2%	Table 12
19	Consumption Expenditure-to-GDP Growth	0.1%	0.2%	Table 12
20	Standard Deviation - Consumption Expenditure-to-GDP Growth	1.8%	0.9%	Table 12