Economic inequality: Government policy implications for economic growth sustainability, inequality, and the historical impact of marginal tax rate changes

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ABSTRACT

Government tax policy changes to the highest marginal tax rates are studied to identify inequality increases or decreases following the change. Income, profits, returns to capital, marginal taxes, household debt, inflation, and unemployment are examined to see how each is related to inequality and taxes. The authors' analysis indicates that a significant amount of inequality is a result of political decisions related to changing marginal tax rates. Various measurement ratios are developed and are used to identify those that are changing at the same time as inequality is increasing or decreasing. The indexes studied (Economic Sustainability Index, Wage/Capital Index, Wage/Profit Index, Profit-per-Worker Index, Profit/Unemployment Index, Debt/Worker Ratio and the Wage/Dividend Ratio) in this paper were found to have very similar patterns over time. The indexes provide an understanding of the effects of tax changes, and other economic events, that cause inequality to change. The combination of these trends in all the various elements of the economy, point to an expanding level of inequality that was created after the marginal tax levels were lowered. The results suggest that when rates are over 60% inequality declines and when rates are under 40% inequality increases.

Keywords: Economic Inequality, Economic Growth, Sustainability, Marginal Tax Rates

INTRODUCTION

For many years, economists around the world have been discussing the increase of global wealth owned by the top 10%. Is this transfer of wealth an outcome born from a capitalist system, or rather, the consequence resulting from economic policies embraced during the early 1920's and particularly since the early nineteen eighties? Some have pointed to supply side economic policies related to the tax system, monetary policy, currency valuations, trade policies, technological changes, and globalization that may have also disproportionately benefited top income earners. Others see it as a normal outcome of a free society. In a free society, freedom is what is at the heart of inequality (Kimball, 2015). This is what James Madison proclaimed in the Federalist Paper 10 when he talked about people having different abilities, wealth, and skills. People have different abilities, different preferences, and different attitudes toward risk, clearly their incomes and rewards will be different. According to many economists, free markets create more wealth and income for all in society, increasing society's standard of living, however it makes some richer than others. Even if you could, somehow, suddenly or magically make everybody equal and reduce inequality, this situation would not last long. Differing abilities, differing preferences, and differences in risk taking would eliminate equality and generate inequality quickly. The more freedom that exists in society, the faster this would happen. Yet, with freedom, all in society would find their standard of living, incomes, and wealth increasing while inequality occurs.

There is inequality in virtually every kind of system in nature. Look to biology, ecology, ecosystems, and culture, all have some type of inequality that exists. Therefore, it is no surprise that inequality exists in economic systems, it is an inescapable and inevitable part of life, and an unavoidable part of the distribution of income that will occur in the economy.

Government tax policy changes to the highest marginal tax rates are studied to show how inequality is triggered. Income, profits, returns to capital, marginal taxes, household debt, inflation, and unemployment are examined and how each is related to inequality and taxes. The authors' analysis indicates that a significant amount of inequality is a result of political decisions related to changing marginal tax rates. Social and economic factors are important reasons for inequality, but it is the policy decisions and actions by the government that generates a significant amount of inequality. According to Wisman (2018a, 2018b, 2017), "Politics is fundamentally a fight for shares of income, wealth, and privilege." And, Wisman (2018a, 2018b, 2017) further states, "the ultimate cause of inequality is political." The argument that income inequality is created by government polices is made by several authors and these same authors claim that the government's polices tend to be more beneficial to the wealthy (Gilens, 2012; Stiglitz, 2012; Stockman, 2013; Bartels, 2016).

LITERATURE REVIEW

According to Piketty (2015), more freedom leads to more inequality and this is unavoidable in a free market economy, especially when the returns to capital exceed the average growth in GDP. People make choices about their lives. Some choose to enter professions where their income level is lower, but they have a rewarding career with more free time, the concept of compensating wage differentials that was first described by Adam Smith (1776) applies in these cases. Other may choose a profession where the income level is higher, but they have much less free time. Is the person who earns the lower-income really worse off?

The theory of human capital, as described by Mincer (1958) and Becker (1962), predicts a direct relationship exists between a person's earnings and their education, ability, and skill level. A person's education, ability, and skill level, the demand for their labor

services, and their work and leisure preferences are all factors in the determination of the income they will receive (Becker, 1994). One of the most basic principles of neoclassical theory of distribution is that one's income reflects one's marginal productivity (Clark, 1907; Brown, 2005). Several authors, including but not limited to, Jost, Gaucher, and Stern (2015); Shariff, Wiwad, and Aknin (2016); and Davidai and Gilovich (2015), maintain that some inequality is necessary to help encourage, motivate, and inspire those earning less income to take steps to attain higher-income. Inequality can stimulate, encourage, and motivate entrepreneurship and thereby have a stimulating effect on economic growth (Lazear and Rosen, 1981).

Acemoglu, Naidu, Restrepo, and Robinson (2015) maintain a more unequal distribution of income will naturally occur in a democracy through lobbying efforts to capture power, using tax policies that benefit selected groups in society, and exploiting market opportunities which increase inequalities. Acemoglu et al. (2015) called these opportunities, "inequality-increasing market opportunities." Acemoglu and Robinson (2000) found this in their study of Europe during the nineteenth century, as well as their studies in Central and South America, and Rodrik (1999) found that democratic countries generate higher real wages for labor and they receive a higher share of a country's national income. However, Scheve and Stasavage (2009, 2010, 2012) find democracy and democratic countries have little effect on the level of inequality.

Studies regarding inequality and economic freedom have produced conflicting results (Bennett and Nikolaev, 2017). More economic freedom generates more inequality is a reasonable assertion given different abilities that people have and the choices they make; more freedom, more choices, so there will be more differences. A study by Young and Lawson (2014) suggested that a larger share of income going to labor is associated with more economic freedom. As stated by Apergis, Dincer, and Payne (2014), "a bi-directional causality exist between economic freedom and income inequality" and their results were robust for the long-run and for the short-run. Income inequality may or may not be rising, but according to Deaton (2013) an individual's well-being is increasing at an increasing rate throughout the world. Packard and Bylund (2018) assert that when looking at an individual's well-being, and comparing that to those who have the most to those who have the least, they find that inequality is actually decreasing. Gordon (2009) states, "The rise in American inequality has been exaggerated both in magnitude and timing". The findings by Burkhauser, Larrimore and Simon (2011) indicate no long lasting or significant change in income inequality has occurred since 1989.

Higher living standards, economic prosperity, and growth are often associated with economic freedom creating economic benefits for people, and therefore decreasing inequality. The close positive connection between economic freedom and growth that takes place in the economy has been found by several authors, including, but not limited to, Gwartney, Holcombe, and Lawson (2004); Gwartney and Lawson (2008); Doucouliagos (2005); Grube (1998); Rode and Coll (2012); Hall and Lawson (2014); Hall, and Stansel, and Tarabar (2015). Similar results to these studies were found by several authors, including but not limited to, Davidai and Gilovich, (2015); Jost, Gaucher, and Stern, (2015); and Shariff, Wiwad, and Aknin, (2016). Increasing incomes and growth was related to lower inequality, with increased economic freedom, was also found by Ashby and Sobel's (2008) study of inequality in the United States, as well as studies done by Forbes (2000) and Voitchovsky (2005).

In a study by Murphy (2015), the results indicated a higher level of income inequality was associated with a larger, more expansive government, which adversely affected the rule of law. Generally, many academic studies indicate that economic freedom creates significant benefits for society and that more economic freedom promotes economic growth resulting in

higher-incomes and more equality. When all incomes increase, the standard of living is higher, with more economic freedom, people have more.

Work on income inequality in the early 1950's by Kuznets (1955) indicated more inequality occurs when economic development is just starting out, but once economic growth is more established the level of income inequality tends to decrease. This phenomenon described by Kuznets (1955) is what is known as the inverted U-theory of inequality. An inverted U-theory of inequality relationship was identified by Carter (2007) in an international study of economic freedom and inequality, as did Bennett and Vedder (2013), in a United States study they found evidence of the inverted U-theory. Berggren (1999) found economic freedom creates more inequality in the short-run, but relative equality existed over a ten-year period. In a wide-ranging study of income inequality by Lakner and Milanovic (2013) they found virtually no change in the level of income inequality from 1988-2008. Scully (2002) found an insignificant relationship between the growth in the economy and inequality. Benabou (1996) conducted a comprehensive review of twenty-three studies related to income inequality and growth. Benabou (1996) finds a negative correlation between long-term growth and income inequality, so the conclusion indicates a decrease in income inequality increases GDP. In two studies by Barro (2000, 2008), he finds that income inequality has different effects on economic growth between poor and rich countries. Barro's studies illustrate how failing to take into account a country's level of development will lead to misleading general conclusions.

According to Meyer and Sullivan (2011), "Both income and consumption inequality rise in the early 1980s and remain somewhat flat in the 1990s, but in the 2000s overall consumption inequality shows little change while overall income inequality rises somewhat." Meyer and Sullivan (2011) find similar results, reporting a small increase in income inequality from 1980 until the end of the 1990's, and Kennickell (2017) finds "the share of the wealthiest one percent of households has shown no significant change since 1995". Ostry, Berg, and Tsangarides (2014) say that when there is more inequality economic growth is slowed, but the opposite is claimed by Winship (2013).

Piketty (2014) connects the growth in a nation's income to the returns to capital. Piketty (2014) then claims that if there is a low tax on capital, and then returns to capital increase more rapidly than the economy's growth, then inequality will increase, more of the inequality will be concentrated in the wealth and returns from capital, and the inequality will persist for a long period of time. A study by Oishi, Kushlev, & Schimmack (2018) found that a more U.S. progressive income tax resulted in substantially less inequality than when a less progressive income tax was in place. The study by Oishi, Kushlev, & Schimmack (2018) used 52-years of data starting in 1962 and ending in 2014.

In a study of poverty and income distribution in the United States, Wolff (2010) found labor's share of national income decreasing and profit's share of national income increasing. A similar result was found by Arpaia, Perez, and Pichelmann (2009) and Schlenker and Schmid (2013) in their studies of Europe, the European Union, and Germany. Some studies indicate that increasing capital's share of national income contributes to inequality of income (Atkinson, 2009; Glyn, 2009). According to Adler and Schmid (2013) capital income concentration and how personal income and national income are related to the concentration of capital are determining factors of inequality. Adler and Schmid (2013) suggest that when there are those who receive only income from their labor, and there are also those that receive only income from capital, then there will be more inequality with increasing capital share. According to Adler and Schmid (2013) when individuals receive income from both labor and capital then the inequality effect is not as clear and depends on the relationship between national income and personal income and its influence on the returns to labor and capital.

The American economy has seen an increased importance of the financial sector in recent years, a phenomenon known as financialization of the economy. The phenomenon also includes a prevalence of non-financial companies providing financial products and services that they did not provide in the past (Krippner, 2005). Financialization has led to financial sectors receiving a larger share of income than non-financial sectors (Krippner, 2005). Jaumotte, Lall, & Papageorgiou (2013); Jauch and Watzka (2016); and De Haan and Sturm (2017) find inequality increases with more finanicalization. One implication from this result is that managers may be more sensitive and reactive to financial sector forces than those from the goods and services markets (Fligstein, 2002; Davis, 2009).

The financialization of the economy has also led to increased debt by middle income earners, thus transferring income and consumption from the future to the present and creating more inequality in the future from debt repayment. Some studies, such as Behringer and Van Treeck (2013), find an inverse relationship between inequality and debt, implying that the additional debt financed spending by lower-income households is greater than the reduced spending (and higher savings) of higher-income households. However, before the Great Depression in the 1930's and the Recession of 2008, inequality substantially increased, combined with a significant increase in credit borrowing and debt financed spending for lower and middle income households (Kumhof, Rancière, & Winant, 2015; Gorodnichenko, Kudlyak, & Mondragon, 2014). Neoclassical economics assumes that more savings generates more investment, and thus more economic growth. Savings is non-consumption, when individuals have a higher level of income they tend to save more, providing higher-income in the future as well as funds for current investment, and therefore economic growth occurs. Those with higher-incomes have a higher savings rate and a higher level of savings than do lower-income household. There are more lower-income individuals than higher-income individuals and therefore more inequality exist (Josifidis, and Supić, 2018). Stockhammer (2004) maintains that mangers are short-term profit oriented when financialization occurs and finds that the investment in real-capital is inversely related to increasing financial sector income. Orhangazi (2008) also finds an inverse relationship between financial sector income and investment in real-capital used for production.

According to Epstein and Jayadev (2005), rental income, interest income, and financial firm profits as a percentage of GNP for OECD countries has substantially increased since 1980. Sum, Tobar, McLaughlin, and Palma (2008) found the average salary for investment and securities workers in New York City was six-times greater than the average salary of other New York City workers, and as much as twenty-times more than the average workers in America. Kaplan and Rauh (2019) found financial sector salaries are among the highest in the United States, but according to Philippon and Reshef (2009) the higher growth of incomes in the financial sector is not explained by the human capital theory of income.

Big, powerful corporations engaging in rent seeking activities has led to some income inequality according to several researchers (Stiglitz, 2012; Bebchuk and Fried, 2004; DiLorenzo, 1988). One of the arguments explaining income inequality is that salaries and total compensation to corporate executives, as well as executives in the financial sector, are so enormously high that they have actually lead to a significant amount of income inequality (Mishel and Sabadish, 2012). This same argument is made by Piketty (2015) who states that, "the primary reason for increased income inequality in recent decades is the rise of the super manager."

At least one study presumes that bias and discrimination create inequality (Gordon and Dew-Becker, 2008), while the movement of labor intensive production to low wage countries is sighted as a reason for income inequality by Burtless (1995) and Wood (1995). A more convincing, human capital accumulation argument is made by those who suggest that the demand for high-skilled workers has driven up their incomes and created inequality

compared to lower skilled workers (Bessen, 2015; Autor, Katz, and Kearney, 2008; Card and Lemieux, 2001; Autor, Katz, and Krueger, 1998; Goldin and Katz, 1998; DiNardo and Pischke, 1997; Kosters, 1994; Katz and Murphy, 1992). According to Dahlby and Ferede (2013), the technological changes that have made automation, outsourcing, and off-shoring economically viable ways of organizing production is one of the single most important factor driving the increase in inequality.

Corak (2013) found a significant relationship between income mobility and inequality, this relationship is known as "the Gatsby Curve" as named by Krueger (2012) in a presentation made to the Center for American Progress using data from Corak. Analysis by Krueger (2012); Corak (2013); Stand and Rising, (2011); and Sarfati, (2015) indicated that the ability of children from poor families to move up to a higher level of income is reduced the greater the level of inequality that exists in society. The Great Gatsby Curve is used to illustrate the inverse relationship between income inequality and intergenerational mobility: societies with higher levels of inequality tend to have lower levels of intergenerational mobility (Krueger, 2012; Corak, 2013).

There are many explanations for inequality, some economist focus on taxes, especially taxes on the wealthy. Changes in the tax rates can create a boom-and-bust economic cycle that also rewards those who have capital wealth that can be sustained during market collapses, which allows them to buy up assets at a fraction of the cost. If this is true, an unsustainable economic growth cycle could lead to a boom and bust pattern that would reward those who have substantial amounts of capital wealth. This concept is attributed to Fisher (1933) who reasoned that all economic booms and economic depressions are a result of "over indebtedness to start with and deflation following soon after". Those with ample amounts of capital wealth have the ability to withstand economic downturns and buy up assets during collapses when prices are low and therefore acquire more wealth. Those without the ability to withstand the economic downturn are harmed and they lose wealth due to the government's policy. This is similar to the phenomenon described by Tullock (1975) that he called, "transitional gains trap". Government policy changes unexpectedly harm those who are not able to withstand the change in asset prices due to the government's policy change. What causes these economic boom and bust cycles is still a major topic of debate. In addition, the measurement tools that can define the results or identify the causes are not necessarily practical or suitable. The authors of the current paper seek to combine a series of measurement tools which will explain how the economy is subject to recurring recessions and expansions and how this impacts inequality.

Changes in tax policies have preceded almost all recessions and depressions. These changes have driven various other changes in the components of economics. By examining the different results from these changes one can begin to establish the evidence from history as to a causal relationship between them. The first great movement in the economic cycle happened during the 1920's that began with massive tax cuts from 1921-1925 that resulted in marginal tax levels moving from 73% down to 24%. What followed provides the first insight into a causal relationship between marginal tax levels and aggregate wages and capital.

THE HISTORICAL RECORD OF THE 1920's AND INEQUALITY UNTIL 1981

Perhaps no other period in history has seen such volatility of economic behavior than the period in history from 1920-1981. President Wilson signed the Revenue Act of 1916, raising marginal tax rates to finance World War I (rates were raised from 1916-1920). After the Wilson tax increases, for the first time in American history, wages gained more from the economy than did capital.

Then, from 1921-1924, marginal taxes were cut dramatically when President Harding signed the Revenue Act of 1921, and each year thereafter they were cut, until by 1924, the marginal tax rates were 24% for the highest wage earners (Revenue Act of 1924). The result was a 46% decline in aggregate wage levels in one year that reversed where the surplus value added in the economy was distributed. But, by 1924, marginal levels were cut back to 24%, and once again capital saw the majority of the economy flow to it rather than to wages, that continued until 1929 and the beginning of the Great Depression. In the 1920's, the combination of lower government spending, lower wage demand, and high credit demand all established the incredible confluence of economic behavior that caused the Great Depression.

This change in how the economic surplus of the economy was distributed caused a rapid reversal toward capital. This was a rapid reversal that, to this day, has not been seen in the economy. From1933-1981, when marginal rates ranged from 64% to 91%, the level of aggregate wages expanded as a share of the economy surplus value added until it reached a Wages/Capital ratio above 4 for the longest period of time in history. Associated with this level was a rapid rise in the wealth and living standards of the middle class in America, while the level of both income and wealth inequality was in line with most other developed nations of the world. In 2019, as the level of marginal rates are once again below 30%, combined with a lowering of the business tax rate, to the lowest in 100 years, the period of the 1920's has once again become critical to understanding both the short-term and long-term impact of these tax rates.

While the 1920's was a period in which consumer credit systems were not yet in place, borrowing was for the first time available to the middle class. Thus, some of the lost wages were replaced by increased credit. This became a part of the economic decline, as loans could not be paid back in the late 1920's, expanding the problems of the early Great Depression. During the 1925-1933 period, with low aggregate wage levels that were only 60-70% of the previous values, the economy was not able to sustain growth and pay back debt whose impact was expanded once jobs were lost. This became a lethal combination for the economy that private industry could not solve and the Great Depression continued its year by year decline.

In addition, there was approximately a 62% increase in the money supply (more than 28 billion dollars of new money) from 1921 to 1929, entering the economy primarily through securities purchases and other financial instruments (Rothbard, 2000). This, combined with additional credit purchases, and the decrease in marginal tax rates, resulted in rapid economic expansion that caused excess demand, and an overvalued stock market, resulting in a combination of increased income and wealth inequality (Radice, 1935; Piketty and Saez, 2003). In the 1920's, the combination of lower government spending, lower wage demand, and high credit demand all established the incredible confluence of economic behavior that caused the Great Depression. Once the companies began to lose profits from the decreased demand from the tax cuts, their stock prices began to fall. As a result, this combination of events led to the Great Depression.

DEFINING INEQUALITY

When the upper 10%, 5%, and 1% are gaining each year an ever greater share of the surplus value that the economy creates, then inequality increases. Thus, to actually define and understand what the term means requires that the economic elements must be observed as to their relationship to the increasing inequality seen in our society. In this paper, various measurement ratios are developed and are used to identify those that are changing at the same time as inequality is increasing. From these measurement ratios, one can then examine what is causing these ratios to change. Once this is understood, a rich dynamic inequality

model can be developed. This model can then be used to create new economic policies that will begin to establish a fairer distribution within the society for the value that the society is creating by virtue of its labor.

Figure 1 (see Appendix) illustrates how inequality is created and expands over time. As wealth moves to the top 5% there is a need to find investment returns which leads to speculation investments. But, over time, that is not sufficient, and other forms of investment are needed. Some of these new investments are student loans, credit cards, high interest loans, and other forms of debt. This occur because the lower 90% are not receiving wage gains from their productivity gains. Figure 1 shows the flow of this inequality creation.

THE INEQUALITY PROCESS

Figure 1 shows the inequality process. The primary cause of the inequality process is the taxes that are cut on the earnings of upper income households that then moves into financial capital seeking higher returns, leading to speculation. Over time, there is an increase in the returns to financial capital, but other forms of debt investment must be made as indicated in Figures 1 and 2. However, lower marginal tax rates on the highest income earners can result in stagnate wages for lower-income earners relative to higher-income levels. Financialization of the economy means the lower taxes on higher-income earners is not necessarily reinvested in real-capital, but instead enters the financial capital markets and does not lead to higher wages for workers (see Figure 2 in the Appendix).

As marginal tax levels decline to under 40% for the highest earners, inequality levels increase in proportion to the tax level. The economic decision that must be made by every company is to pay taxes when marginal rates are high or invest in business by increasing wages, capital investment, expansion, and a host of other internal decisions that grow the company. When marginal rates are low, the incentive is increase dividends, borrowing instead of using internal capital for expansion, and increasing high level salaries instead of workers' wages, which become a cost rather than an investment.

The result is that both income and wealth inequality expand to greater levels over time, this is similar to the analysis by Josifidis, and Supić (2018). As the level of debt increases it continues to lower the real income of workers as they must pay interest. This combination of stagnant wages and increased interest payments lowers the amount of demand in the economy, at the same time as surplus capital is moving into speculation. This has a two-fold effect. First, all types of speculation increase in value above market levels creating bubbles, that will over time burst. Secondly, as demand is not able to increase at normal rates due to borrowing, the economy loses demand, at the same time as the speculation capital is increasing. Thus, inequality is growing at both levels within the economy.

Kumhof, Rancière, Winant (2015); and Ranciere, Throckmorton, Kumhof, Lebarz, and Richter (2012) develop theoretical models that indicate higher inequality allows investors to increase their financial wealth using loans to wage earners, leading to higher debts and interest payments, and further increasing inequality. High income earners receive utility directly (in their economic utility function) from more financial wealth and use their increased income to try to accumulate more wealth using various methods, including loans made to lower-income earners (Carroll, 2000). The additional loans made to lower-income earners allows them to maintain consumption, but increases the debt and interest payments in the future. This relationship is similar to the results found by Krueger and Perri (2006); and Iacoviello (2008) indicating household debt and increases in inequality are positively related to higher household debt. Other researchers with similar findings include, but not limited to,

Van Treeck, (2014); Denk and Cournede, (2015); Stockhammer (2015); Kumhof, Rancière, Winant, (2015); Russo, Riccetti, & Gallegati (2016); and De Haan and Sturm, (2017).

THE STUDY

The study was comprised of historical data from several sources, including the Internal Revenue Service historical data base, the Bureau of Economic Analysis historical record data, the Survey of Consumer Finances, the Federal Reserve, the World Inequality Database, and various public information sources. The purpose was to examine key relationships between economic variables as to their historical connection. From these relationships, the study sought to create measurement indexes identifying the causes of income inequality. From the rich historical record, the study was able to provide information that can be used to understand how many economic variables interact and behave.

From the data sets used, the economic indexes created, and the analysis of their interactions, the authors have established an economic pattern relating inequality to the marginal tax rates. The inequality equation identified says that economic equality increases when the marginal tax rate (MTR) is above 60% and economic inequality (EI) increases when MTR decreases below 40%". This economic inequality relationship will be explored in detail in the paper with supporting data.

THE CURRENT SET OF ECONOMIC CONDITIONS

Tax policy has been at the forefront of political events for the last 40-years, conventional wisdom is that low tax rates for the upper 5% will stimulate and sustain an economy much better than higher rates. The idea is that lowering taxes and decreasing government spending, taken together, leads to growth in the economy, higher-incomes, and greater wealth. In this paper, historical tax policy changes are examined to see how they have influenced economic growth, incomes, wealth, and inequality.

While there are a variety of changeable economic variables, one variable is consistently present, easily observable, and reliable, while also changing over the last 100 years, and that variable is the marginal income tax level. This allows the economic data to be examined over the periods of various marginal rates and resulting economic conditions and changes. Since 1981, the marginal rates have been in decline to levels today similar to those in the 1920s. While all other variables change virtually every year, marginal tax rates exist for periods of time that allow for examination as to cause and effects relationships that may exist. Currently, the economy is in a structural period that has very low marginal levels combined with very low corporate levels so as to as to re-create the period prior to the Great Depression economic collapse.

As the level of marginal rates have declined for the top 5%, Figure 3 (see Appendix) shows that this has not been true for the vast majority of Americans, as evidenced by their increased level of debt with little gain in wages.

Since the economic collapse in 2008, the middle class has had to resort to vastly higher levels of debt while receiving little if any improvement in their wage levels. While the economy has shown an aggregate improvement since 2008, it is obvious that this has flowed to the upper 5% rather than to the middle class. Hence the current situation is one of rapidly increasing wage and wealth inequality.

HISTORICAL MEASUREMENT INDICATORS OF INEQUALITY AND INDEX VALUATIONS

There have been a variety of measures designed to indicate the level of income inequality around the world. The Gini Index is the most widely used indicator to define levels of inequality over a long period of time. While it measures the degree of inequality comparable across nations, it does not provide evidence of the causes of change and inequality. Thus, the need exists for understanding these causes and change. Figures 4 (see Appendix) shows the United States Gini Index. The Gini Index provides historical perspective for the current study. The current authors' study identifies several additional index metrics that provide a rich and in depth view of the rising level of inequality in the American economy.

While the Gini Index seeks to measure the degree of wealth inequality, it is a static measure that does not consider the volume of people who are in the various categories of wealth. Though the index provides a viewpoint each year, it does not allow a real view of the totality of this inequality. Thus, it is necessary to create additional measurement tools that both show why inequality is happening but also the depth and degree of this inequality.

Starting in 1970s tax levels were changed, reversing the 40-year era of high marginal levels. This can be seen in Figure 4 as also having reversed the 40-year downward movement of the Gini Index from more equality to inequality that has reached levels not seen since the Great Depression. Figures 5, 6, and 7 (see Appendix) are sourced from the World Inequality Database research created by Zucman (2019). The current authors include these figures to enhance additional analysis to follow.

The trends are the same as the Gini Index values provide. It is an indication of how there is strong evidence of historical changes during various periods of time that have created a dynamic change in the level of inequality as measured from both of these indexes. This leads the authors to a more in depth analysis of the variety of economic factors that are influencing the same changes in a specific time period.

MEASUREMENT TOOLS TO EXAMINE INEQUALITY

This section describes a series of measurement tools constructed by the authors that provide an examination of how inequality has changed over time using the most basic elements of the economy. These following measurement tools are used:

1. Change in economic living standards over time
2. Economic Sustainability Index (ESI) and Wage/Capital Index (WCI)
3. Wage/Profit Index (WPI)
4. Profit per Worker Index (PEW)
5. Profit Unemployment Index (PUI)
6. Debt/Worker Ratio (DWR)
7. The Wage Dividend Ratio (WDR)

1. The Change in Economic Conditions for Workers

The changes in the composition of the living standard of workers since the 1960s is remarkable, as evidenced by the charts in Figures 8 and 9 (see Appendix) that tract this dramatic change. Figure 8 uses consumer credit as one of the measurements that shows the level of borrowing needed to maintain a standard of living. Figure 9 uses mortgage debt as well, which indicates the level needed to own a home plus living costs. Because the price of

housing has increased much more dramatically than wages, Figure 8 and 9 charts indicate the difficulty this has created for the average wage earner. The Standard of Living Index with and without mortgage debt is shown in the series of charts using IRS historical data (see Figures 8 and 9). The charts in Figures 8 and 9 provide rich evidence of how the impact of economic policies have changed over time how the middle class sustains their standard of living by using more debt at the expense of lower savings, and lower wage levels.

2. Economic Sustainability Index (ESI) and Wage/Capital Index (WCI)

This study has formulated a series of indexes that, when combined, describe macro-economic changes. The first of these is the Economic Sustainability Index (ESI) by Bradley and Eberle (2018). The Economic Sustainability Index established a connection between how the surplus value of the economy is distributed over time, with an additional comparison to changing tax levels (Bradley and Eberle, 2018). The ESI (see Figure 10 in the Appendix) established that, during the 1920's, prior to the Great Depression, a reversal of surplus distribution happened following a lowering of marginal rates from 73% to 24% over a four-year time period (Bradley and Eberle, 2018). Economic collapse and the Great Depression followed. President Hoover signed the Revenue Act of 1932, leading to one of the largest peace-time tax increases in American History. Starting in 1933, marginal tax rates were increased (the Revenue Acts of 1934, 1935, 1936, 1937, and 1940 were signed by President Roosevelt), reaching a peak of 91% with this high rate continuing for a long period of time until the early 1960s. The ESI (see Figure 11 in the Appendix) began a long climb to an index valuation consistently over four until the early 1980s, and this indicated wages were gaining the surplus value in the economy at a four to one level, which resulted in a lowering of inequality, the improvement of the middle class living standards, higher wage levels while still maintaining a reasonable level of profits more than sufficient to maintain economic growth.

Beginning with the Economic Recovery Tax Act of 1981, and the Tax Equity and Fiscal Responsibility Act of 1982, a new policy was put into place that lowered the highest marginal levels and corporate income rates that have continued to this day. Starting in 1981, the ESI began a decline from over 4, indicating an 80% distribution toward wages, to a level of 2.15 in 2005 preceding the Great Recession (see Figure 16 in the Appendix). As marginal tax levels continued to decline from 1981 until 2007, the ESI valuation indicated a movement of vast amounts of the economy toward capital and away from wages.

This is the only time in history where the ESI was below either 2 or 1 indicating that capital was gaining more from the economy than wages. The sustaining influence of this, during the 1920's, provided the basis for the collapse of the economy that was first evidenced from the stock market crash. A result attributed to the fall in demand and destruction of profits. The lost demand occurred due to a decline in aggregate wages from 1924-1929. This leads to the need to examine, over a longer period of time, the relationship between wages and capital. Keeping in mind that when money flows to capital the level of inequality will likely increase, the next index creates a valuable insight into this relationship over time.

What happened over our modern economic history prior to the economic collapse of 2007 was predictable. Once the economy had lost sufficient wage demand caused from the series of tax cuts, it was only a matter of time before the economic adjustment would occur. Many factors influence economic behavior, one of the most powerful influences is the level of taxation. Since no one likes to pay taxes, economic behavior changes rapidly when tax policy changes. In Figures 11 and 12 (see Appendix) the ESI is shown in the Wage/Capital index form and shows the long term trend toward a return to the levels of the 1920's that precipitated the Great Depression.

There are many theories of the value of large capital increases in society providing various benefits to the economic health of the nation, however, the decade-by-decade decline in growth rates is an indicator that there is a connection between low marginal tax levels, higher productivity without associated wage gains, and vastly higher profits. The Wage/Capital Index valuation over time shows what happens to cause the massive movement of money that occurs once profits have increased and capital receives a greater proportion of surplus value.

If one draws a line across the chart in Figure 11 at a level of 3, economic recessions and or depressions have happened during these periods of time. This indicates a persuasive connection, and is useful for predicting future economic behavior. A further examination of this is necessary in periods of time as to what has happened to both capital and wages. The first tax cut period since the Great Depression is the starting point for this examination.

Figure 13 (see Appendix) provides rich evidence that once tax cuts were in place, money began to move from wages to capital. From the 1987 tax cuts, a recession followed that briefly caused capital to decline, due to lack of profits. The 1990 tax increases, followed by the 1993 tax hikes, reversed the previous tax decreases. The 1993-2009 period is shown in Figures 14 and 15 (see Appendix), showing similar effects that appear to be continuing from the 1970-2010 period.

The growth of capital far exceeds the growth of aggregate wages that provides evidence that both income inequality and wealth inequality is being changed annually toward the top 5% who receive the benefits of capital increases. Notice that the only two years that wages gained on capital change were in periods of severe recession. During this period, marginal rates reached levels seen only in the 1921-33 period, that were below 40% maximum, resulting in the movement of money toward capital leading to a period of increases from 1970 to 2010. What is significant in this 40-year period is the finding that even under the Clinton era, capital continued to gain a larger share of surplus value from the economy as the highest marginal rates were below 40%.

The 1993-2009 period is shown in Figures 14 and 15, showing similar effects that appear to be continuing from the 1970-2010 period. Notice that once this movement of money toward capital and away from wage growth, the ultimate result, just as in 1929, was the collapse of profits and capital. First, the examination of the period following resulting tax levels below 50% with Figure 14. While both President Bush and President Clinton did increase taxes to prevent massive deficits, those levels were still below the ESI level of 3 that is the minimum for economic sustainability and growth.

As this period saw continuing movement toward capital, with substantially higher growth rates than for wages, the increase in wealth and income inequality continued. In fact, during this period it expanded rapidly. At the end of this period, the dot.com bubble burst and the capital markets crashed. This, for a brief moment, paused the growth of inequality, but once the new tax cuts were put in place, not only did the movement of money and wealth toward the top 5% increase, it expanded at the highest rate of the 20th Century. The lost wealth was rapidly regained. Figure 15 shows this period in vivid detail.

While this period did see gains by wages, it was far below that of capital prior to the 2008 economic crash. The capital increases from 2003-2007 totaled 56%, while wages gained during the same period was 19%. A massive movement that creates inequality was evident.

The ESI index from 1981-2000 is shown in Figure 16 (see Appendix). The ESI measures the ratio of the aggregate level of wages to aggregate capital. As one can see from Figure 16, there is a long term trend over 20 years that has virtually cut in half the ESI ratio, indicating massive flows of money toward capital as wages have been static. Informative. As marginal tax rates were cut during the 1980's, the ESI index decreased dramatically. As

marginal levels for the top earners were below 40%, having been cut from over 70% at the start of this period, it would appear that capital, and thus inequality, was still gaining even with a growing economy. The benefits continued to flow to the top 5%. Figure 17 shows this comparison.

When the ESI was above 3, the Gini Index was stable. When the tax rates were cut, the ESI began its downward movement and the Gini Index began its upward movement. The long term trend indicates what is happening in the increasing inequality of income and wealth. The connection is clear using these two measurements.

The level of marginal tax rates influences the relationship between wages and capital, and thus the level of inequality. There can be little doubt as seen in Figure 11 (and also seen in Figures 8 through 17) that there is a relationship between inequality and marginal tax levels. This leads to the need to analyze the relationship between wages and profits over the same period of time.

3. The Wage/Profit Index (WPI)

An economy can be described by how the economic surplus created in the economy is paid to various segments of society. One measure of this is the Wage/Profit Index (WPI). For each dollar of wages earned, dividing by the profits will create an index valuation that can be tracked over time. This establishes the changes in the economy that occur, and the trend of these changes. The wealth inequality can also be traced to the WPI over time. Figure 18 (see Appendix) provides a decade-by-decade view of the WPI valuations ranging from a high of almost 27 in 1970 to a low of less than 9 by 2013.

Figures 19 and 20 (see Appendix) show a high level for the WPI, but as soon as taxes are cut, the WPI moves downward to 66%. Also, even under the Clinton Administration, with higher rates, but below 40%, it went down. The reason it went down is because there is a 60% threshold that changes where money goes. The obvious long term trend is downward, resulting in only ten dollars of wages earned to one dollar of profits in 2014, only one third of what was true in 1970. Profits are one of the main drivers of capital investment, and thus wealth creation, this view enforces the increase in inequality. In 1970, wage earners had over $31 to spend for every dollar of profit, by 2014 it had declined to under $9. The implications of this change are varied and complex but one major issue stands out above all else in that the level of inequality follows this trend. Another way to view this trend is by creating percentage change ratio of wages to profits. It is possible to also track over time the change that is happening which are in agreement with the valuations in Figure 19 and Figure 20 shows this trend.

The data suggests that the Wages/Profit index also supports the movement toward inequality in a very dramatic way. There is no doubt that profits are improving vastly more rapidly than aggregate wages from workers who create the surplus value added over a long period of time. This decline in the Wages/Profit Index does not include an analysis of the levels of aggregate wages so as to eliminate the high levels of income over $500,000 which would certainly create an even more declining position. Understanding the Wage/Profit Index analysis leads to the next Index, the Profit per Worker Index valuation.

4. The Profit per Worker Index

The WPI measures the aggregate wages per dollar of profits, it is also necessary to look at the amount of profit per employed worker as measured by the authors' Profit per Worker (PEW) Index. The Profit per Worker ratio (PEW) measures how much profit each worker is creating over time. Measuring the profit per worker is vital for understanding the

role the PEW ratio plays in identifying inequality movements. Inequality movements can be identified by combing the ESI movement with the WPI and PEW movements. One can easily understand that if workers are not gaining income while the profits per worker (PEW) is increasing, it must mean that higher productivity is increasing the gains that capital is earning. What is historic about this element is that the productivity gains have always resulted in higher wages until 1981 (see Figures 21, 22, and 23 in the Appendix). From that time forward, as the PEW valuation shows, money is moving from wages to profits and capital. While various studies have discovered a recent disconnect of productivity to higher wages (Bivens, Gould, Mishel, and Shierholz, 2014; Benmelech, Bergman, and Kim, 2018; Stansbury and Summers, 2018), the PEW values show how much disconnection has happened. Thus, the ESI, WPI, and PEW ratios taken together all indicate the actual movement of money into capital.

One can certainly say that the massive increase in wealth concentrated at the top 5% of society has roots in the 34-year change in the PEW ratio. Profits flowing to the top 5% means that the wealth creation ability of the wage earner has virtually disappeared. Since the Great Recession of 2008, over 90% of all new wealth and income gains have flowed to the top 5% (Bivens and Mishel, 2015; Saez, 2015). One must ask at what point this ratio becomes such that the economy will be unable to grow.

As one can see, the level profit increases relative to the number of workers is dramatic, especially when compared to the PPW shown in Figures 21, 22, 23, and 24. During this time many technological advances happened that rapidly increased productivity. Looking at Figure 23, even during periods with high tax levels, workers lost wage gains. Every worker was, by 1970, creating high levels of profit, but at this time taxes were also high. By 1980, taxes began their decline, but at the same time the profit per worker doubled over 14 years.

The Profit per Worker Index, combined with the WPI ratios, provides even more depth and understanding to the reasons behind wealth inequality increasing so dramatically. The period prior to 1972 was very stable, with small up and downs, but sustained at a level that would allow economic growth to happen. However, everything changed in 1986 when massive movements occurred, as indicated by the PEW and Wage/Profit valuation changes. This has happened over 29 years time from 1981-2010, where there was more than a 400% movement in favor of profits over workers' wages. Certainly during this time productivity expanded rapidly, but not enough to create this level of increase. What event in economics changed in 1986-87? The answer is the business and high income tax cuts that allowed companies, and the top 5%, to keep an ever greater share of income each year. Two views of what happened are provided in Figures 23 and 24.

As one can see, the level of increase for profits relative to number of workers is dramatic, especially when compared to the PPW shown in Figures 21, 22, 23 and 24. During this time many technological advances happened that rapidly increase productivity. It can be seen in Figure 23, that even with high tax levels during this time, the workers lost wage gains. Every worker was, by 1970, creating high levels of profit, but at this time taxes were also high. By 1980 taxes began their decline but at the same time the profit per worker doubled over 14 years.

To provide a different viewpoint using the same data set, one can see in Figure 24 that the Wages/Profit ratio has declined dramatically after the Tax Cuts of the early 1980's then continued a steady decline toward today's level. It is interesting that even when tax levels become stabilized over time, this ratio continues to decline indicating that there is a marginal tax level minimum for a stable inequality value. This will be discussed later in the paper.

In combination, Figures 23 and 24 provide rich evidence of the dramatic change in the level of profit per worker that for 30 years was virtually flat during a period of very high

marginal tax rate. Once this declined, the growth of profits that were driving inequality in both income and wealth gains became a virtual vertical upward movement. The only dramatic change in the economic climate was the level of taxation.

By computing the ratio of aggregate wages to aggregate profits following the massive tax cuts of the early 1980s, one can see this change from yet another viewpoint. The same trend is present, as immediately after the tax cuts the decline in this ratio was almost a vertical line. Once this level of 2.4 was reached, until taxes were again decreased starting in 2001, another decline down to 2.2 is seen. The combination of the descriptions of these economic results provides substantial insight into what is happening in the economy to create inequality.

By including the ESI valuations that show the surplus value added being moved from aggregate wages to capital following tax cuts in 1981 and thereafter, one gains further insight into the movements toward higher inequality. Figures 25 and 26 (see Appendix) illustrate these movements.

Prior to the 1981 tax cuts the ratio of Wages to Capital was far above the ratio of Wages to Profit. As the marginal tax levels were cut, the ratios rapidly converged, and at times, the Wages/Profit ratio was above the Wages/Capital ratio (see Figure 25 and 26).

It is necessary to examine the post-tax cut period in more detail as it shows that marginal tax levels have totally changed how money flows from the surplus value added based upon these marginal rates. As this mirrors the other ratio changes, both before and after tax levels are lowered, it is further evidence that inequality flows from the level of taxes. The rewards of the economy have reversed from the earlier period during high marginal tax levels.

5. The Profit Unemployment Index (PUI)

One must now examine the historic levels of unemployment, not as a percentage, but rather in actual numbers, and compare that to profits created during this unemployment. If there are fewer workers creating greater profits, then this is an expansion of the wage element influence upon the economic growth of society. When productivity is increasing and wages are stagnant, it becomes possible to use fewer workers to create the same, or a higher level of profits. The Profit Unemployment Index (PUI) is a measure of this concept (see Figure 27 in the Appendix).

Over time it becomes evident that fewer workers, earning lower real wages, contribute to increases in company profits. From 1948-1980, the level of profits to the number of unemployed workers was consistent with only marginal changes upward. But, starting in the 1970's, and expanding from the 1980s, the level of profits per unemployed worker exploded upward. Companies are gaining, while not rewarding their workers with higher wages. In fact, more part time employees has been present for over 20 years, as this allows a lower wage base, without any benefits. Part time workers, while still working and being counted as employed, lowers the unemployment rate and indicates a stronger economy, in fact, this is not true as evidenced by the PUI index. As more numerical unemployed and under-employed workers are present, profits have continued to increase. The overall result was a 35-year decline in the share of surplus value gained by the middle class. This upward movement was only interrupted by the 2007 economic crash that caused profits to decline rapidly for a short period of time. However, the trend has continued upward to today's level of over $250,000 profit per unemployed worker.

When this level of measurement is put into perspective, the evidence of how money is moving from the middle class to the wealthy is massive in both size and scope. Where once $25,000 in profits from every unemployed worker in society was the norm for decades, after

the massive tax cuts starting in the 1970s, it is now at a level that indicates a much more unequal society. This level means that all unemployed could be working making above poverty salary levels and companies would still be making over $200,000 in profit for each worker newly employed. Perhaps this statistic, above all others, points to the change in the economic framework of the American economy. The increase in structural unemployment levels over the last 40 years using this measurement is not because of cost increases and productivity increases, but rather a result of profit increases.

6.   The Debt Worker Ratio (DWR)

There is another way to view these processes that has been happening over time, and that is to compare the worker debt situation. If workers wish to maintain their standard of living over time, while wages are stagnant in the face of inflation, the only way to make up the difference is to use borrowed money. By using debt, both current and future income is affected. Current income is less, due to inflation, while future income is lowered due to interest payments. This combination certainly will lead to a continuing decline in wealth. At the same time, the interest paid is a virtual standard of living sustaining tax paid to providers of credit instruments. To measure this, the authors use the Debt/Worker Ratio (DWR), which is calculated by comparing the consumer debt to the aggregate wages.

To maintain their standard of living, while facing inflation from price increases, combined with no salary increases, households borrow money, causing the Wage/Debt Ratio to decline dramatically from a ratio of 28 in 1990 to 1.96 by 2017 (see Figure 28 in the Appendix). This has become the hidden tax on the middle class that results in moving more money from wages to capital. It is noteworthy how closely this mirrors all the above economic measurement indexes. The Wage/Debt divergence which happened following the tax cuts started in 1981 is clear from looking at Figure 29 (see Appendix).

According to Coibion, Gorodnichenko, Kudlyak, & Mondragon (2014) increased borrowing by lower-income households and inequality are directly related as households try to increase their consumption, sometimes referred to as "keeping up with the Joneses". "Keeping up with the Joneses," motivates lower-income individuals, families, and households to commit a large amount of their monetary funds to consumption, and to achieve this, they must increase their borrowing and use credit-financing, resulting in higher debt payments, and therefore, experience difficulties saving for the future, leading to more inequality (Kumhof, Rancière, & Winant, 2015; Maurer & Meier, 2008; Guven and Sørensen, 2012; Alvarez-Cuardrado & Japaridze, 2017). According to Veblen (1899), society's leisure class establishes the standards of status, and lower-income households try to match or imitate the wealthy leisure class through conspicuous consumption and/or conspicuous leisure. Alvarez-Cuardrado and El-Attar Vilalta (2018) claim that, "individual saving rates decrease with reference income while aggregate saving decreases with income inequality, when households care about their consumption relative to others". Behavioral economics emphasizes the interdependent preference behavior of individuals and how these preferences are influenced by the consumption, spending, and behavior of others in society. Veblen (1899); Duesenberry (1949); Frank (1985); Ireland (1994, 1998); Schor (1998); and Frank, Levine, & Dijk (2014) all suggest that part of household spending is a signal of their status and is related to "keeping up with the Joneses". Furthermore, Frank, et al. (2014) also indicate that lower-income households take on debt to achieve the status related spending.

Another relevant credit market/debt market phenomenon is the characteristic tunnel effect first described by Hirschman and Rothschild (1973). The tunnel effect suggests that when individuals notice others doing better they will use this information as an indicator of their future, predicting their own situation will improve soon (Hirschman and Rothschild,

1973; Lêvy-Garboua, & Montmarquette, 2001). The optimism from the tunnel effect encourages individuals to borrow more for consumption, investment, and education, the effect is widespread in transition economies (Senik, 2008; Bookwalter and Dalenberg, 2010; Knight and Gunatilaka, 2011; Knight, Song, and Gunatilaka, 2009; Akay, Bargain, and Zimmermann, 2012).

Rajan (2011) and Fitoussi and Saraceno (2010) both claim that the increasing demand for debt finance spending, for lower-income and middle income households, took place to overcome falling wages so that they could continue their previous consumption levels. Rajan (2011) further claims that lower-income borrowing transferred wealth and income to higher-income earners, who provided the funds to finance the debt finance spending, increasing inequality even more. Perugini, Hölscher, & Collie (2015) find a positive connection between inequality and debt finance spending since 1970 across eighteen economies. Iacoviello (2008) also find a positive connection between inequality and household debt. However, Coibion, et al. (2014) find that high earning households in societies with more inequality accumulated more debt relative to their incomes than did low and medium income households. While Lysandrou (2011), and Goda and Lysandrou (2014) indicate it was more likely the accumulation of wealth by the top income earners and their desire for more wealth that led to increased lending to the lower-income and middle income earners.

7. The Wage Dividend Ratio

One of the indicators of increased money flow to capital and the rich is in the form of stock dividend payments owned by the top 5%. Thus, examining the change over time in this ratio with the tax cuts indicated, show the pattern of movement from a ratio of the mid 20s before the tax cuts, toward a decline to under 10 currently in 2019. As the post-Depression Era saw a continual gain by wages in this ratio until 1980, with tax levels upward of 80%, followed by the massive decline after tax cuts, provide rich evidence supporting the cause of income inequality can be traced to the tax levels being below 60%. From Figure 30 (see Appendix), this pattern can be seen.

Following the tax cuts, each time surplus money from higher profits moved to dividends, and thus wealth moved to the top 5% who own stocks, causing a further shift in inequality. As is seen from all the discussed indexes representing basic elements of the economy that create and determine where income and wealth moves, taxation is a prime variable, that when changed, impacts inequality.The evidence is thus contained in virtually all measurements of the economic gains in our society.

SUMMARY DISCUSSION OF RESULTS

The indexes studied (Economic Sustainability Index, Wage/Capital Index, Wage/Profit Index, Profit-per-Worker Index, Profit Unemployment Index, Debt/Worker Ratio and the Wage/Dividend Ratio) in this paper were found to have very similar patterns over time. The indexes provide an understanding of the effects of tax changes, and other economic events, that cause inequality to change. All of the indexes track a very similar pattern, especially after tax changes. The combination of these trends in all the various elements of the economy, point to an expanding level of inequality that was created after the marginal tax levels were lowered. History provides further evidence of this pattern by using the 1920s period that saw a similar lowering of marginal tax levels down to 24% that caused the very same inequality changes.

After the Dow Jones reached its lowest level, in July of 1932, at the depths of the Great Depression, the Revenue Act of 1932 raised tax rates across the board, with the rates on top incomes rising from 25 percent to 63 percent. The level of inequality began to decline and was sustained until the early 1970s as tax levels expanded to over 90%. During this period of economic expansion and the creation of the middle class, inequality in America was the lowest in history and was sustained over a long period of time. Thus, in the last 100 years, there have been three periods of tax policy, two with low marginal rates and one with high marginal rates. This paper has analyzed the effects of tax changes on inequality. The study finds inequality movements are significantly influenced by the level of marginal tax rates, especially for the upper 10% of the economy. The results suggest that rates over 60% cause inequality to decline, while rates under 40% cause a rapid change toward high inequality and likewise. The tax level changes provide the following summary (see Figure 31 in the Appendix) as to how wealth and income is moved upward to create the massive inequality we see today in the American economy.

Once tax levels are cut, there are a series of economic behavior changes that impact the economy, creating both wealth and income inequality to shift toward the top 5%. The effect is a movement of funds from the wage demand economy to the speculative economy. Reinvestment in company returns are lower than can be gained outside the company. In addition, dividends are paid out as cash accumulation from lower taxes occurs, a strong signal to investors that company profits are high. When the economy slows down and profits are not growing, companies use stock buy backs to bolster stock prices. Eventually, the cost to borrow becomes lower, companies borrow at the lower rates and use those funds for short term gains creating long-term interest expense (and reducing future taxable income).

Companies behave on a micro level, making decisions only at that level when the marginal tax rates become so low that outside speculation investments become more attractive than internal investments. The result is that companies focus upon their short term stock market valuation instead of the long term investment needs.

An aggregation of companies and their microeconomic behavior creates the macro result for the economy. The macroeconomic influences of high tax rates compel companies to reconsider investment and financing decisions that would not have been suitable with lower tax rates. The macro economy responds to the series of microeconomic decisions as a totality of decisions. The result is that the macro economy will ultimately become the combination of micro decisions that have removed money from the internal company into the non-productive speculation economy enhancing the wealth of those that gain from these investments. The long run result is a decrease in consumer demand and decrease in profits.

One response to lower profits is to repurchase stock, this helps to keep the market share price high to benefit stockholders. Once this has run its course, costs cutting measures are taken and a reduction in the workforce occurs. The micro impact is to try to sustain profits in the short term, but the macro impact is to create higher unemployment and thus lower demand in the economy. Eventually, lower stock prices will occur as a result of these actions, leading to a decline in asset values, a decrease in consumer demand, and cumulating in a decrease in growth and triggering a recession.

The authors have described several economic behaviors related to tax levels and inequality that have been present in the economy for over 100 years. The evidence of the authors' analysis, described earlier in the paper, shows how lowering tax rates leads to changes in economic behaviors, that eventually results in recession. To understand why this has happened is the subject of a further, more in depth study, and future research. However, it can be said that the primary impetus for money no longer going to wage gains, but rather to capital increases, and thus higher levels of inequality, is government tax policy. The marginal tax rate has changed under 40% twice and over 60% twice since 1916. These tax changes

have resulted in inequality changes that have been studied in this paper. Even while the incredible increases in productivity from the technological revolution has occurred, due to low tax levels, the benefits have flowed to the capital part of the economy, and thus caused higher inequality, just as happened in the 1920s era when this was not present. Thus, this economic behavior is associated with the level of taxes. The following relationship is found from the study. The Inequality Equation states that, Economic Equality (EE) increases when the marginal tax rate (MTR) increases above 60% and Economic Inequality (EI) increases when MTR decreases below 40%. In summary, this study has connected the variables of aggregate wages, aggregate capital levels, profits, the level of unemployment, dividend payments, the level of employment, and marginal tax rates into a pattern of economic results that can be attributed to economic behavior that is associated with changes in marginal tax rates.

POSSIBLE SOLUTIONS THAT COULD DECREASE INEQUALITY

Tax policy influences every level of the economy and is one of the primary reasons for why inequality is growing at unsustainable levels. The 1920's and 1930's demonstrated how a massive decline in economic activity resulted from extremely high speculative pricing bubbles that did not reflect company performance values. One explanation for this phenomenon is the lack of demand that existed as a result of the debt ridden economy. In addition, high speculative prices resulted in an inevitable and massive decline in the markets. Once marginal tax levels are increased above 60%, economic behavior changes and money begins to flow toward wages rather than capital. Thus, the explanation for inequality points to the 1933-1973 period of low inequality that was sustained over 40-years in the midst of economic growth.

One solution involves increasing the highest marginal rates that affect the top 10% of earners to above 60% resulting in a change in economic behavior that could fosters higher wages, and thus increase consumer demand. But, also the corporate tax levels would also need to be increased back to the 1960's rates when growth was maximized. This would result in a change in corporate economic behavior that could likely lower inequality over time.

One additional element that has been suggested is to tax the increase in assets values that has occurred since 2010 in an effort to reduce government deficits. Once the deficits are eliminated and returned to surpluses, then the total debt can be paid down year by year. Paying down the debt will lower interest rates, stimulate housing growth, increase GDP, lower unemployment, and create greater wealth for the middle class. While tax increases are never popular, the historical evidence suggests that the result are sustainable to the overall American economy and could establish a more equal distribution of the created wealth and income.

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APPENDIX

Figure 1: Inequality Creation Flow-Chart
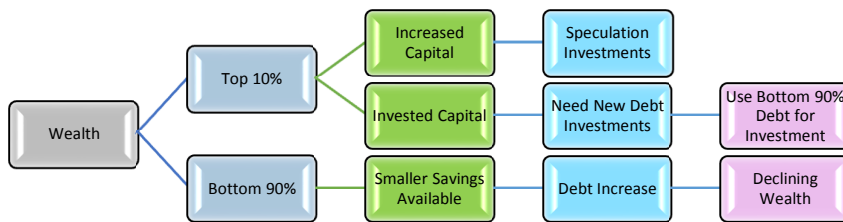
Figure 2: Tax Cut Flow Chart
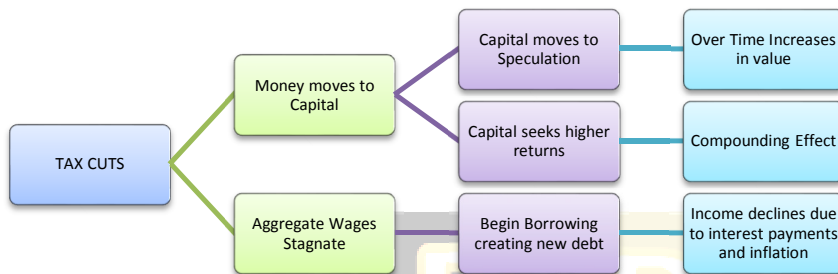
Figure 3: Aggregate Wages and Consumer Debt, 2008-2017. Compiled from IRS data, Bureau of Labor Statistics, a Survey of Consumer Finances, and authors' calculations.
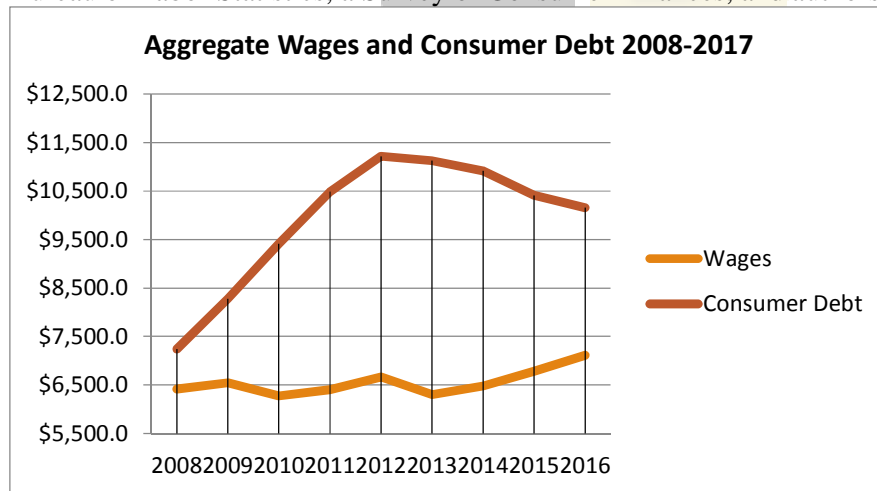
Figure 4: United States Gini Index 1912 -2010.
Source: Berruyer, Federal Reserve Bank of St. Louis
and the U.S. Bureau of the Census.
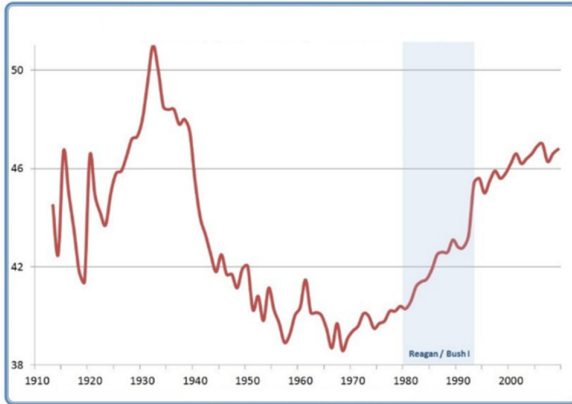
Figure 5: U.S. Income Share of Top 1% and Bottom 50%.
Source: Zucman (2019), World Inequality Database, (WID.world, 2017).
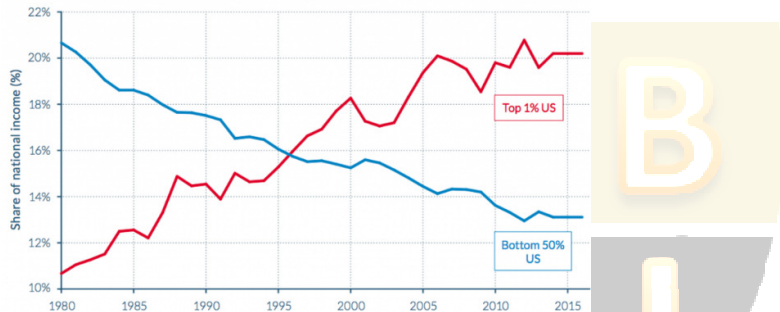
Figure 6: The Top 1% U.S. Income Share, 1920-Current.
Source: Zucman (2019). World Inequality Database, (WID.world, 2017).
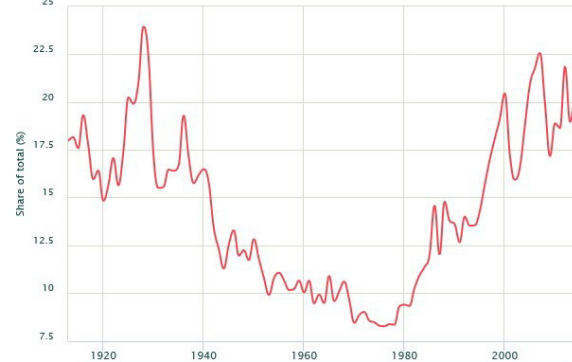
Figure 7: Net national wealth to net national income ratio, U.S. 1870-2015.
Source: Zucman (2019). World Inequality Database, (WID.world, 2017).

Figure 8: Standard of Living Charts. Source, IRS historical data.
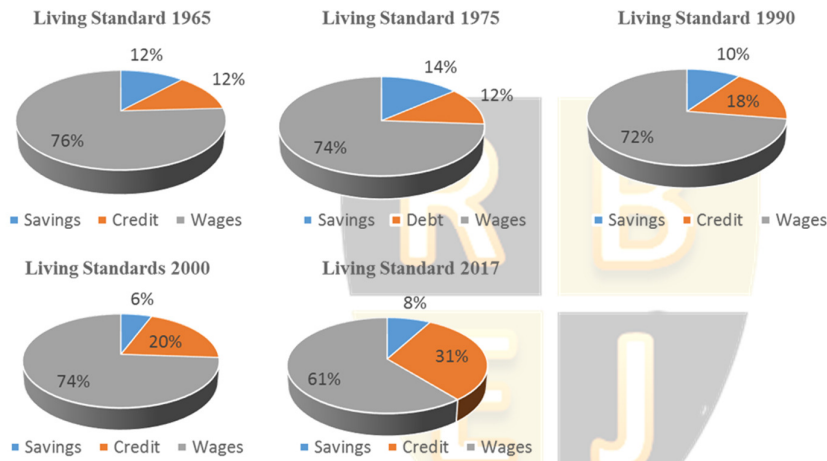
Figure 9: Standard of Living Charts including mortgage debt. Source, IRS historical data.
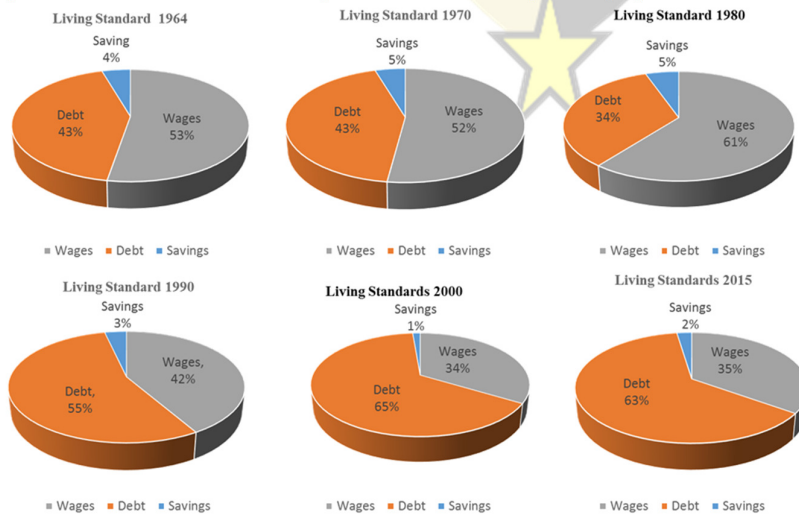
Figure 10: The ESI or Wage/Capital Index, 1920-1928.
Compiled from IRS data sourced from (Bradley and Eberle, 2018).
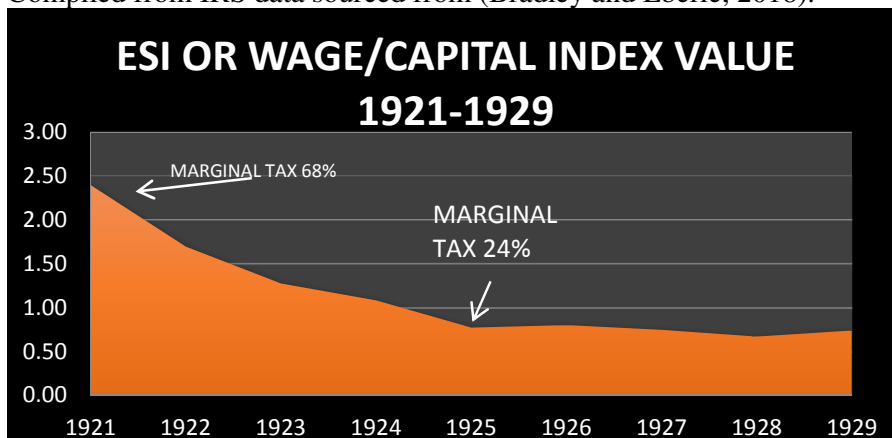
Figure 11: Wage/Capital Index Value 1920-2005
Complied by authors from IRS data
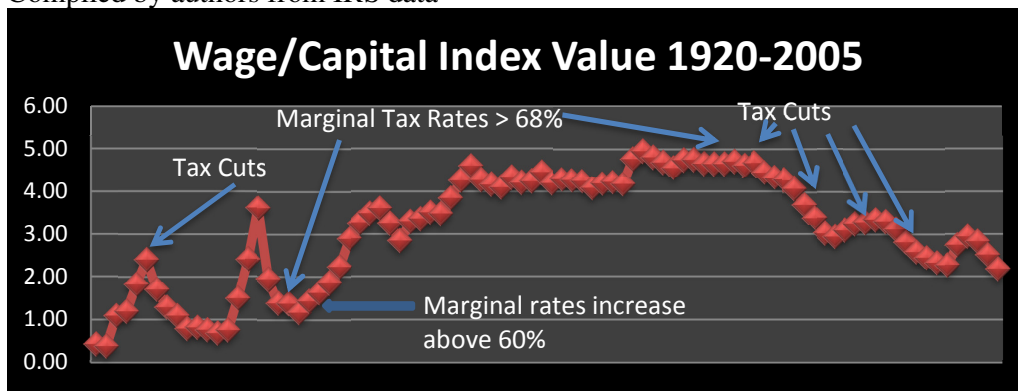
Figure 12: Wage/Capital Index Value 1999-2016
Compiled from IRS data and authors calculations.

Figure 13: Changes in Wages vs Capital
Compiled from IRS data and authors' calculations.
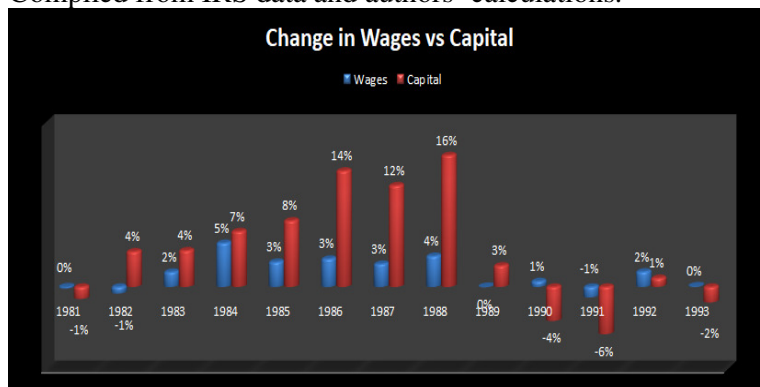
Figure 14: Wage vs Capital Change, 1993-2001 and 2001-2009
Compiled from IRS data and authors' calculations.
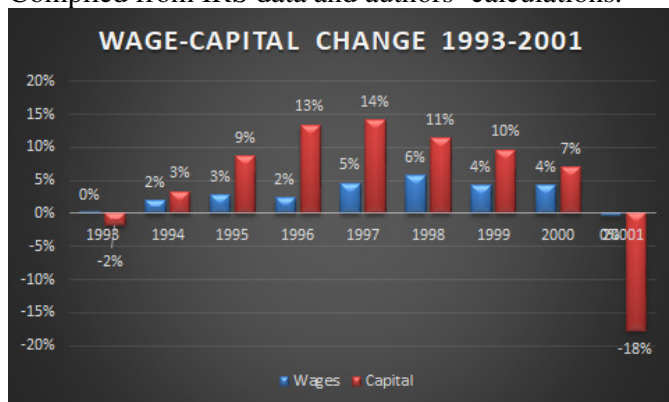
Figure 15: Wage vs Capital Change, 1993-2001 and 2001-2009
Compiled from IRS data and authors' calculations.
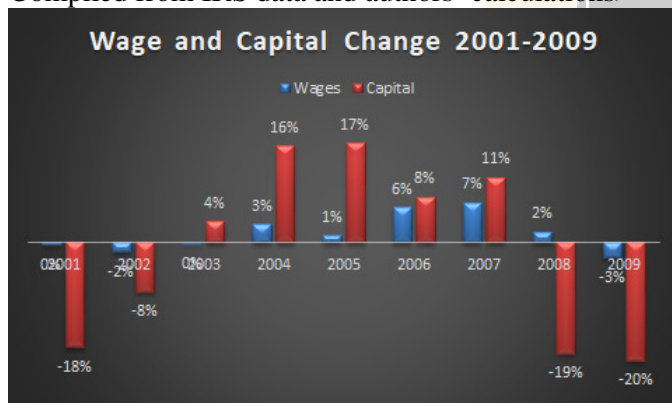
Figure 16: ESI Ratio 1981-2000.
Compiled from IRS data sourced from (Bradley and Eberle, 2018).
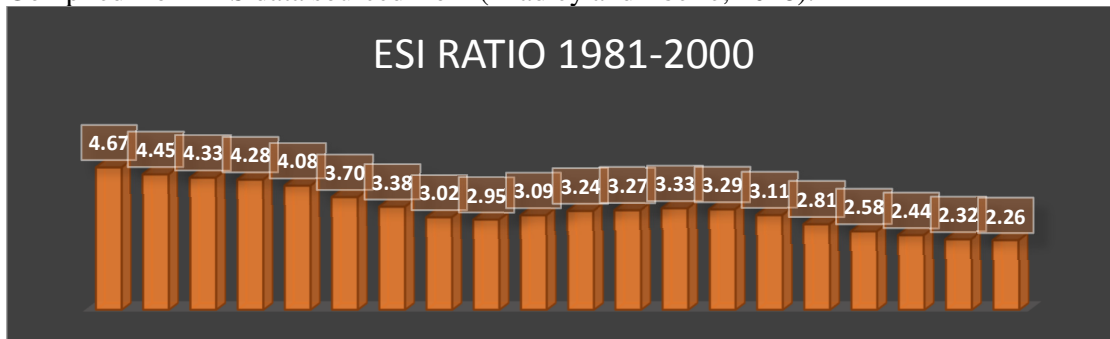
Figure 17: ESI Ratio compared to Gini Index 1918-2008.
Compiled from IRS data sourced from (Bradley and Eberle, 2018).
Source: Berruyer, Federal Reserve Bank of St. Louis and U.S. Bureau of the Census.
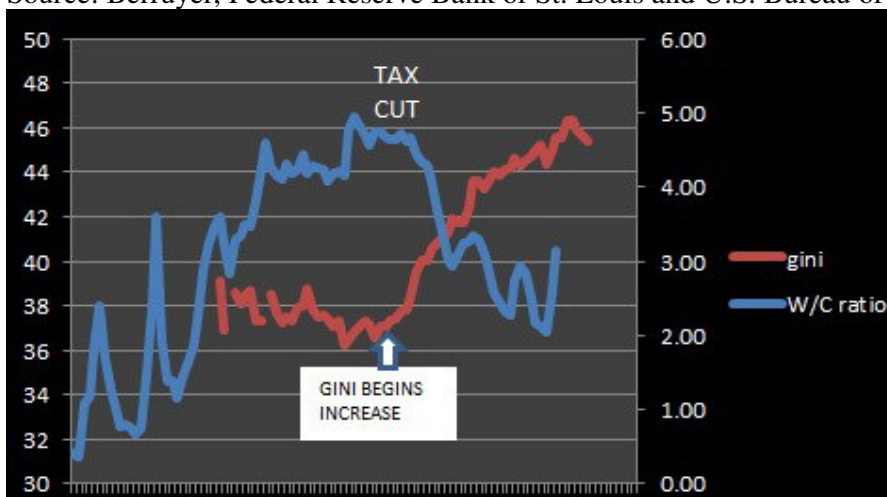
Figure 18: WPI, 1959-1970, 1980-1993, 1992-2001, and 2001-2004
Compiled from IRS data and authors' calculations.
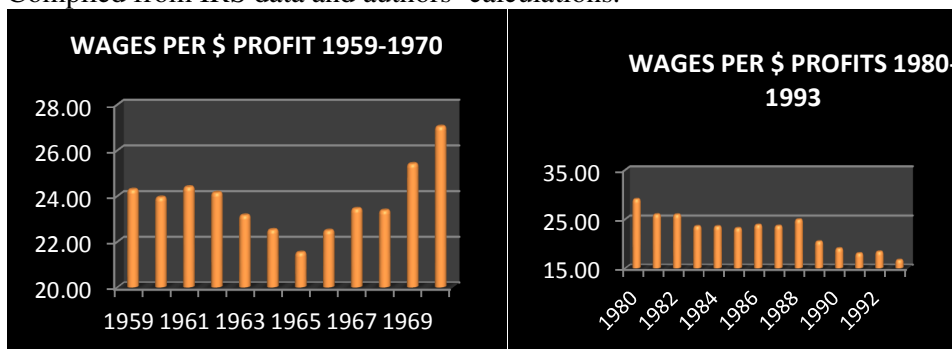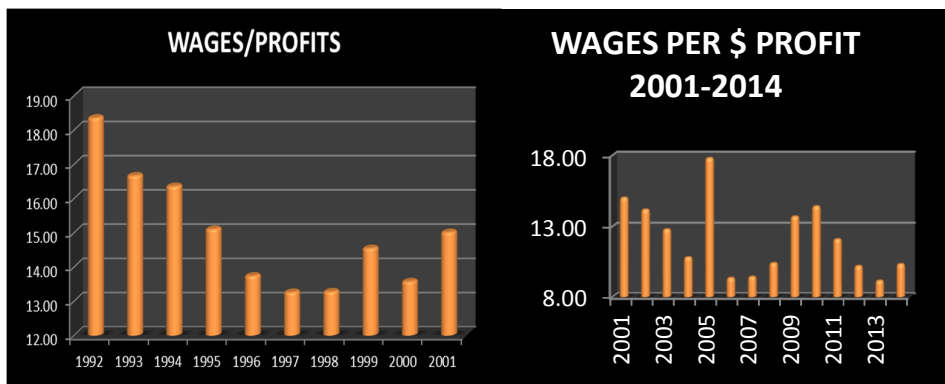
Figure 19: Wages Per $ Profit from 1964 to 2014.
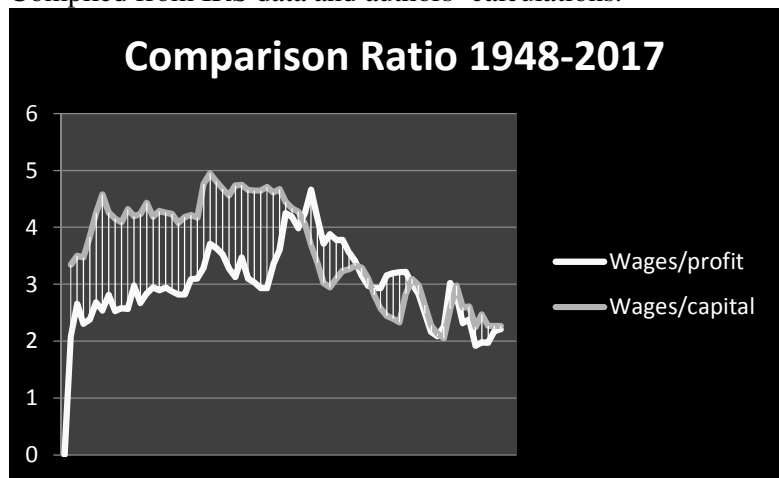 Compiled from IRS data and authors' calculations.
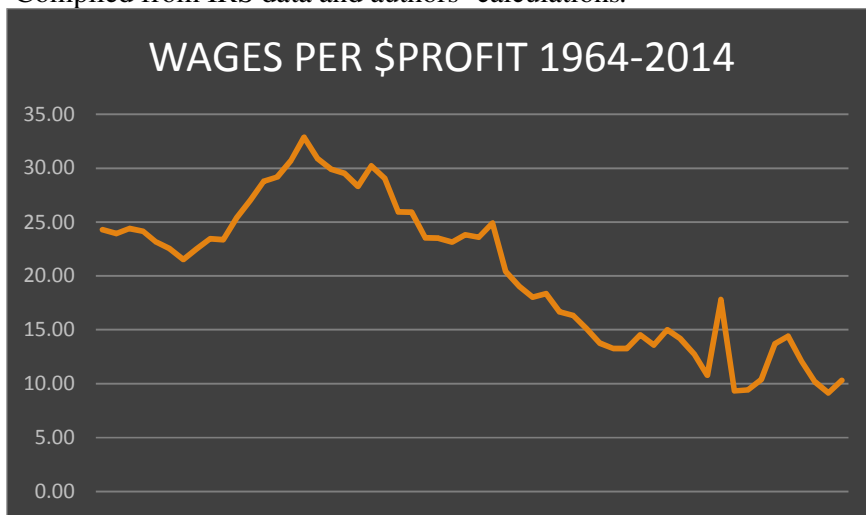
Figure 20: Percentage Change Ratio of WPI, 1990-2010
Compiled from IRS data and authors' calculations.

Figure 21: Wages vs Profits, 1947-2018.
Source: Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis.
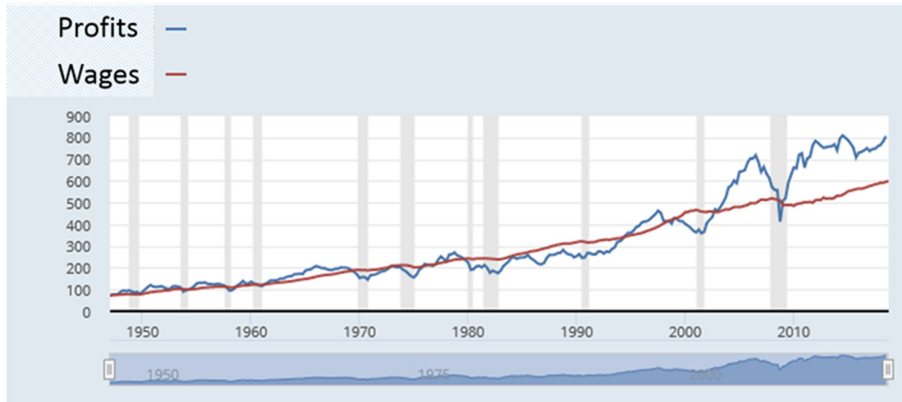
Figure 22: PPW or Profit per Worker, 1980-1994.
Compiled from IRS data and authors' calculations.
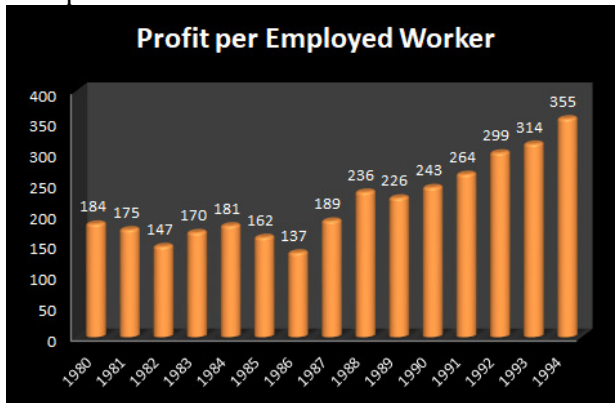
Figure 23: Profits per Worker 1947-2018.
Compiled from IRS data and authors' calculations.
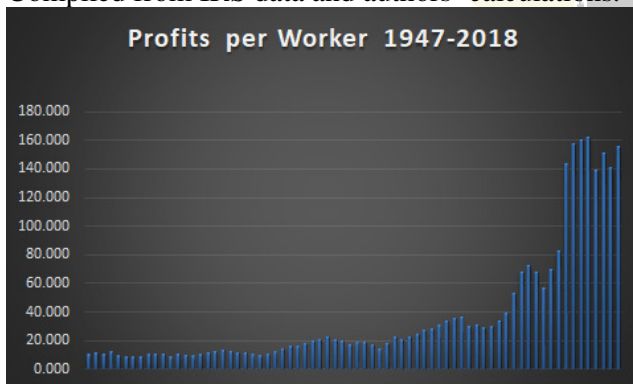
Figure 24: Ratio of Wages to Profits RWP, 1984-2017.
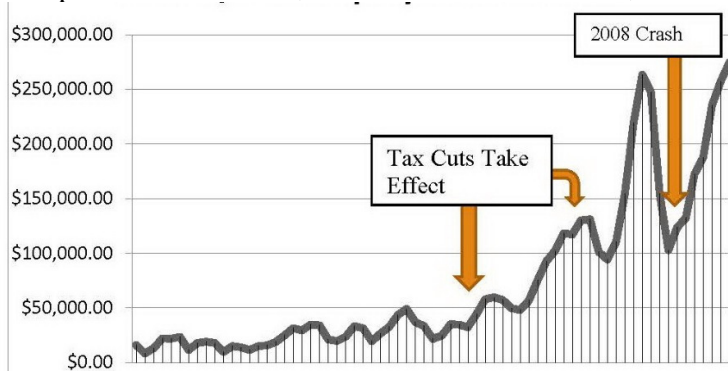
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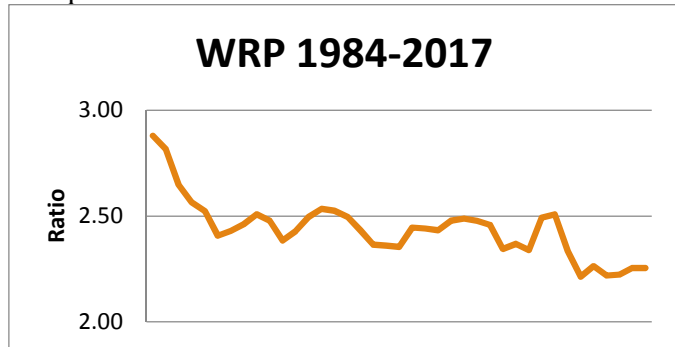
Figure 25: Ratio of Wages/Profit compared to Wages/Capital, 1948-2017.
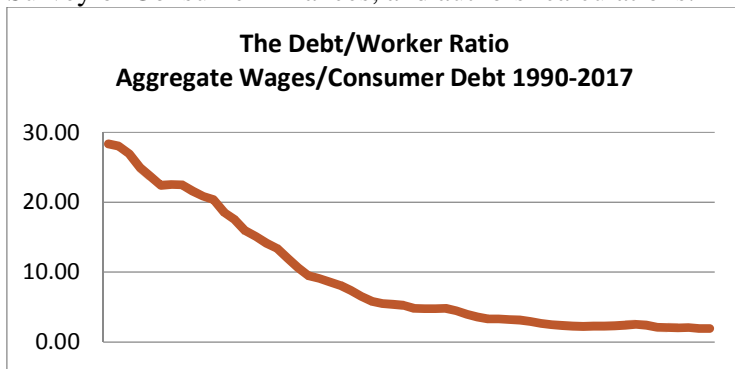Compiled from IRS data and authors' calculations.

Figure 26: Ratio of Wages/Profit compared to Wages/Capital, 1981-2017.
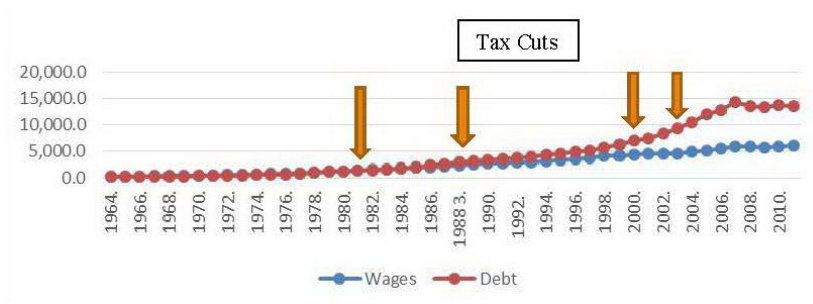Compiled from IRS data and authors' calculations.
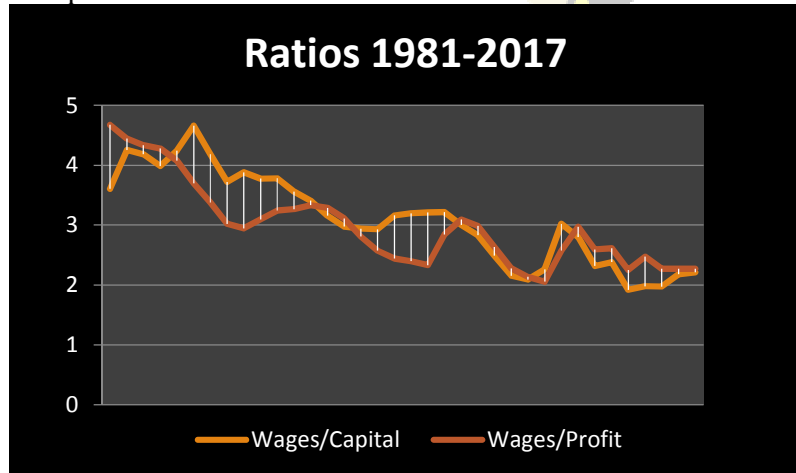
Figure 27: Ratio of Profits to Unemployed (PUI) 1948-2017**.**
Compiled from IRS data, Bureau of Labor Statistics, and authors' calculations.

Figure 28: Aggregate Wages/Consumer Debt 1990-2017
Compiled from IRS data, Bureau of Labor Statistics,
Survey of Consumer Finances, and authors' calculations.

Figure 29: Wages and Debt 1964-2010.
Compiled from IRS data, Bureau of Labor Statistics, Survey of Consumer Finances and
authors' calculations.

Figure 30: Wage/Dividends, 1930-2016
Compiled from IRS data and authors' calculations.
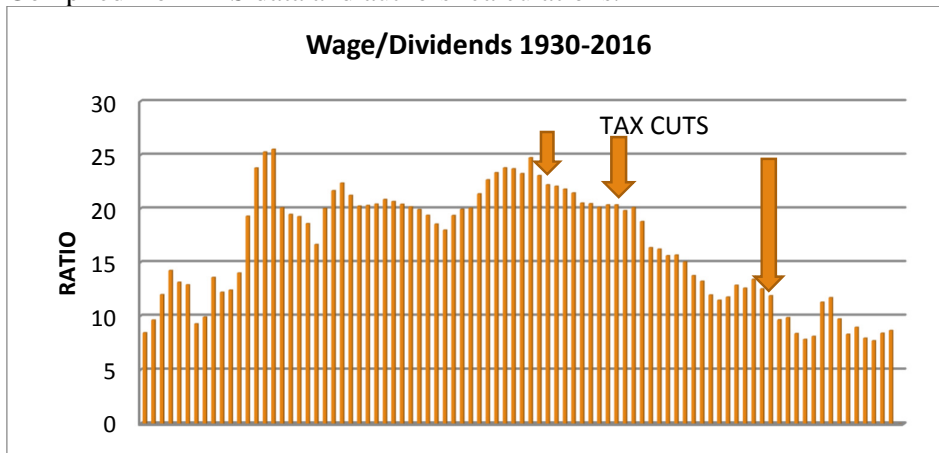
Figure 31: How the economic top-tier create wealth and the role of low tax rates.