

Putting Minsky into Space: The Geography of Asset Price Bubbles in the United States, 1994–2018

John Posey [ORCID id: 0000-0002-2221-8882]

Copyright: John Posey, 2021

You may post comments on this paper at

<https://rwer.wordpress.com/comments-on-rwer-issue-no-97/>

Introduction

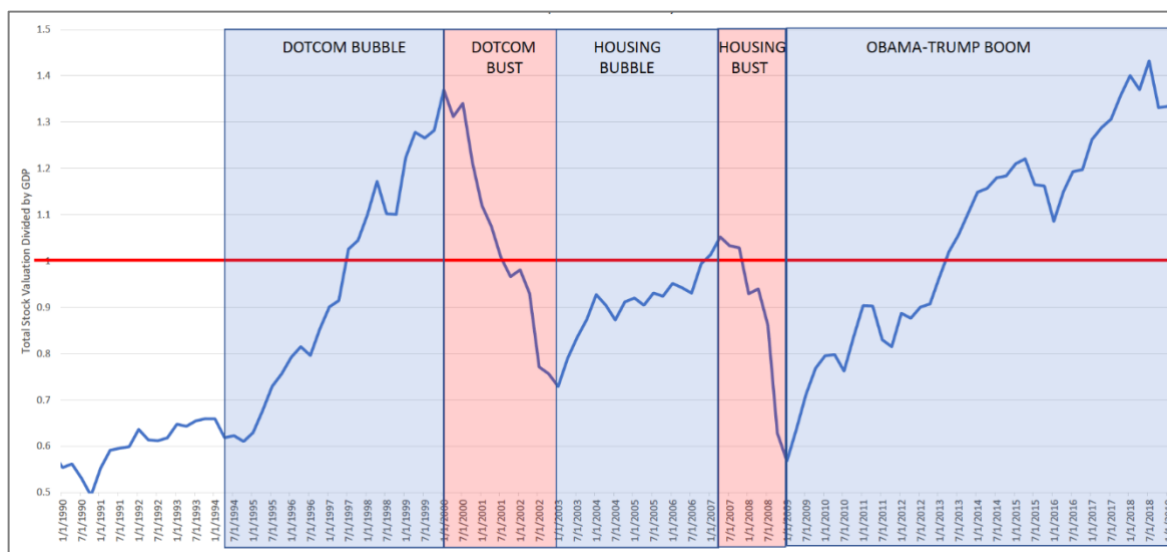
There is a long and rich tradition of scholarship devoted to the topic of differences in income growth among countries or regions, with several well-developed approaches. However, all of the prior approaches remain rooted in a Fordist world in which per capita income is driven by wages derived from producing goods for sale in markets. None of the research traditions on the topic of regional income growth has yet come to reckon with the fact that asset price bubbles have come to dominate wealth accumulation in this financialized era of money manager capitalism.

There is, of course, an important research tradition devoted to understanding the effects of financialization. Most notably, before his death in 1996, Hyman Minsky detailed the dynamics that made speculation on asset prices the driving feature of the modern American economy. In subsequent years, Minsky's followers, most notably L. Randall Wray, have applied Minskyan insights to understand the major episodes of asset price appreciation over the last quarter century. To date, there has been little analysis of how asset price bubbles have played out spatially. This article aims to apply Minskyan understandings of asset price bubbles to explore geographic redistributions of income in the United States over the last quarter century.

Between 1994 and 2018, there were three periods of rapid asset price appreciation, punctuated by two episodes of asset price deflation (see Figure 1). The dotcom bubble of the late 1990s burst in 2000, leading to a two year period of sluggish growth. This was then followed by the housing bubble of 2002-2007, the bursting of which led to the Great Recession of 2007-2009. Since 2009, the Federal Reserve has pursued low interest rates through massive purchases of financial assets, a policy known as quantitative easing. This policy has been credited with contributing to the rush of money into equities, which has fueled the dramatic rise of prices in the stock market in recent years.

This paper examines the geographic redistribution of income that occurred in each of these periods of asset price appreciation. A decomposition is used to determine the relative contributions of earned income, transfer income, and financial income to differences in income growth. In almost every case, most of the difference in income growth between the fastest growing states and the rest of the country can be attributed to dividends, interest, rent or capital gains. This shows that research on regional income growth needs to engage more fully with scholarship related to the distribution of financial income.

Figure 1. Business Cycles, 1994–2018: Wilshire 5000 Full Price Cap Index Divided by GDP.



Source. Wilshire Associates, Wilshire 5000 Full Cap Price Index [WILL5000PRFC], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WILL5000PRFC>, June 16, 2021.

The following section gives a brief overview of prior approaches to regional income growth, as well as a brief description of insights from literature on money manager capitalism. This is followed by a data and methods section that explains the decomposition described above. This leads to a series of graphs showing which states prospered most during the asset price booms of the last quarter century, and decompositions showing the relative contribution of financial income to differences in income growth rates. A concluding section reiterates the case for devoting more attention to the geography of asset price bubbles.

Literature review

Regional income growth

Regional income growth has been an important topic in social theory at least since the 1740s, when David Hume debated the matter with Josiah Tucker (Elmslie, 1995; Schumacher, 2016). Hume articulated the classical position that the movement of firms from high-wage to low-wage areas, would eventually result in a convergence of income levels between rich and poor regions. Tucker argued that rich areas would use their resources to preserve their advantage, resulting in income divergence.

In recent years, the neoclassical theory articulated by Robert Solow (1956) has dominated most economic research on the topic (see Romer, 1996, for a textbook exposition). The Solow model rests on several assumptions. First, the model assumes a “loanable funds” theory of credit, i.e., that funds available for loans in one time period represent foregone consumption in a previous time period. Second, wages are determined by productivity, which is determined by capital per worker. Third, there is a declining marginal product of capital; if 10 additional units of capital cause production to increase by x units in this time period, then another 10 units will increase output by something less than x in the next time period. Finally, machinery depreciates and has to be replaced at a constant rate. Given the declining marginal product of capital and the constant rate of depreciation, there will be some point at which all the savings from the previous time period must go to replacing existing equipment. At this point, a “steady state” exists, in

which increases in productivity can only occur if technology changes, or if there is an increase in the savings rate. A major prediction of the neoclassical model is that income growth will slow as an economy approaches its steady state. This implies that income growth rates should be higher in poor areas than in rich ones, a phenomenon referred to as beta convergence.

The Solow growth model has been criticized on both empirical and theoretical grounds. Empirically, convergence apparently did occur between rich and poor areas in the United States over much of the nation's history, although it is unclear whether this happened because of classical mechanisms, neoclassical mechanisms, or other mechanisms. In any event, it has widely been noted that convergence largely halted around 1980 (Magrini et al., 2015; Manduca, 2019; Storper, 1997).

Moreover, the theoretical assumptions of the model have been challenged on several grounds (Wray, 2004; Lindner, 2013). First, critics contend that the availability of credit does not depend on foregone consumption. If you produce something and I buy it from you, the money goes from my bank account to yours. It does not simply disappear. More fundamentally, the banking system as a whole is not constrained by savings, because a bank creates new money every time it makes a loan (Jakab and Kumhof, 2015). Thus, at least in the modern American context, it is difficult to base a theory of income growth on the concept of loanable funds.

Beyond the neoclassical growth model, some economic researchers have sought to understand the effect of monetary policies on regions. Three approaches are reviewed in Rodriguez-Fuentes and Dow (2003). The "orthodox" view is that monetary policies have different effects on regions because of differences in industry mix. Thus, regions with a large concentration of industries that are sensitive to interest rates, such as manufacturing, are hypothesized to suffer more than other regions when a central bank increases interest rates. A Keynesian perspective examines the role of banks, arguing that regions with smaller or weaker banks will experience disproportionate effects of interest rate hikes. The post-Keynesian view considers money supply as an endogenous variable in economic models. In this perspective, an increase in liquidity in a given region will be determined more by liquidity preferences on the part of firms and banks than by central bank policy. Despite differences regarding specific transmission mechanisms, each of these approaches shares the assumption that loans to firms for the purpose of buying equipment determines economic activity and prosperity in regions. While there is much to learn from each of these approaches, it is fair to say that none has grappled with the geographic implications of Minskyan asset price bubbles.

While the foregoing approaches to regional income growth treat regions as essentially passive in the wake of broader macroeconomic forces, an alternative style of explanation considers income growth as a function of regional policies or other regional differences in culture or political structure. Several of these approaches are reviewed by Posey (2019 and 2021). While efforts have been made to correlate regional growth with differences in tax rates, education spending, infrastructure spending, or political fragmentation, meta-analyses of each of these approaches find evidence to be mixed at best. Bristow (2005) surveys literature on regional competitiveness, finding that despite decades of effort, this body of work has not demonstrated that the profitability of firms is determined by attributes of regions in which they happen to be located.

Money Manager Capitalism

Hyman Minsky was among the first to recognize that a fundamental shift occurred around 1980, with the economy shifting from Keynesian-paternalism to money manager capitalism (Minsky, 1988; Minsky and Whalen, 1996). In the latter, money managers are rewarded primarily for increasing the price of equities (or for successfully speculating on asset prices), rather than for building underlying revenue streams through competition for market share. In such an environment, great incentives exist for a corporate executive to use massive debt to finance stock buybacks, or to finance mergers and acquisitions.

Minsky saw that this form of economic activity was inherently unstable. Kindleberger and Aliber (2011) attribute to Minsky a five-step heuristic model of the stages of an asset price cycle. The first step is disruption, in which a new technology or a new policy generates enthusiasm among investors regarding potential opportunities for profit. The second stage is the boom, in which media hype and fear of missing out drive more speculators into the market, further increasing asset prices. The third stage is euphoria, in which massive leverage propels asset prices far beyond any connection to underlying revenues; this stage inevitably produces experts who assure the public that a new paradigm means that tried-and-true methods of valuation are now outdated. In the fourth stage, profit taking, smart or cautious money begins to sell their assets to reap capital gains. This inevitably leads to panic, with massive devaluation. But a devaluation episode never wipes out all of the assets, and a bursting bubble only sets the stage to allow another innovation to capture investors' imaginations.

Minsky's theories have been used to describe and explain the three major episodes of asset price appreciation over the last 25 years. It is no criticism of this body of work to observe that the geographic implications of asset price bubbles have not been explored. It is, however, a mild criticism of literature on regional income growth to note that Minsky's insights have not been applied to this important question in social theory. The aim of this paper is to introduce Minskyan thought into discussions of regional income growth to show how Minskyan dynamics have played out spatially, or, more succinctly, to put Minsky into space.

Data and Methods

This paper analyzes changes in per capita income at the state level over three episodes of asset price appreciation: The DotCom bubble of the late 1990s, the housing bubble of 2002–2007, and the rapid appreciation of stock prices from 2009 to 2018. For want of a better name, the latter episode is referred to as the Obama-Trump Boom.

For each episode, vector diagrams are used to show which states enjoyed the most rapid income growth during the boom. Then, to demonstrate that financial income rather than wages accounts for most of the difference in income growth rates over the last 25 years, a decomposition breaks down differences in per capita income growth between the fastest-growing states and the rest of the country. The decomposition shows the relative contribution of financial income, defined as the sum of dividends, interest, rent, and realized capital gains, to differences in income growth.

Data from the Bureau of Economic Analysis (BEA), Regional Data Table SAINC30, is used to measure earned income, transfer income, and income from dividends, interest and rent. Unfortunately, BEA data does not include realized capital gains, which accounts for an

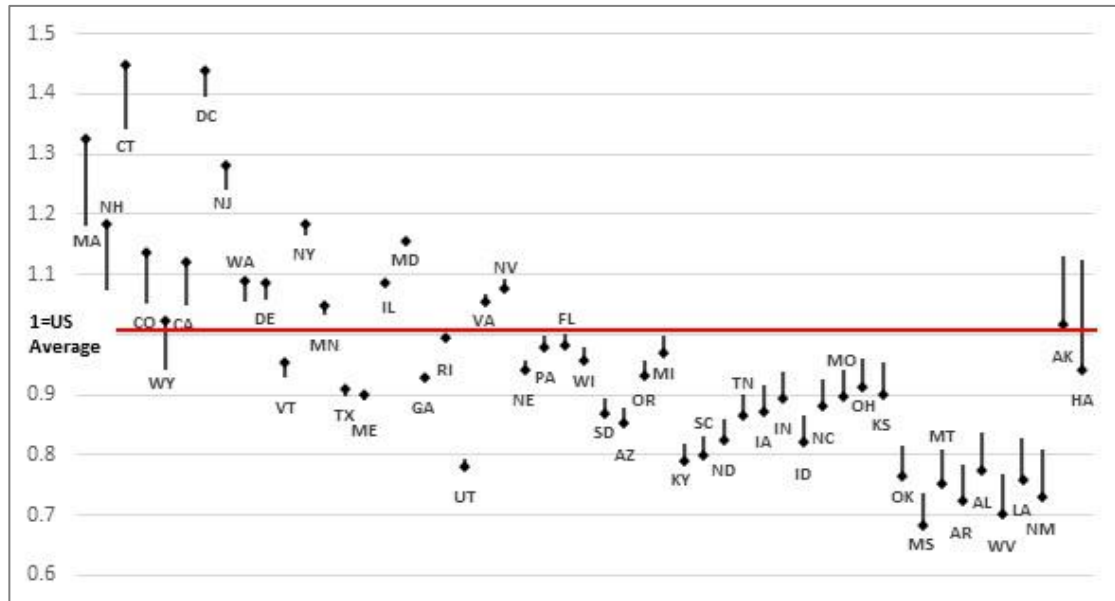
increasing proportion of total income. The Statistics of Income (SOI) data set from the Internal Revenue Service (IRS), the federal tax collecting agency for the United States, does have a time series data set showing aggregate capital gains at the state level (SOI State Data Historic Table 2). To estimate total income at the state level, IRS state-level capital gains totals are added to BEA income totals. To estimate per capita income, total state income is divided by state population, according to U.S. Census population estimates.

Although many studies of regional inequality are conducted at the state level, the state is not an ideal geographic scale for this analysis. Several commentators have argued that the metropolitan level is the most appropriate scale at which to analyze per capita income (Amin, 1999; Posey, 2021). Measuring per capita income at the state level dilutes, for example, the massive influx of capital seen in Silicon Valley during the DotCom bubble by spreading total income over the entire state of California. Similarly, income flowing into Wall Street is aggregated with income from Buffalo and Binghamton in New York. However, the IRS does not publish county-level capital gains data going back to the mid-1990s, making it impossible to incorporate this income component at the MSA level. Although the state is an imperfect scale at which to analyze per capita income, a state-level analysis nevertheless reveals much about the geographic redistribution of income over the last 25 years. Analyses of income redistributions during more recent asset price bubbles at the MSA level would be a valuable future contribution to literature on regional income growth.

In order to compare income levels across space and time, both total income and all components of income at time t are divided by U.S. per capita income at time t . For example, between 1994 and 2000, Massachusetts had the fastest income growth relative to the United States. In 1994, U.S. per capita income was \$23,016. Massachusetts' per capita income was \$27,184. Thus, the ratio of Massachusetts PCI to US PCI was 1.18. In 2000, the U.S. PCI was \$32,719. In Massachusetts, it was \$43,325, a full 32.4 percent higher than the nation as a whole. Thus, on Figure 2, the vector for Massachusetts shows an arrow going from 1.18 to 1.32.

The point of the decompositions is to break down the vectors in Figure 2 into component parts. Following Posey (2021) the following simple equations can be used to determine how much of Massachusetts' PCI growth relative to the U.S. can be attributed to earned income, how much to transfer income, and how much to financial income.

Figure 2. State Per Capita Income Divided by U.S. Per Capita Income, 1994–2000.



For state M at time t , Y_M^t , or state PCI divided by U.S. PCI, can be expressed as follows:

$$Y_M^t = E_M^t + R_M^t + F_M^t \quad (1)$$

where E_M^t is state earned income per capita divided by U.S. PCI, R_M^t is state transfer income per capita divided by U.S. PCI, and F_M^t is state financial income per capita divided by U.S. PCI.

At time t , the difference (D) between state per capita income and U.S. per capita income can then be expressed as follows:

$$D^t = (E_M^t - E_U^t) + (R_M^t - R_U^t) + (F_M^t - F_U^t) \quad (2)$$

The term in the first set of parentheses represents the difference in state PCI and U.S. PCI that can be attributed to earned income, the term in the second set of parentheses shows the amount that can be attributed to transfer income, and the final set of parentheses represents the amount attributable to financial income.

The change in the ratio of state to U.S. PCI from time t to time $t+1$ is thus represented as follows:

$$D^{t+1} - D^t = [(E_M^{t+1} - E_U^{t+1}) - (E_M^t - E_U^t)] + [(R_M^{t+1} - R_U^{t+1}) - (R_M^t - R_U^t)] + [(F_M^{t+1} - F_U^{t+1}) - (F_M^t - F_U^t)] \quad (3)$$

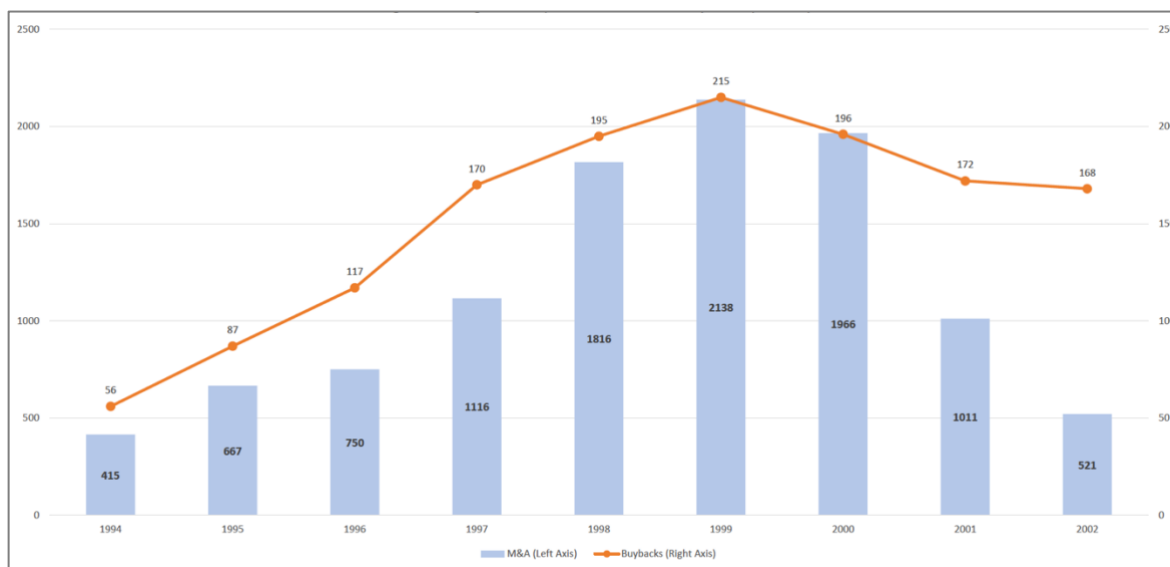
In this equation, the term in the first set of brackets represents the portion of the vector in Figure 2 that can be attributed to earned income, the second set of brackets represents the portion attributable to transfer income, and the third set of brackets represents the portion attributable to financial income.

Results

The DotCom Bubble

According to Griffin et al. (2011), “the stock market run-up in the mid to late 1990s was the greatest in the last 140 years of U.S. history in terms of both price appreciation and market-wide valuation multiples.” A variety of factors caused the influx of cash into equities markets. First, Griffin et al. (2011) report that institutional investors were the biggest buyers of technology stocks; hedge funds were the biggest purchasers, followed by mutual funds. Massive increases in business debt fueled stock buybacks, as well as mergers and acquisitions. Domestic businesses, who collectively were net creditors in 1994, went on a borrowing binge as the 1990s progressed (Wray, 2003). By 2000, businesses were net debtors to the tune of \$489 billion. Figure 3 shows that spending on mergers and acquisitions totaled \$5.9 trillion from 1998 to 2000, while expenditures on buybacks exceeded \$600 billion in the same time period. The largest U.S. merger of all time occurred in January, 2000, when AOL bought Time-Warner for \$165 billion.

Figure 3. Mergers & Acquisitions and Stock Buybacks (\$Billion)



Sources. Zeng and Luk, 2020; International Mergers and Acquisitions Institute, 2020.

The Clinton Administration’s international monetary policy also contributed (Brenner, 2002). The administration quietly abandoned the Plaza Accord, negotiated in 1985 by the Reagan Administration. The accord had propped up U.S. manufacturing by strengthening the currencies of Germany and Japan. Allowing the dollar to rise brought in foreign investors, eager to hold dollar-denominated assets. Second, Asian governments made massive purchases of U.S. securities to maintain low exchange rates vis-a-vis the dollar. Third, the Japanese central bank reduced interest rates to nearly zero. This created a “carry trade” in which investors could borrow cheap Yen for the purpose of purchasing American assets.

The convergence of these factors led to a huge influx of funds into the stock market. Following the explosion of share prices in Netscape’s initial public offering, many of these investments were used to buy stocks related to computer technology, and particularly to the Internet. Ofek and Richardson (2001) report that in several sectors related to Internet technology, the price of stocks exceeded earnings by factors of more than 1000. Concern over ludicrous p-e values led

Federal Reserve chair Alan Greenspan to caution against “irrational exuberance,” a warning that the market promptly ignored. Clinton Administration officials attempted to explain the gap between stock prices and earnings by theorizing about a “new economy” brought on by information technology.

High stock prices created paper wealth, allowing an increase in consumer spending, which stimulated both the American and the world economies. Paul Volcker drily observed in 1999 that “the fate of the world economy is now totally dependent on the growth of the U.S. economy, which in turn is dependent on the stock market, whose growth is dependent upon about 50 stocks, half of which have never reported any earnings” (Elliott and Atkinson, 2010).

From 1994 to 2000, Massachusetts had the fastest PCI growth in the country, going from 18 percent higher than the national average to 32 percent higher. Two other New England states ranked 2nd and 3rd: New Hampshire, and Connecticut. Four Western states, Colorado, Wyoming, California and Washington, experienced rapid income growth. Finally, three regions in the Mid-Atlantic made the top 10: Washington, D.C., New Jersey, and Delaware. All but one of the top-performing states were already above the national average. Their success was an example of income divergence. Among the ten fastest-growing states, the only one that began the period with PCI below the national average was Wyoming. Farrell (2020) explains how the Equality State rose so rapidly. The 1990s were a period in which a small number of extremely wealthy families established homes in the sparsely populated state. These included Wal-Mart heiress Christy Walton and movie star Harrison Ford. The influx of the super-wealthy increased Wyoming’s average income level considerably.

Figure 4 shows a decomposition of the vectors from the Figure 2 for the ten states with the fastest income growth. Each bar shows a decomposition of the difference in PCI growth between a state and the United States as a whole. Gray represents the portion of the difference in income growth that is attributable to financial income. In nine of the ten states, the growth of financial income played a greater role than did earned income. In the sole exception, New Hampshire, earned income and financial income were about tied. In Wyoming, all of the difference in income growth was attributable to financial income, a testament to the effect of migration on the part of the most economically elite households in the nation. Earned income and transfer income in Wyoming actually grew more slowly than in the rest of the country, offsetting a portion of the gains from financial income.

Figure 4. Decomposition of Differences in Income Growth, 1994–2000



Thus, the story of the first asset bubble under consideration refutes the Fordist tale of wages driving differences in income growth between regions.

Figure 5. State Per Capita Income Divided by U.S. Per Capita Income, 2000–2002

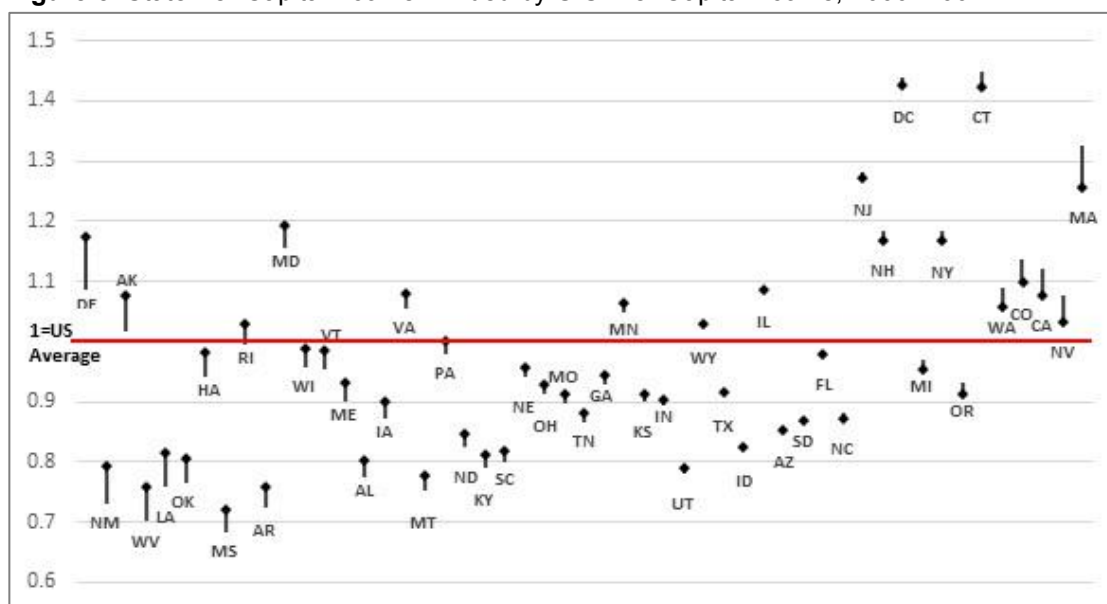


Figure 5 shows what happened when the bubble burst. Between 2000 and 2002, some of the states that benefitted the most from the DotCom Bubble gave back a portion of their income advantage. But only a portion. Massachusetts, which in 1994 was 18 percent above the national average grew to 32 percent above the national average in 2000. By 2002, Massachusetts had declined to just 25 percent above the national average, still ahead of where it stood 8 years earlier. Other wealthy states maintained an advantage over the rest of the country. Wyoming maintained its position just above the national average. Many of the states that grew relative to the rest of the country during the post-DotCom recession were those that were largely bypassed

by the euphoria of the previous decade. These included states such as New Mexico, West Virginia, Louisiana, Oklahoma, Mississippi and Arkansas, that remained among the poorest in the nation.

The Housing Bubble

The DotCom crash brought a decisive response from the Federal Reserve, which cut the federal funds rate from 6.5 percent in late 2000 to just one percent in 2004. Long term rates were also pushed down by institutional investors seeking safe haven from the declining stock market.

Wray (2009) singles out several Clinton-era regulatory changes that helped to pave the way for the housing bubble. First, the Financial Modernization Act of 1999 eliminated the separation of commercial banking from investment banking that had been in place since the Great Depression. Second, the Commodities Futures Modernization Act of 2000, signed by a lame duck president, exempted from regulation the financial instruments that caused the Great Recession, most notably credit default swaps. Finally, the Employee Retirement Income Security Act of 2000 allowed pension funds to tinker with more speculative ventures. Wray writes, “these changes allowed for greater leverage ratios, riskier practices, greater opacity, less oversight and regulation, consolidation of power in ‘too big to fail’ financial institutions...and greater risk.”

In this environment, low long-term interest rates encouraged first time home buyers to enter the market, and also encouraged existing homeowners to refinance. For households that refinanced their mortgages, some of the decrease in monthly payments fueled increased consumption, providing a further economic stimulus. Financial companies relaxed lending standards to offer loans to households that would not qualify for prime mortgages. Rocchio et al. (2015) write that “these risky loans, in turn, were underwritten thanks to a baroque system of mortgage-backed securities sold to pension funds and other institutional investors seeking high rates of return....lax regulatory supervision contributed to the proliferation of risky mortgages, as did a failure of credit rating agencies.”

As shown in Figure 6, the states that prospered most during the housing bubble fall into several categories. First there were states such as Florida and Arizona that saw construction booms accompany the promiscuous housing finance. Second, the super-wealthy in Wyoming enjoyed high rates of returns on their financial assets during the bubble. Third, wealthy states such as New York, Connecticut, Massachusetts and Washington, as well as the District of Columbia, expanded their income advantage over the rest of the country. Louisiana and Oklahoma benefitted from higher energy prices, and South Dakota, which established a specialization in financial services in the 1970s due to its lax usury laws, benefitted as well.

Figure 6. State Per Capita Income Divided by U.S. Per Capita Income, 2002–2007

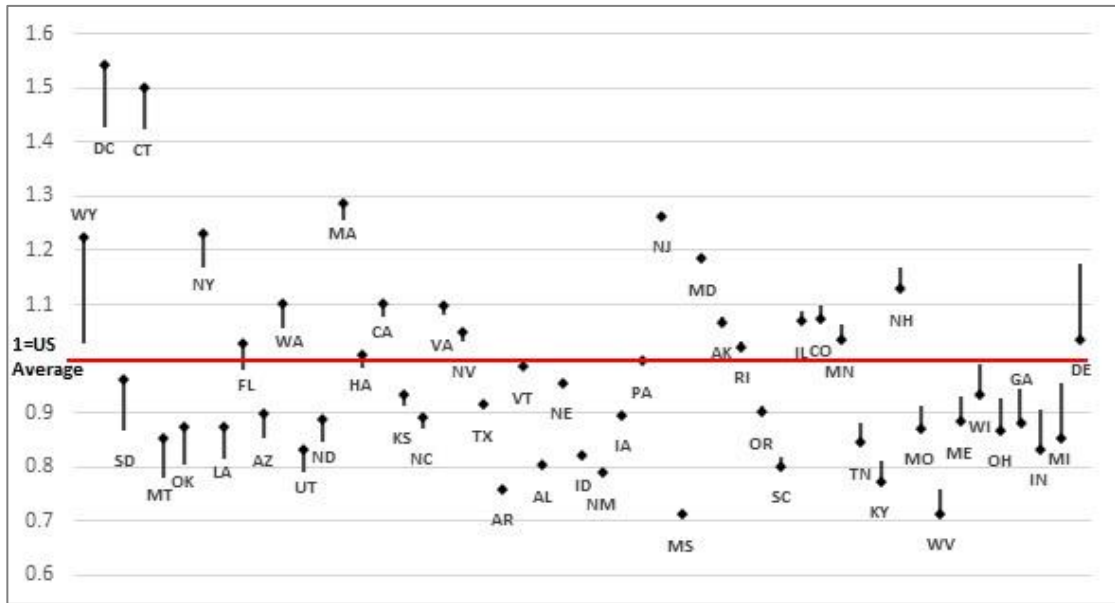
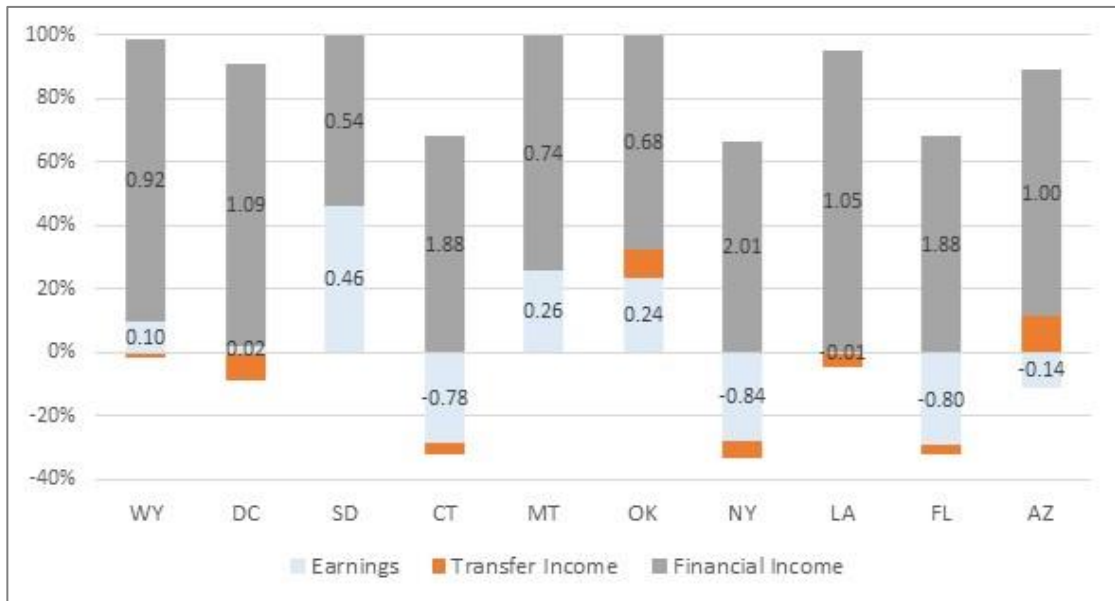


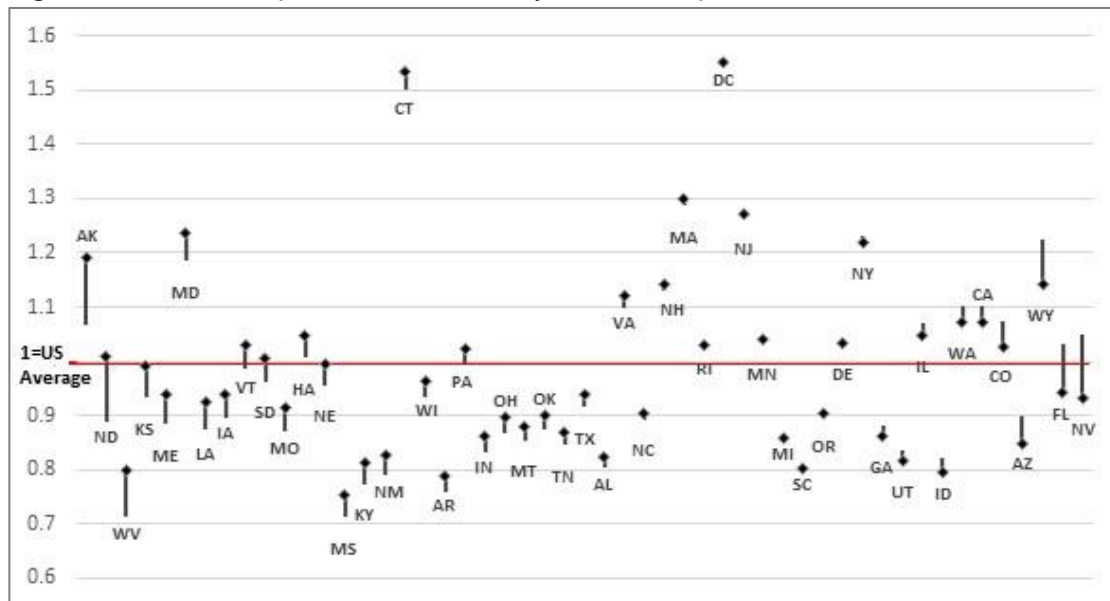
Figure 7 demonstrates that in each of the ten fastest-growing states, financial income played the dominant role. In four states, New York, Connecticut, Florida and Arizona, earned income actually played a negative role, offsetting a portion of the relative increase in income derived from financial sources. In two other states, DC and Louisiana, earned income played a trivial role. In each of the other states, financial income played a greater role than did earned income. Again, this demonstrates that in this era of money manager capitalism, theories of regional income growth that focus exclusively on wages are inadequate for explaining differences in income growth.

Figure 7. Decomposition of Differences in Income Growth, 2002–2007



The bursting of the bubble caused the greatest economic upheaval since the Great Depression (at least, up until that time). In Figure 8, the states with the greatest relative losses of income included Florida and Arizona, the states that had become boom towns during the mania. Wyoming dropped significantly as well, but remained 14 percent above the national average, better than its position at the beginning of the housing bubble. Several wealthy states increased their income advantages over the rest of the nation: Connecticut, Massachusetts, New Jersey, and DC. New York saw only a minor decline in its income level compared to the rest of the country. Once again, then, high-income states that diverged from the rest of the country during boom times yielded back only a portion of their gains from the previous period.

Figure 8. State Per Capita Income Divided by U.S. Per Capita Income, 2007–2009



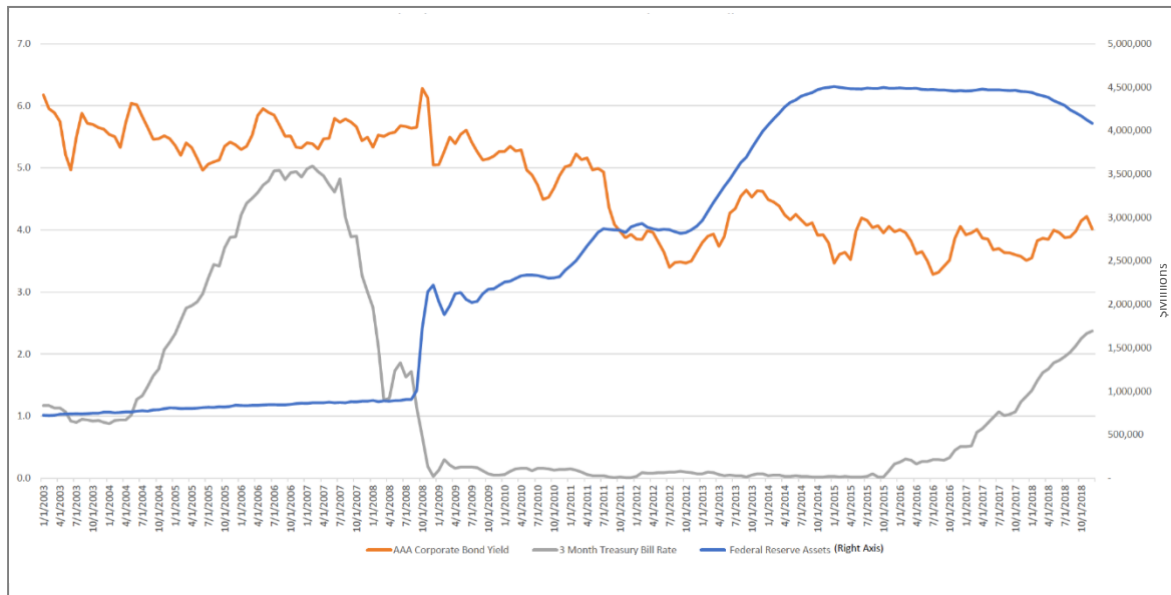
The Obama-Trump Boom

The Great Recession lasted officially from December, 2007 to June, 2009, with employment bottoming out in February 2010. Between 2008 and 2011, the Federal Reserve Board undertook two rounds of large scale purchases of financial assets, a policy known as “quantitative easing.” Total purchases in QE1 amounted to about \$1.7 trillion and ended in March, 2010. The second round of quantitative easing, QE2, consisted entirely of purchases of long term treasury securities and ran from November, 2010 to June, 2011 (Frazscher et al., 2013). By 2012, the economy had stabilized, with consistent employment and GDP growth. Even so, the economy still had not regained employment levels seen five years earlier, and GDP growth remained sluggish by historic standards.

The third and most ambitious round of quantitative easing (QE3) began in 2012 with a commitment to purchase \$40 billion in agency mortgage-backed securities each month. In December, 2012, the commitment was raised to an additional \$45 billion per month in longer-term Treasury securities, a total of \$85 billion per month (Rodnyansky and Darmouni, 2017). By the time QE3 was curtailed in 2014, the monetary base had quadrupled relative to 2008 levels.

Figure 9 shows the effect of monetary policy during the 2010s. The solid blue line, which is referenced by the vertical axis on the right, shows assets owned by the Federal Reserve System. From late 2012 through late 2014, assets rose by more than \$1.5 trillion, and remained at these levels through late 2017. At the same time, for most of the period 2013-2017, short term treasury rates, represented by the gray line, remained near zero. Corporate bond rates (orange), already low by historical standards, also remained on a downward trajectory.

Figure 9. Federal Reserve Assets, Corporate Bond Rates, T-Bill Rates



Sources. Board of Governors of the Federal Reserve System (US), Assets: Total Assets: Total Assets (Less Eliminations from Consolidation): Wednesday Level [WALCL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WALCL>, June 15, 2021.

Moody's, Moody's Seasoned Aaa Corporate Bond Yield [DAAA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DAAA>, June 15, 2021.

Board of Governors of the Federal Reserve System (US), 3-Month Treasury Bill: Secondary Market Rate [TB3MS], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/TB3MS>, June 15, 2021.

A primary goal of QE was to reduce long-term interest rates to promote corporate borrowing (Guidolin et al., 2017). There is evidence that the program worked. Separate studies by Joseph Gagnon of the Peterson Institute for International Economics and Edison Yu of the Federal Reserve Bank of Philadelphia report that bonds purchased under the various QE programs amounted to 23% of GDP in 2014, and that evidence indicates that QE reduced long-term bond yields by more than a full percentage point (Gagnon, 2016; Yu, 2016). Nonfinancial corporations responded to the lower rates by borrowing nearly \$2 trillion over a four year period.

Since at least 1997, net issuance of equities has been negative, meaning that corporations have been retiring equity through stock buybacks. (Total valuation continued rising because of increasing stock prices.) After the recession, however, buybacks increased considerably compared to pre-recessionary years. From 2011 through 2018, corporations retired a total of \$3.5 trillion in equity (Federal Reserve, 2019), compared to \$2.0 trillion from 2001 to 2008. This includes the record year of 2007, when net retirement reached \$700 billion. Net retirement of equity was driven by stock buybacks. From 2012 through 2018, corporations in the S&P 500

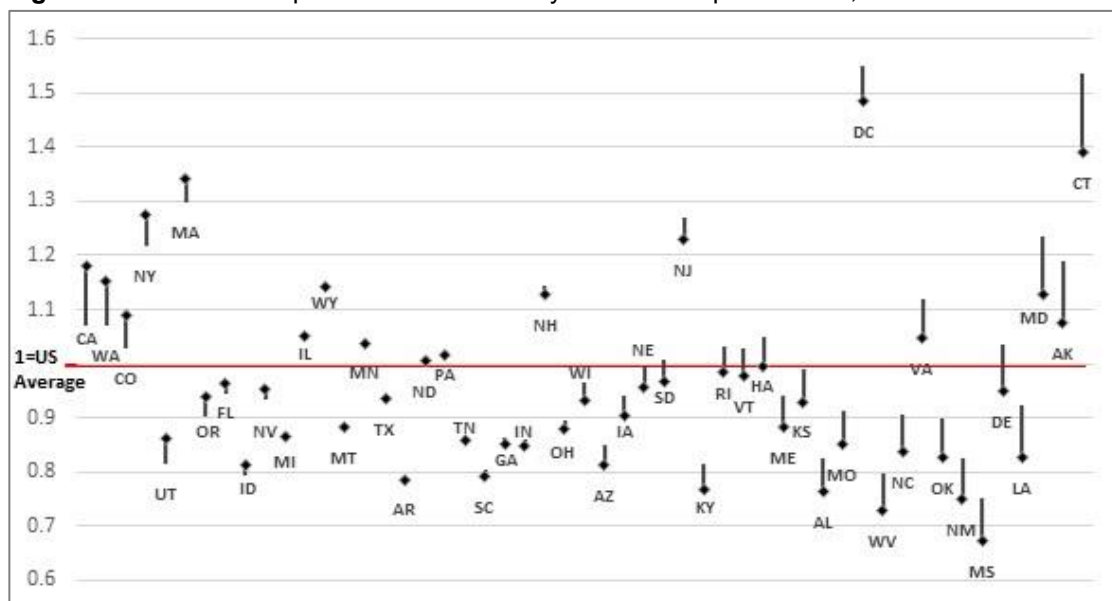
bought back \$3.9 trillion in their own stocks (S&P, 2017 and 2018). Erturk (2020) draws a causal connection between monetary policy and corporate behavior, asserting that corporations took advantage of low interest rates by borrowing money for the purpose of buying back stocks.

Merger and acquisition (M&A) activity also increased in the years following the recession. M&A deals totaled \$9.3 trillion from 2013 to 2017, compared to \$7.3 trillion from 2004-2008 (International Mergers and Acquisitions Institute, 2020). Rodziewicz and Sly (2019) report that low interest rates were a cause, as “approximately 20 percent of the credit extended to the corporate sector – \$2 trillion over the last decade – financed acquisitions.”

Stock buybacks are undertaken to increase both stock prices and dividends. Mergers and acquisitions increase the price of equities for the target firm, resulting in capital gains for shareholders. As a result, financial income, in the form of dividends and capital gains, increased its share of total household income at the expense of earnings. In 2013, dividends and capital gains together accounted for 9.0 percent of total household income. By 2017, this share had increased to 11.8 percent (IRS, 2019).

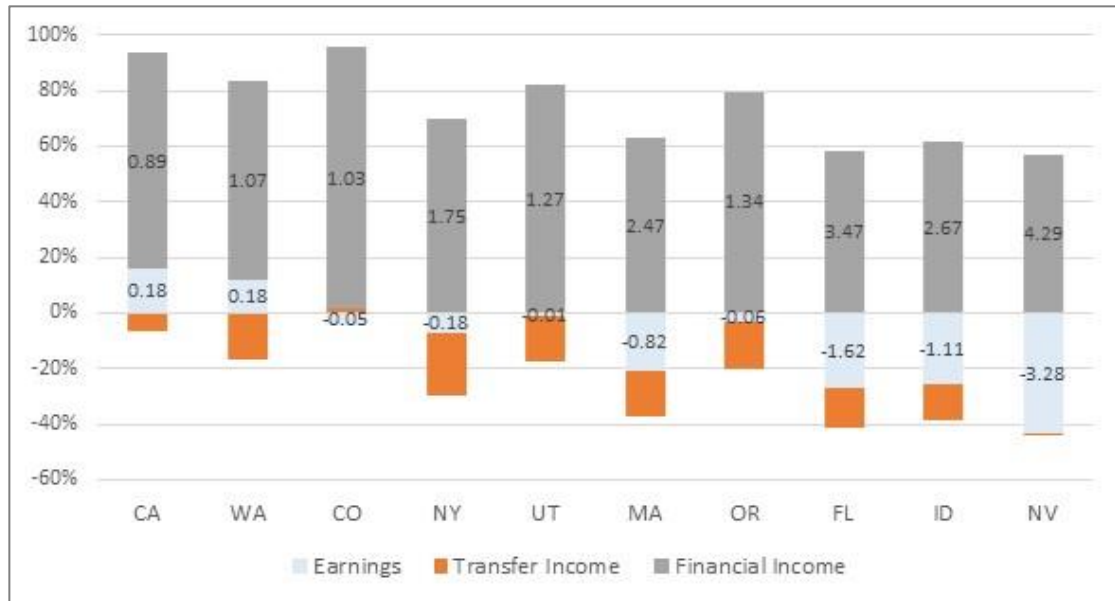
Figure 10 shows changes in relative income among states from 2009 to 2018. The five states with the highest income growth relative to the rest of the nation were all high-income states to begin with: California, Washington, Colorado, New York, and Massachusetts. California saw the most rapid growth, going from seven percent above the national average to 18 percent above. Washington experienced a similar rise. New York and Massachusetts saw their income levels rise to 27 percent and 34 percent, respectively, above the national average. Interestingly, the next five states all began the decade below the national average: Utah, Oregon, Florida, Idaho, and Nevada.

Figure 10. State Per Capita Income Divided by U.S. Per Capita Income, 2009–2018



As with the previous booms discussed, financial income was by far the most important factor in separating the states with the fastest income growth from the rest of the country. Figure 11 shows that in eight of the top-ten states, the effect of earned income was either negative or negligible, meaning that financial income accounted for all or virtually all of the difference in income growth rates between these states and the rest of the country. In the other two states, California and Washington, financial income was more significant than earned income by a factor of about five.

Figure 11. Decomposition of Differences in Income Growth, 2009–2018



An interesting fact that should be noted is that Connecticut and DC both dropped relative to the rest of the country during this time period. However, Connecticut remained the highest-income state in the nation, and DC remained richer still.

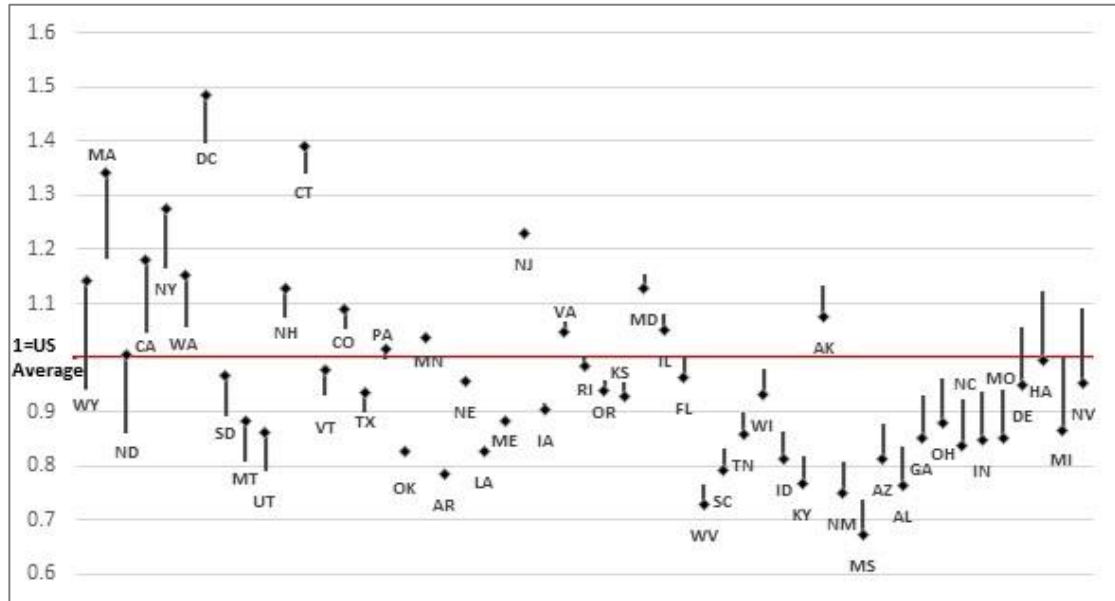
At the risk of repetitiveness, this boom, like the previous ones, shows that theories of income growth that focus exclusively on wages simply do not explain reality in the era of financialized capitalism.

The Last Quarter Century

Surveying the entire period from 1994–2018, a handful of states emerge as the big winners (Figure 12). Wyoming, as noted, has become a playground for the super-wealthy, who benefit greatly under conditions of asset price appreciation. In 2018, Massachusetts, California, New York, Washington, and DC, ranked in the top seven states with respect to percentage of households reporting more than \$500,000 in adjusted gross income. Connecticut and New Hampshire, though not in the top ten for the time period, are wealthy states that expanded their income advantage significantly across three episodes of asset price appreciation.

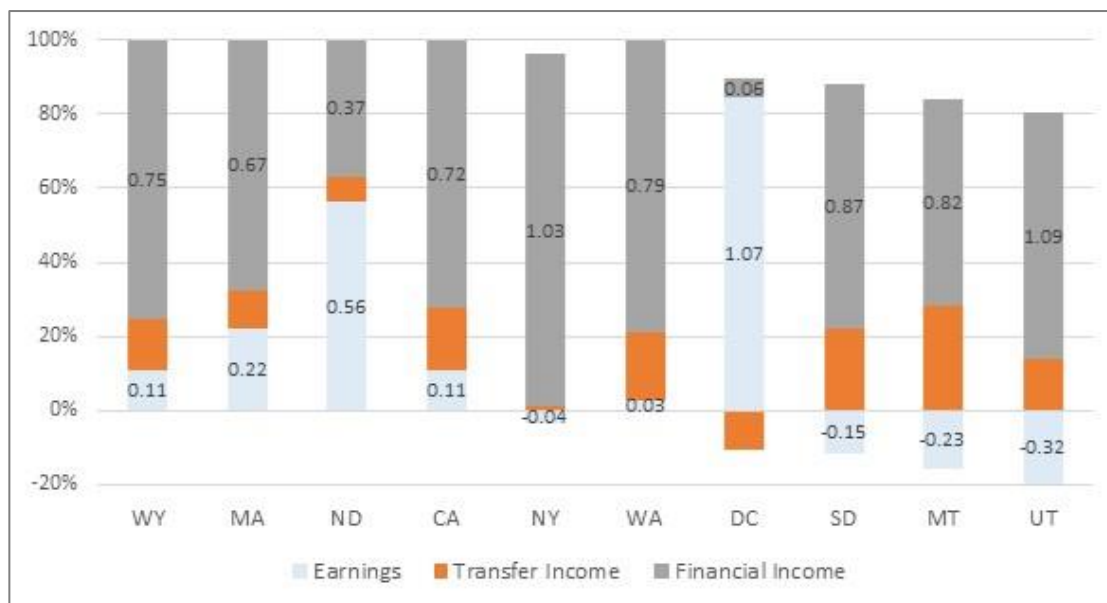
North Dakota is something of a unique case. Posey (2021) shows that most of its growth in income, relative to the rest of the country, is attributable to fracking. South Dakota, as mentioned, maintains a high location quotient in financial services. Montana and Utah are both states with below average income levels, but each has a population of very wealthy households that benefit from asset price appreciation as they enjoy the mountain air.

Figure 12. State Per Capita Income Divided by U.S. Per Capita Income, 1994–2018



Decompositions in Figure 13 support the thesis of this paper that financial income accounts for most of the difference in income growth between high-growth states and other states. North Dakota and DC, as noted earlier, each for different reasons, has a high concentration of high-wage labor, accounting for their high income growth rates over 25 years. In every other state, financial income dominates. In South Dakota, Montana and Utah, earned income actually offsets some of the advantage derived from the growth in financial income, an indication that a wealthy elite accounts for most of the difference in income growth rates between these states and the nation as a whole. In New York, one of the world’s great financial capitols, the wage effect is also negative, meaning that financial income accounts for all of the Empire State’s advantage in income growth. Again, the totality of the last 25 years supports the contention that financial income, not earned income, accounts for the most significant differences in income growth among regions.

Figure 13. Decomposition of Differences in Income Growth, 2009–2018



Conclusion

Prior literature on regional income growth has focused almost exclusively on earned income. This may have been a reasonable approach in earlier economic eras. However, by the 1990s, as Minsky and others observed, the economy changed. The main route to wealth accumulation became speculation on asset prices, as opposed to producing goods to sell in the market. This shift had profound implications, in many ways. One of these ways is that previous theories of regional income growth that failed to reckon with dividends and capital gains, were inadequate for the task of explaining differences in income growth among regions.

This paper has documented the geographic redistribution of income among states in the United States over a 25 year period, 1994-2018. This period saw three episodes of rapid appreciation in the prices of financial assets. In each period, financial income – dividends, interest, rent, and capital gains – accounted for almost all of the difference in income growth between states with the greatest increases in per capita income and the rest of the country. Hopefully, this will demonstrate the necessity to grapple with non-wage income in future research on regional income growth.

There are many things that this study has not done. First, it has not dealt with income inequality within regions. This topic is at least as important as the issues dealt with here, but is beyond the scope of this article. Second, it has used only a fairly coarse resolution, that of the state-level, to analyze differences in income growth. Additional studies conducted at the MSA level would build upon this work in a valuable way.

Since the 1970s, retrenchment at the federal level has pushed responsibilities onto state and local governments (Wray, 2019). This devolution, which was not accompanied by additional funding, created fiscal stress for state and local governments. This paper has shown that over the last quarter century, state economies have been buffeted about by national asset price bubbles over which they had no control. Posey (2019) showed that much of the divergence between rich states and poor states over the last 50 years has been due to an increasing

concentration of very high income households – those in the top half of one percent – in a handful of states. These are the states that see influxes of money during asset price booms. Theories of regional income that place the onus of economic development exclusively on state and local actors reflect the ideology of devolution, essentially telling sub-national jurisdictions that they need to pull themselves up by their bootstraps. In doing so, these theories divert attention away from national policies that cause vast amounts of money to flow toward some states, and away from others. Similarly, theories that assure poor states that their income levels will converge in the long run overlook the political choices that have siphoned money away from poor regions. Needed are national policies to address the needs of places left behind in the financialized economy. While a detailed policy agenda to address the geographic redistribution of income is beyond the scope of this paper, Wray (2019) outlines a few options.

References

Amin, A. (1999) An institutionalist perspective on regional economic development. *International Journal of Urban and Regional Research*, 23(2), 365–378

Brenner, R. (2002) *The Boom and the Bubble: The U.S. in the World Economy*. Verso.

Bristow, G. (2005) Everyone's a "winner." Problematising the discourse of regional competitiveness. *Journal of Economic Geography*, 5(3), 285–304. <https://doi.org/10.1093/jeg/lbh063>

Elliott, L. & Atkinson, D. (2010) *The Gods That Failed: How Blind Faith in Markets has Cost us our future*. Nation Books.

Elmslie, B. T. (1995) Retrospectives: the convergence debate between David Hume and Josiah Tucker. *Journal of Economic Perspectives*, 9(4), 207-216.

Erturk, I. (2020) 'Shareholder Primacy and Corporate Financialization'. In Mader, P., Mertens, D. and van der Zwan, N. (eds) *The Routledge International Handbook of Financialization*, New York, Routledge, pp. 43-55.

Farrell, J. (2020) *Billionaire Wilderness: The Ultra-Wealthy and the Remaking of the American West*. Princeton University Press.

Federal Reserve System (2019) Equity Issuance and Retirement. Electronic data set accessed at <https://www.federalreserve.gov/releases/efa/efa-project-equity-issuance-retirement.htm> on March 12, 2020.

Frazscher, M., Lo Duca, M. & Straub, R. (2013) On the International Spillovers of US Quantitative Easing, European Central Bank Working Paper No. 1557, Frankfurt am Main, European Central Bank.

Gagnon, J. (2016) Quantitative Easing: an Underappreciated Success, Policy Brief No. 16-4, Washington, DC, Peterson Institute for International Economics.

Griffin, J. M., Harris, J. H., Shu, T. & Topaloglu, S. (2011) Who drove and burst the tech bubble?. *The Journal of Finance*, 66(4), 1251-1290.

Guidolin, M., Orlov, A. & Pedio, M. (2017) 'The Impact of Monetary Policy on Corporate Bonds under Regime Shifts', *Journal of Banking and Finance*, 80, 176-202.

Internal Revenue Service (2019) Statistics of Income. Electronic data set accessed at <https://www.irs.gov/statistics/soi-tax-stats-county-data> March 12, 2020.

International Mergers and Acquisitions Institute (2020) United States M&A Statistics. Electronic data set accessed at <https://imaa-institute.org/m-and-a-us-united-states/> March 12, 2020.

Jakab, Z. & Kumhof, M. (2015). Banks are not intermediaries of loanable funds—and why this matters. Bank of England Working Paper #529. <https://www.bankofengland.co.uk/-/media/boe/files/working->

paper/2015/banks-are-not-intermediaries-of-loanable-funds-and-why-this-matters.pdf?la=en&hash=D6ACD5F0AC55064A95F295C5C290DA58AF4B03B5

Kindleberger, C. P. & Aliber, R. Z. (2011) *Manias, Panics and Crashes: A History of Financial Crises*. Palgrave Macmillan.

Lindner, F. (2013) Does saving increase the supply of credit? A critique of loanable funds theory (No. 120) IMK Working Paper.

Magrini, S., Gerolimetto, M. & Duran, H. (2015) Regional convergence and aggregate business cycle in the United States', *Regional Studies*, 49, 251-272.

Manduca, R. (2019) Income inequality and regional divergence: The contribution of national income inequality to regional economic divergence. *Social Forces*, 98(2), 622–648.

Minsky, Hyman P. (1988) Money Manager Capitalism, Fiscal Independence and International Monetary Reconstruction Hyman P. Minsky Archive. 431. https://digitalcommons.bard.edu/hm_archive/431

Minsky, H. P. & Whalen, C. J. (1996) Economic insecurity and the institutional prerequisites for successful capitalism. *Journal of Post Keynesian Economics*, 19(2), 155-170.

Ofek, E. & Richardson, M. (2001) Dotcom Mania: The Rise and Fall of Internet Stock Prices. NBER Working Paper 8630.

Posey, J.R. (2019) Income Divergence between Connecticut and Mississippi. *Southeastern Geographer*, 59(3), 268-293.

Posey, J. R. (2021, February) The Geographic Redistribution of Income in the United States, 1969–2019: Examining the Role of Federal Policy. In *Forum for Social Economics* (pp. 1-16) Routledge.

Rocchio, M., Kealy, M. & Posey, J. (2015) Where We Stand: The Strategic Assessment of the St. Louis Region, 7th Edition. St. Louis: East-West Gateway Council of Governments. <https://www.ewgateway.org/wp-content/uploads/2017/07/WWS2015.pdf>

Rodríguez-Fuentes, C. & Dow, S. (2003) EMU and the regional impact of monetary policy. *Regional Studies*, 37(9), 969-980.

Rodnyansky, A. & Darmouni, O. (2017) The effects of quantitative easing on bank lending behavior, *Review of Financial Studies*, 30, 3858-3887.

Rodziewicz, D. and Sly, N. (2019) Capital reallocation and capital investment, *Economic Review*, Q II, 33-52.

Romer, D. (1996) *Advanced Macroeconomics*. The McGraw-Hills Companies. Inc. Singapore.

Schumacher, R. (2016) Adam Smith and the “rich country–poor country” debate: eighteenth-century views on economic progress and international trade. *The European Journal of the History of Economic Thought*, 23(5), 764-793.

Solow, R. M. (1956) A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65-94.

Standard and Poors (2017) ‘S&P 500 Buybacks Fall 17.5% Year-over-Year to \$133.1 Billion for Q1 2017’, accessed at <https://press.spglobal.com/2017-06-21-S-P-500-Buybacks-Fall-17-5-Year-over-Year-to-133-1-Billion-for-Q1-2017>

Standard and Poors (2018) ‘S&P 500 Q4 2018 Buybacks Set 4th Consecutive Quarterly Record at \$223 Billion; 2018 Sets Record \$806 Billion’, accessed at https://www.spglobal.com/assets/documents/corporate/sp-500-q4-2018_share-buybacks-set-4th-consecutive-qrtly-record.pdf March 12, 2020

Storper, M. (1997) *The regional world*. Guilford.

Wray, L. R. (2003) The perfect fiscal storm. *Challenge*, 46(1), 55-78.

Wray, L. R. (2006) When are interest rates exogenous? In *Complexity, Endogenous Money and Macroeconomic Theory: Essays in Honour of Basil J. Moore*, Mark Setterfield (ed.). Edward Elgar.

Wray, L. R. (2009) The rise and fall of money manager capitalism: a Minskian approach. *Cambridge Journal of Economics*, 33(4), 807-828.

Wray, L. R. (2019). Fiscal reform to benefit state and local governments: The modern money theory approach. Levy Economics Institute, Working Paper, (936).

Yu, E. (2016) Did Quantitative Easing Work? *Economic Insights*, 1.1, 5-13.

Zeng, L. and Luk, P. (2020) Examining Share Repurchasing and the S&P Buyback Indices in the U.S. Market. S&P Global.

Accessed at <https://www.spglobal.com/spdji/en/documents/research/research-sp-examining-share-repurchases-and-the-sp-buyback-indices.pdf>, September 15 2021.

Author contact: jposey99@gmail.com

SUGGESTED CITATION:

Posey, John (2021) "Putting Minsky into space: The geography of asset price bubbles in the United States, 1994–2018." *real-world economics review*, issue no. 97, 22 September, pp. 123-142, <http://www.paecon.net/PAERreview/issue97/Posey97.pdf>

You may post and read comments on this paper at <https://rwer.wordpress.com/comments-on-rwer-issue-no-97/>