

*Keynote Address*

## **How Lawyers Can Help Macroeconomists in the Wake of Three Major Challenges**

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*Macroeconomics has changed in light of both developments in the world and its internal intellectual evolution. This Article explores ways in which legal scholarship can help inform macroeconomic research and macroeconomic policymaking in light of three important developments: (i) limitations on conventional monetary policy in a world with lower equilibrium interest rates; (ii) labor markets not clearing as evidenced by persistent declines in labor force participation; and (iii) the potential for microeconomic competition policies to have major macroeconomic effects.*

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## Introduction

The field of law and macroeconomics is emerging at a critical time.<sup>1</sup> The macroeconomy—and the field of macroeconomics—faces a number of challenges. Some of these challenges are grounded in changes in the economy itself, while others are grounded in changes in our understanding of the economy. In all cases, lawyers have a potentially important role in helping to shape our understanding of macroeconomics. Even absent these changes, lawyers play a significant role—central in many cases—in developing economic policy. For this reason alone, the increased engagement with macroeconomics by lawyers is welcome.

Textbook models traditionally have been based on three premises about the functioning of the macroeconomy:

- (1) The Federal Reserve decides the number of jobs, so the rest of us can ignore the macroeconomy. Moreover, business cycles themselves do not have long-run consequences.
- (2) Outside of recessions, the labor market clears.
- (3) Competition and other micro issues are the domain of microeconomists.

Of course, these are overly stylized descriptions. A number of papers advanced knowledge by deviating from them—and some of these deviations are even included in the latest textbooks. Nevertheless, these stylized premises are a reasonably fair description of economic theory prior to the Great Recession and provide a useful way to organize the latest developments in economic thinking.

Today, some of the most exciting developments in both economics and law and macroeconomics—and some of the work that is most urgently needed going forward—come in the ways that these propositions are, or are not, an accurate representation of current economic realities. So let me take these ideas in turn, restating affirmatively the situation we find ourselves in today.

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1. For a review, see Yair Listokin, *Law and Macroeconomics: The Law and Economics of Recessions*, 34 YALE J. ON REG. 791 (2017).

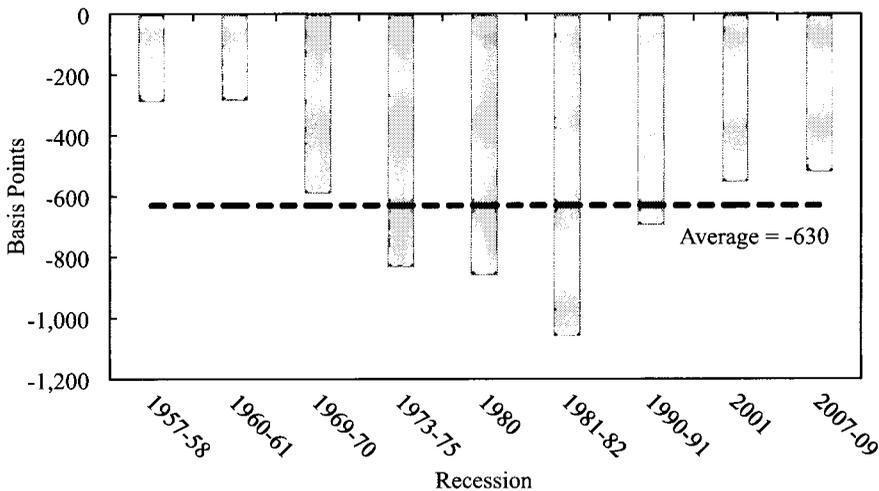
I. Proposition 1: In Many Circumstances Monetary Policy May Be Limited, Potentially Changing the Way We Think About the Role of Fiscal Policy, Regulation, and Other Policies in Macroeconomic Stabilization

The reduction in interest rates over the previous decades has left less scope for conventional monetary policy, leading to a shift in how economists think about discretionary fiscal policy—as well as opening up the role of macroeconomic analysis in more settings.

A. *The Decline in Interest Rates and Conventional Monetary Policy*

The Federal Reserve combatted previous recessions with large interest rate cuts, with an average reduction of 630 basis points since the 1957 recession as shown in Figure 1.

Figure 1: Change in Effective Federal Funds Rate in Response to Past Cyclical Downturns<sup>2</sup>



In 2000, David Reifschneider and John Williams estimated that the zero lower bound would be constraining about five percent of the time in the United States, with a mean duration of four quarters when rates hit the zero lower

2. The data was obtained from the Federal Reserve and the author’s calculations. Note that bars represent the difference between peak effective Federal funds rate prior to or during recession and trough rate during or after recession.

bound, as shown in Figure 2A.<sup>3</sup> However, the experience in the United States since the paper was published suggests that, if anything, this estimate was overoptimistic—with the zero lower bound binding over forty percent of the time as shown in Figure 2B.

Figure 2A: Distribution of Federal Funds Rates: 2% Inflation Target<sup>4</sup>

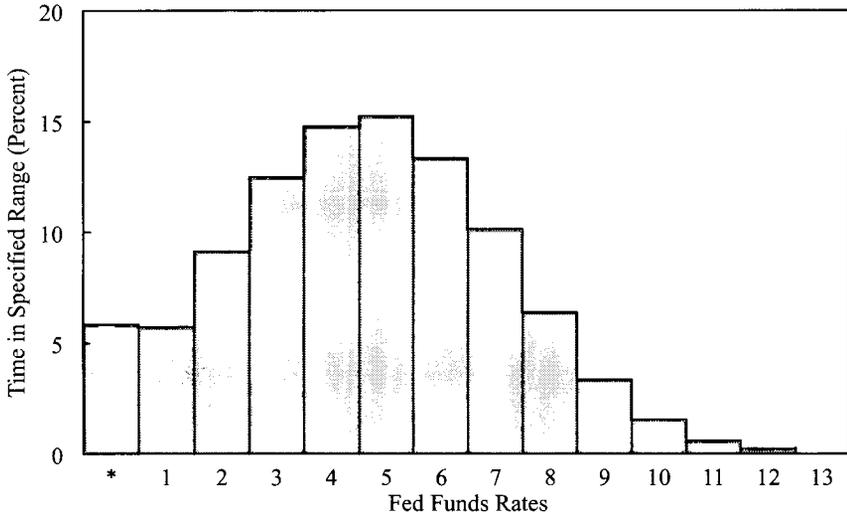
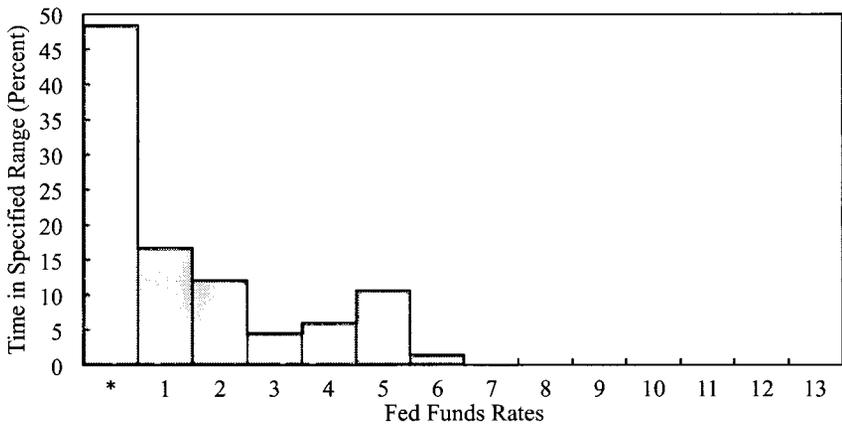


Figure 2B: Distribution of Federal Funds Rates: Actual, 2001-2017<sup>5</sup>



3. David Reifschneider & John C. Williams, *Three Lessons for Monetary Policy in a Low-Inflation Era*, 32 J. MONEY, CREDIT & BANKING 936 (2000).

4. *Id.* Note that \* indicates values between 0 and 0.5.

5. The data was obtained from the Federal Reserve and the author's calculations. Note that \* indicates values between 0 and 0.5.

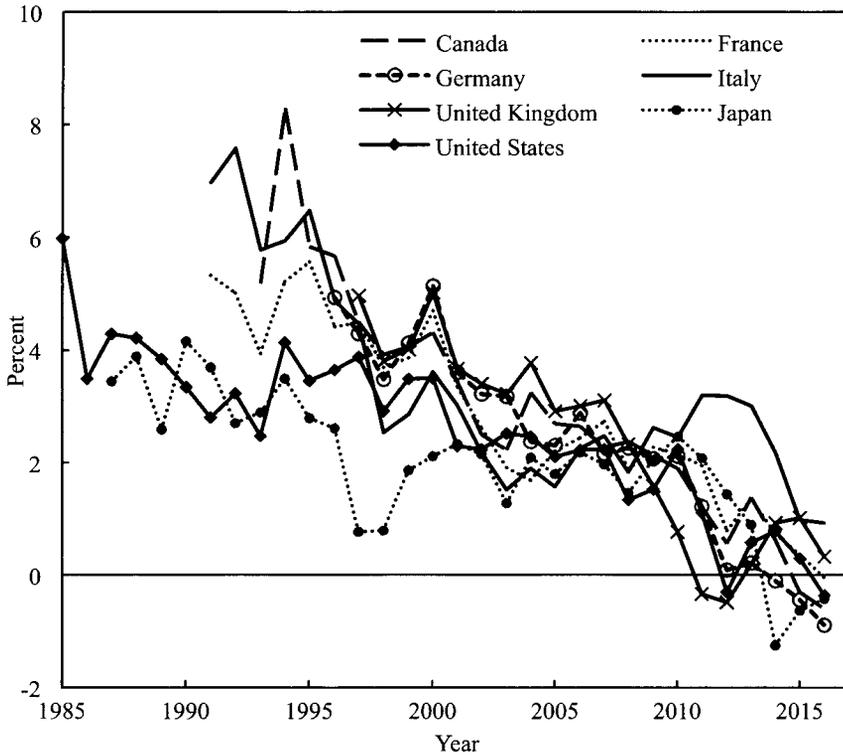
As the authors clearly stated at the time, a key assumption in this result was that the equilibrium real federal funds rate was 2.5 percent, the consensus view at the time. This is well above the most recent projections from the members of the Federal Open Market Committee, which range from 0.3 to 1.5 percent for the long-run real federal funds rate. Consequently, it is reasonable to assume that the zero lower bound or effective lower bound will constrain conventional monetary policy much more than five percent of the time in the future.<sup>6</sup>

Part of the reason for the large deviation from the widely held expectation that the effective lower bound would be reached in short and rare circumstances was that people put a low probability on a recession as deep as the Great Recession. That such an event happens once or twice a century might be a reasonable assumption for policy going forward. But the other part of the reason that the effective lower bound has been much more binding than expected is a general reduction in equilibrium interest rates that was evident even before the Great Recession. Assuming that this general reduction in interest rates would go away in the future would not be a reasonable assumption.

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6. See Marc Dordal-i-Carreras et al., *Infrequent but Long-Lived Zero-Bound Episodes and the Optimal Rate of Inflation*, 8 ANN. REV. ECON. 497 (2016). Changes to monetary policy rules could affect the frequency with which the effective lower bound is binding. See Marvin Goodfriend, *The Case for Unencumbering Interest Rate Policy at the Zero Bound* (Fed. Reserve Bank of Kansas City Econ. Policy Symposium – Jackson Hole, 2016), <http://www.kansascityfed.org/%7E/media/files/publicat/sympos/2016/econsymposium-goodfriend-paper.pdf>; John C. Williams, *Monetary Policy in a Low R-Star World* (Fed. Reserve Bank of S.F., Economic Letter No. 2016-23, Aug. 15, 2016), <http://www.frbsf.org/economic-research/files/el2016-23.pdf>. This discussion assumes either that those changes will not be made or that they have costs that need to be balanced against the alternatives discussed here.

Figure 3: Real Ten-Year Benchmark Rate<sup>7</sup>



The reduction in real interest rates has occurred across all of the advanced economies and was well underway prior to the crisis itself, as shown in Figure 3. A range of explanations have been advanced for this decline in interest rates. These include increased global savings, less global demand for investment, and a paucity of safe assets as well as shifting demographics and changes in potential output or productivity growth, with some of these developments associated with what has been termed “secular stagnation.”<sup>8</sup> Regardless of the cause, the sustained and widespread decline of real interest rates indicates that even as rates have partly rebounded from their post-crisis lows they are unlikely to return to the levels expected prior to the crisis.<sup>9</sup>

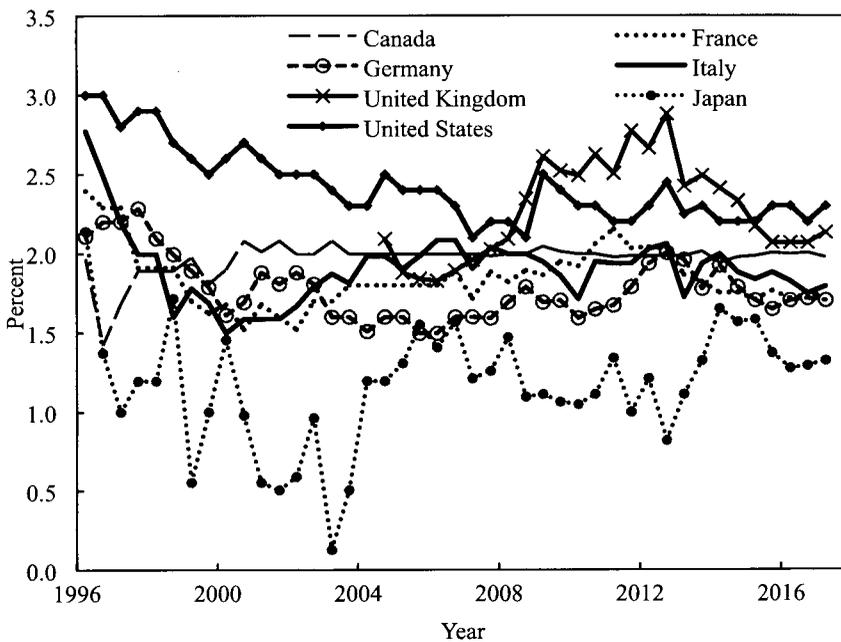
7. The data was obtained from national sources via Haver Analytics, and the author’s calculations. Note that inflation is measured by one-year changes in the core consumer price index.

8. See SECULAR STAGNATION: FACTS, CAUSES, AND CURES (Coen Teulings and Richard Baldwin eds., 2014); Lawrence H. Summers, *U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound*, 49 BUS. ECON., April 2014, at 65.

9. See COUNCIL OF ECON. ADVISERS, LONG-TERM INTEREST RATES: A SURVEY (2015), [https://obamawhitehouse.archives.gov/sites/default/files/docs/interest\\_rate\\_report\\_final\\_v2.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/interest_rate_report_final_v2.pdf); Kathryn Holston et al., *Measuring the Natural Rate of Interest: International Trends and Determinants*

Moreover, this decline has been compounded by a reduction in expected inflation across the advanced economies as shown in Figure 4. This has been the result of the widespread adoption of two percent inflation targets, beginning with New Zealand in 1990, followed by most advanced economies, including the United States, where the Federal Reserve formally adopted the target in 2012.<sup>10</sup> In general, advanced economy central banks have been increasingly credible about their targets and, if anything, have proven more unable to raise inflation up to the target than vice versa.

Figure 4: Long-Term Inflation Forecast in G-7 Countries: 6-10 Years<sup>11</sup>



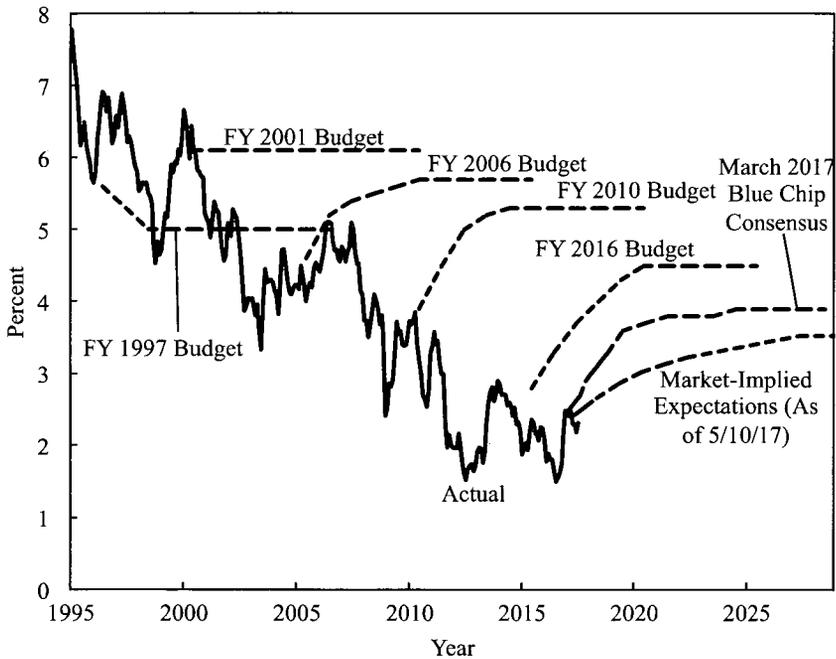
(Fed. Reserve Bank of S.F., Working Paper No. 2016-11, Dec. 2016), <http://www.frbsf.org/economic-research/files/wp2016-11.pdf>. The stronger form of secular stagnation argues that with low inflation, real interest rates cannot fall low enough to restore aggregate demand as a result of the effective lower bound, leading to a self-reinforcing spiral of weak economic performance and low interest rates. While I do not believe the stronger form of secular stagnation is a correct description of the United States or Europe, the weaker form—that conventional monetary policy will be constrained more often in the future—is certainly a source of concern. Jason Furman, Chairman, Council of Econ. Advisers, The Global Economy: Demand, Supply, and Interdependence, Remarks at Globes Israel Business Conference (Dec. 7, 2014).

10. *Why the Fed Targets 2% Inflation*, *ECONOMIST* (Sept. 13, 2015), <http://www.economist.com/blogs/economist-explains/2015/09/economist-explains-7>.

11. The data was obtained from the Consensus Forecast.

Nominal interest rates, which are the sum of real interest rates and inflation, have fallen sharply as both real interest rates and inflation have come down. Forecasters consistently missed this fall in nominal interest rates. While forecasts of variables like GDP growth have generally been unbiased, the errors in interest rate forecasts have almost all been in a single direction—reflecting the incorrect assumption that they would revert to historic values as shown in Figure 5. Today, forecasters and market prices still assume that interest rates increase but they also assume that this reversion will be to a lower value than hitherto had been the case.

Figure 5: Ten-Year Treasury Rates and Historical Economist Forecasts<sup>12</sup>



*B. Consequences of Constrained Monetary Policy*

Based on historical experience, monetary policymakers would like to be able to cut the federal funds rate by about 600 basis points in recessions. But it

12. The data was obtained from the Federal Reserve Board, Office of Management and Budget, Blue Chip Economic Indicators, and Bloomberg.

is possible and maybe even likely that cutting rates by more than about 300 basis points will be impossible in many future recessions. This constraint on monetary policy does not just risk exacerbating future recessions, it could have longer-run economic consequences as well. There is substantial evidence that output exhibits a unit root, that is a loss today will not be made up in the future and thus will be persistent.<sup>13</sup> That is consistent with the observation that following the recessions of the early 1980s and the Great Recession the *level* of output never returned to its previous path.<sup>14</sup> Moreover, even more concerning, is the possibility that deep recessions could reduce the *growth* rate of future output by reducing investments, especially in research and development.<sup>15</sup>

The implications of all of this—that anything that affects the economy in the short-run may also have long-run effects—heightens the importance of finding potential complements to monetary stabilization.

### C. Implications for Fiscal Policy

The changes in interest rates have given rise to what I have termed the “New View” of fiscal policy, although in many ways it is really the resurrection of the old view.<sup>16</sup> This view has five tenets: (i) fiscal policy is a necessary complement to monetary policy; (ii) fiscal policy can be very effective and may have positive side effects like crowding in investment and raising the equilibrium interest rate; (iii) fiscal space is larger than generally appreciated; (iv) more sustained stimulus, especially if it increases aggregate supply, may be warranted; and (v) there can be large benefits to coordinated action across countries.

I will discuss these in turn.

**1. Fiscal policy is a necessary complement to monetary policy.** The equilibrium level of the nominal interest rate is what is relevant for understanding the scope of monetary policy in the future. To the degree rates have an effective lower bound—because people can always substitute into cash, which has a zero interest rate—then a lower nominal interest rate means

13. See John Y. Campbell & N. Gregory Mankiw, *Are Output Fluctuations Transitory?*, 102 Q.J. ECON. 857 (1987); Charles R. Nelson & Charles R. Plosser, *Trends and Random Walks in Macroeconomic Time Series: Some Evidence and Implications*, 10 J. MONETARY ECON. 139 (1988).

14. Laurence Ball, *Long-Term Damage from the Great Recession in OECD Countries*, 11 EUROPEAN J. ECON. & ECON. POLICIES: INTERVENTION 149 (2014); Carmen M. Reinhart & Kenneth S. Rogoff, *The Aftermath of Financial Crises*, 99 AM. ECON. REV. 466 (2009).

15. Gustavo Adler et al., *Gone with the Headwinds: Global Productivity* (IMF Staff Discussion Note, 2017), <http://www.imf.org/~media/Files/Publications/SDN/2017/sdn1704.pdf>.

16. Jason Furman, Chairman, Council of Econ. Advisers, *The New View of Fiscal Policy and Its Applications*, Speech at Global Implications of Europe’s Redesign Conference (Oct. 5, 2016).

less scope for conventional monetary policy to reduce rates in recessions. And while unconventional monetary policy can still operate, there is substantial controversy on its efficacy and side effects—making other, complementary efforts to achieve the same goals desirable. Fiscal policy is the most direct and quantitatively large alternative to monetary policy for achieving macroeconomic goals.

**2. Fiscal policy can be very effective and may even have positive side effects like crowding in investment and raising the equilibrium interest rate.** In the immediate postwar decades, economists broadly supported fiscal stimulus.<sup>17</sup> But much of modern academic macroeconomics has ranged from dismissive of any effect of fiscal policy on the macroeconomy,<sup>18</sup> to arguments that imply that additional debt can reduce confidence and hurt the economy,<sup>19</sup> to arguments that consolidations can actually be expansionary.<sup>20</sup>

However, an increasing body of evidence, pulled from both historical and recent data, has found that fiscal expansion can have large positive effects. On the revenue side, Romer and Romer examine exogenous tax changes in the United States since World War II and find resulting multipliers as high as three.<sup>21</sup> On the spending side, studies that focus on historical exogenous (unpredicted) changes in U.S. government expenditure find output multipliers ranging from 0.6 to 1.2.<sup>22</sup> Studies based on federal defense spending associated with the Recovery Act detect multipliers over one in some scenarios.<sup>23</sup> Consumer-level microeconomic data from the 2001 and 2008 U.S. tax credits show evidence that liquidity-constrained households spent a sizable fraction of that rebate.<sup>24</sup>

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17. See, e.g., Alan S. Blinder & Robert M. Solow, *Does Fiscal Policy Matter?*, 2 J. PUB. ECON. 319 (1973).

18. See, e.g., Robert J. Barro, *Are Government Bonds Net Wealth?*, 82 J. POL. ECON. 1095 (1974).

19. See, e.g., Laurence Ball & N. Gregory Mankiw, *What Do Budget Deficits Do?* (Fed. Reserve Bank of Kansas City Econ. Policy Symposium – Jackson Hole, 1995), <http://www.kansascityfed.org/publicat/sympos/1995/pdf/%20s95manki.pdf>.

20. See, e.g., ALAN S. BLINDER & JANET L. YELLEN, *THE FABULOUS DECADE: MACROECONOMIC LESSONS FROM THE 1990S* (2001); Alberto Alesina & Silvia Ardagna, *Large Changes in Fiscal Policy: Taxes Versus Spending*, 24 TAX POL'Y & ECON. 35 (2010).

21. Christina D. Romer & David H. Romer, *The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks*, 100 AM. ECON. REV. 763 (2010).

22. Olivier Blanchard & Roberto Perotti, *An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output*, 117 Q.J. ECON. 1329 (2002); Valerie A. Ramey, *Can Government Purchases Stimulate the Economy?*, 49 J. ECON. LITERATURE 673 (2011); Valerie A. Ramey & Matthew D. Shapiro, *Costly Capital Reallocation and the Effects of Government Spending*, 48 CARNEGIE-ROCHESTER CONF. SERIES ON PUB. POL'Y 145 (1998).

23. Emi Nakamura & Jón Steinsson, *Fiscal Stimulus in a Monetary Union: Evidence from U.S. Regions*, 104 AM. ECON. REV. 753 (2014).

24. Jonathan A. Parker et al., *Consumer Spending and the Economic Stimulus Payments of 2008*, 103 AM. ECON. REV. 2530 (2013).

When monetary policy is constrained, fiscal policy may be effective because monetary policy will not partially offset fiscal policy through interest-rate or exchange-rate channels. Fiscal policy could even crowd in additional private investment through its ability to stimulate growth and raise inflation expectations, thereby lowering interest rates.<sup>25</sup> However, the design of fiscal policy is critical. Many tax expenditures, like the exclusion of employer-sponsored health insurance or the mortgage interest deduction, are procyclical, which can have the effect of exacerbating the business cycle.<sup>26</sup> The reaction function of monetary policy is also important, as some have argued that a monetary authority that reverts to a Taylor-type rule during fiscal expansion will significantly reduce fiscal multipliers.<sup>27</sup>

**3. Fiscal space is larger than generally appreciated.** Arguments against fiscal stimulus have increasingly focused on the issue of fiscal space, stemming in part from an idea that irresponsible government spending caused Europe's sovereign debt crisis. However, there is no correlation between countries whose debt-to-GDP ratio rose prior to the crisis and those that saw their sovereign spreads spike during 2011; instead the spikes in debt in places like Ireland and Spain were a result of the crisis rather than a cause of it.<sup>28</sup>

The tendency today is toward excessive caution in the name of fiscal responsibility, when, in fact, growth associated with fiscal stimulus can improve fiscal sustainability. Effective fiscal stimulus may raise output faster than debt, reducing the debt-to-GDP ratio.<sup>29</sup> Changes in the debt-to-GDP ratio depend on two factors: (i) the difference between interest rates and the growth rate (strictly speaking,  $r$  minus  $g$  multiplied by the debt-to-GDP ratio); and (ii) the primary balance (the difference between revenue and non-interest spending). The larger the debt, the more the effect of changes in  $r - g$  dwarfs

25. Lawrence Christiano et al., *When Is the Government Spending Multiplier Large?*, 119 J. POL. ECON. 78 (2011); Robert E. Hall, *By How Much Does GDP Rise if the Government Buys More Output?*, 2009 BROOKINGS PAPERS ON ECON. ACTIVITY 183 (2009); Michael Woodford, *Simple Analytics of the Government Expenditure Multiplier*, 3 AM. ECON. J.: MACROECONOMICS 1 (2011).

26. Yair Listokin, *Equity, Efficiency, and Stability: The Importance of Macroeconomics for Evaluating Income Tax Policy*, 29 YALE J. ON REG. 45 (2012).

27. See, e.g., Woodford, *supra* note 25.

28. Jay C. Shambaugh, *The Euro's Three Crises*, 2012 BROOKINGS PAPERS ON ECON. ACTIVITY 157 (2012).

29. Alan J. Auerbach & Yuriy Gorodnichenko, *Fiscal Stimulus and Fiscal Sustainability* (Nat'l Bureau of Econ. Res., Working Paper No. 23789, 2017), <http://www.nber.org/papers/w23789>; J. Bradford Delong & Lawrence H. Summers, *Fiscal Policy in a Depressed Economy*, 2012 BROOKINGS PAPERS ON ECON. ACTIVITY 233 (2012); Vitor Gaspar et al., *Macroeconomic Management When Policy Space Is Constrained: A Comprehensive, Consistent and Coordinated Approach to Economic Policy* (IMF Staff Discussion Note, 2016), <http://www.imf.org/external/pubs/ft/sdn/2016/sdn1609.pdf>; Organisation for Economic Co-operation and Development, *Chapter 2: Using the Fiscal Levers to Escape the Low-Growth Trap*, in OECD ECONOMIC OUTLOOK: VOLUME 2016 ISSUE 2 (2016), <http://www.oecd.org/eo/public-finance/Using-the-fiscal-levers-to-escape-the-low-growth-trap.pdf>.

the effect of the primary balance in determining debt dynamics. So policies that raise  $g$  without triggering concerns that raise  $r$  can be especially effective in improving sustainability.<sup>30</sup>

This argument seems to be consistent with financial market perceptions. For example, downgrades to many European sovereign debt ratings in the last eight years have come with warnings of growth prospects, not of spending irresponsibility. And, in the United States, nominal growth, not fiscal consolidation, has been critical for establishing debt sustainability.<sup>31</sup>

Even to the degree that stimulus adds to the debt, ideas of optimal debt levels need to consider reduced future liabilities and persistently lower interest rates. For example, nearly three-quarters of advanced economies have smaller expected increases in pension and health spending between 2010 and 2030, comparing 2016 IMF projections with those from five years prior.<sup>32</sup> Moreover, permanently lowered interest rates increase the threshold of sustainable government debt.<sup>33</sup> Indeed, given low real interest rates, major advanced economies today have relatively low interest payments as a share of GDP.

**4. More sustained stimulus, especially if it increases aggregate supply, may be warranted.** The “New View” of fiscal policy, based on the empirical and analytical observations above, places more weight on sustained fiscal policy, especially through effectively allocated investments. Sustained fiscal policy may be necessary because the global economic climate is showing symptoms of persistently inadequate demand dragging down growth and inflation. It can play a critical role not only in demand but also in expanding productivity and aggregate supply going forward. IMF researchers found that a permanent increase in government investment of one percent of GDP increases

30. Some have argued that higher growth has only a limited effect on fiscal sustainability because it automatically leads to higher pensions and greater spending in other areas (for example, faster growth could raise wages more quickly, increasing the cost of providing government-funded healthcare). But even for pensions, the elasticity of present-value spending with respect to growth is considerably less than one—because of lags in when benefits adjust—and pensions are just a portion of overall government spending. So only a portion of the additional revenues associated with the higher growth rate would be offset by the additional spending it triggered.

31. George J. Hall & Thomas J. Sargent, *Interest Rate Risk and Other Determinants of Post-WWII U.S. Government Debt/GDP Dynamics*, 3 AM. ECON. J.: MACROECONOMICS 192 (2011).

32. IMF, *Debt: Use It Wisely*, Fiscal Monitor (Oct. 2016), <http://www.imf.org/external/pubs/ft/fm/2016/02/pdf/fm1602.pdf>; IMF, *Shifting Gears: Tackling Challenges on the Road to Fiscal Adjustment*, Fiscal Monitor (Apr. 2011), <http://www.imf.org/external/pubs/ft/fm/2011/01/pdf/fm1101.pdf>.

33. Douglas W. Elmendorf & Louise M. Sheiner, *Federal Budget Policy with an Aging Population and Persistently Low Interest Rates*, 31 J. ECON. PERSP. 175 (2017). Declines in expected growth rates lower the optimal stock of government debt. But interest rate expectations have come down considerably more than growth expectations, consistent with the fact that interest rate forecasts had a large, systematic upwards bias for several decades while growth forecasts were generally unbiased. In fact, relative to pre-2000 forecasts, growth rate expectations have generally increased while interest rate expectations have declined dramatically.

growth through permanently increasing investment and consumption.<sup>34</sup> Furthermore, fiscal spending creates future fiscal space through increasing government revenue and reducing the debt-to-GDP ratio, as shown in Figures 6A and 6B.

Figure 6A: Effect of Permanent Increase in Government Investment on Real GDP<sup>35</sup>

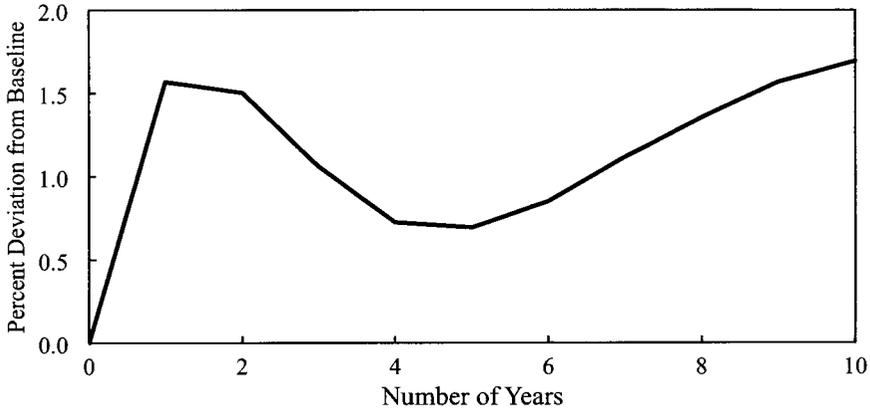
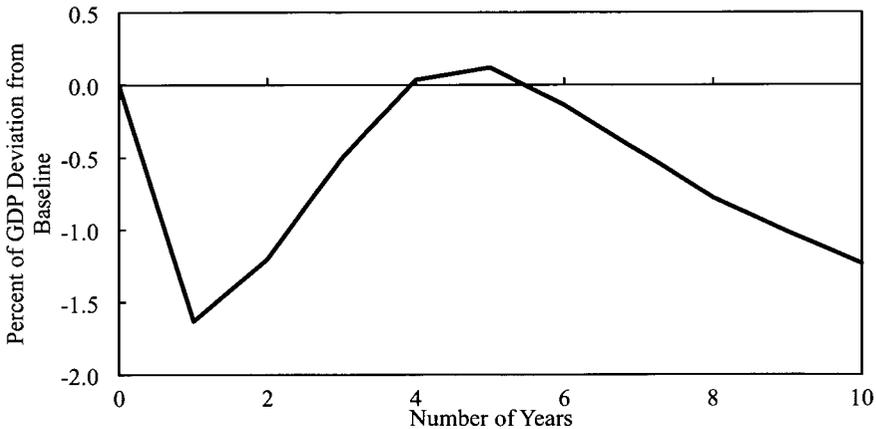


Figure 6B: Effect of Permanent Increase in Government Investment on Government Debt-to-GDP Ratio<sup>36</sup>



34. Gaspar et al., *supra* note 29.

35. *Id.*

36. *Id.*

**5. There can be large benefits to coordinated fiscal action across countries.** In a world characterized by inadequate demand and low interest rates, shocks to demand can spill more swiftly and strongly across borders.<sup>37</sup> Normally, a demand contraction in one country will spill into others through shrinking imports. That country's currency will depreciate, giving their exports an advantage, and resulting in a current account surplus. The demand shock affects the other countries, but it need not directly affect output. If monetary easing is possible, which among other things shifts exchange rates and tempers the movements of the current account, the other countries can offset the reduction in demand.

However, at the effective lower bound, monetary policy cannot offset policies in foreign countries that create large current account surpluses. Thus, a fiscal contraction abroad spills directly into GDP. Note that the demand shock from fiscal consolidation has likely been significant in the Eurozone, where the Single Market makes these spillovers more direct and members cannot rely on the mitigating effects of exchange rates and monetary policy.

Fiscal expansions can have large positive spillovers, especially when they are internationally coordinated. A fiscal expansion can increase demand in both the domestic economy and the economies of its trade partners. To the extent that business investment has been held back by low GDP growth, a coordinated expansion could also lift investment, further buoying the world economy.

Gaspar, Obstfeld, and Sahay find that countries or regions engaging in an individual permanent fiscal expansion worth one percent of GDP face rising debt levels.<sup>38</sup> However, when stimulus is coordinated, additional growth rose in each region, cumulating to 2.3 percent in additional global growth, while individual debt-to-GDP ratios fell. This strengthens the case for mutual reliance on fiscal policy that undergirds, for example, the G-20's inclusion of fiscal policy as one of three tools for strengthening growth.<sup>39</sup>

#### *D. Implications for the Discount Rate Used in Regulatory Analysis*

Lower equilibrium interest rates and an economy that is likely to spend more time with rates constrained at the zero lower bound going forward should also cause a rethink of regulatory policy. One clear implication of the change in equilibrium interest rates is that our approach to long-run regulatory policy needs to be updated to reflect lower discount rates. Moreover, some process

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37. Gauti B. Eggertsson et al., *A Contagious Malady? Open Economy Dimensions of Secular Stagnation* (Nat'l Bureau of Econ. Res., Working Paper No. 22299, 2016), <http://www.nber.org/papers/w22299>.

38. Gaspar et al., *supra* note 29.

39. G-20 Communiqué, G-20 Finance Ministers and Central Bank Governors Meeting (Jul. 23 2016), [http://www.g20.org/English/Documents/Current/201607/t20160728\\_3091.html](http://www.g20.org/English/Documents/Current/201607/t20160728_3091.html).

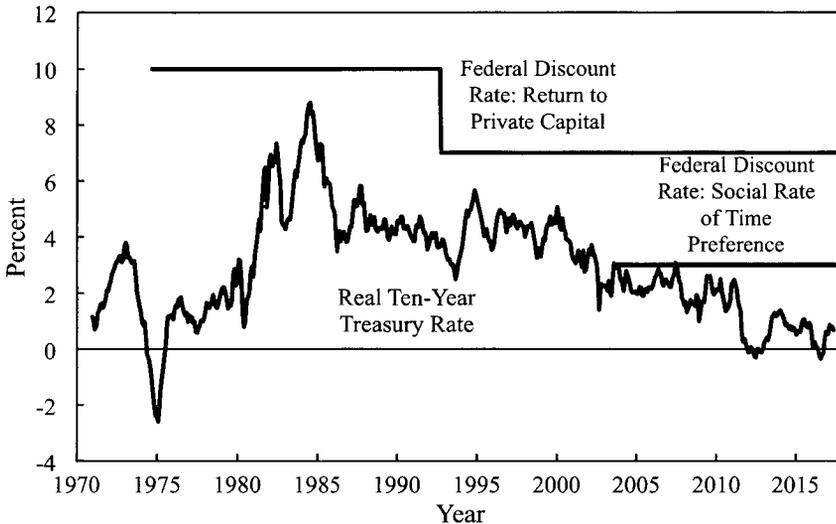
should be put in place to periodically review and update the discount rate in light of changing conditions in the economy. OMB Circular A-4 recommends two discount rates, one reflecting the rate of return to capital, which it recommends be used for regulations that displace investment, and another reflecting the social rate of time preference, which is used for regulations that displace consumption.<sup>40</sup> Neither of these rates reflect timeless truths, instead they account for the fact that regulations can reduce future investment or consumption. The cost of that displacement is appropriately measured using the market valuation of future investment or consumption.

OMB circular A-4 was last updated in 2003 and set the social rate of time preference at three percent, which happened to be about the real rate on 10-year Treasuries in that year, as shown in Figure 7. Since then, the real 10-year Treasury rate has fallen to less than one percent. The forecast for the real rate going forward has also fallen substantially, although not by quite as much as the rate itself has fallen. The Council of Economic Advisers suggested that the social rate of time preference should be at most two percent and the rate of return on capital should likely be reduced as well.<sup>41</sup> Moreover, a process should be put in place to periodically evaluate and update these rates based on market prices and the latest forecasts—for example, every five to ten years.

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40. OFFICE OF MGMT. & BUDGET, CIRCULAR A-4, REGULATORY ANALYSIS (Sept. 17 2003).

41. COUNCIL OF ECON. ADVISERS, DISCOUNTING FOR PUBLIC POLICY: THEORY AND RECENT EVIDENCE ON THE MERITS OF UPDATING THE DISCOUNT RATE (2017), [http://obamawhitehouse.archives.gov/sites/default/files/page/files/201701\\_cea\\_discounting\\_issue\\_brief.pdf](http://obamawhitehouse.archives.gov/sites/default/files/page/files/201701_cea_discounting_issue_brief.pdf).

Figure 7: Real Ten-Year Treasury and Federal Discount Rates<sup>42</sup>

#### E. Should Benefit-Cost Analysis Incorporate Macroeconomic Effects?

A more complicated issue is the question of whether benefit-cost analysis should include macroeconomic effects. Ever since Executive Order 12,291 by President Ronald Reagan in 1981, benefit-cost analysis largely prevailed in the regulatory process, especially in the executive agencies and where it has not been explicitly prohibited by law, as in the case of ozone regulation. The canonical approach to benefit-cost analysis excludes any analysis of the impact of regulations on the macroeconomy.<sup>43</sup>

As Yair Listokin has developed in great detail, excluding macroeconomic impacts from regulatory analysis is based on the assumption that the economy is at full employment.<sup>44</sup> Students are taught, for example, that if a regulation creates new jobs for people installing scrubbers, the new jobs are a cost not a benefit. If the economy is at full employment then the scrubber-installer jobs will not be net new jobs but instead reflect a shift in employment from some other sector that, based on previous market choices, would have been a better use of those resources—not counting the cost of whatever externality is being regulated.

42. The data was obtained from the Federal Reserve, Bureau of Economic Analysis, Office of Management and Budget, and the author's calculations. Note that monthly averages of nominal yields less changes in the price index for personal consumption expenditures (PCE) excluding food and energy.

43. *E.g.*, EDITH STOKEY & RICHARD ZECKHAUSER, PRIMER FOR POLICY ANALYSIS (1978); OFFICE OF MGMT. & BUDGET, *supra* note 40.

44. Listokin, *supra* note 1.

The fact that the economy can be operating below potential for sustained periods of time means that this may be the analytically incorrect way of applying benefit-cost analysis. In the example above, the jobs installing scrubbers may indeed be net new jobs—shifting people from involuntarily unemployed to employed, thus constituting a benefit not a cost.

In theory, this opens up new avenues for considering the role of regulation in macroeconomic policy. In practice, however, I am more skeptical for two reasons. First, even with perfect knowledge and implementation, regulations are generally permanent while the macroeconomic impacts are transitory. In most circumstances these macroeconomic impacts are unlikely to justify a very different decision than the long-run benefit-cost analysis would have prescribed.

Second, our knowledge about the employment impact of regulations is highly imperfect. For example, does requiring the installation of scrubbers raises costs and thus hurt electricity generation jobs or does it just create jobs in the installation of scrubbers? Sorting this out is often beyond what economics is capable of today. This is evidenced by the Obama Administration's attempts to incorporate them into the rulemaking process. In January 2011, the Administration issued Executive Order 13,563, which set out a number of principles on regulation, including pushing for well-developed quantitative benefit-cost analysis, a process for retrospective review of existing regulation and noting as a general principle that regulation “must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and *job creation*.”<sup>45</sup> This effort to consider the employment effects of regulation was motivated in part by Masur and Posner, who have developed a general argument for considering these effects.<sup>46</sup> However, they do share some of my skepticism on the role of regulation as a short-term macroeconomic tool.<sup>47</sup>

When the Office of Information and Regulatory Affairs (OIRA) sent out guidance to agency heads on implementation of Executive Order 13,563, it did not mention measuring employment impacts, and OMB did not amend Circular A-4 to include methodologies for calculating effects on employment.<sup>48</sup> However, in writing its subsequent 2011 Report to Congress, OIRA attempted to solicit public comment on methodologies for estimating employment effects, and promised to “carefully consider” the suggestions made. In general, the

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45. Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 18, 2011) (emphasis added).

46. Jonathan S. Masur & Eric A. Posner, *Regulation, Unemployment, and Cost-Benefit Analysis*, 98 VA. L. REV. 579 (2012).

47. Jonathan S. Masur & Eric A. Posner, *Should Regulation Be Countercyclical?*, 34 YALE J. ON REG. 857 (2017).

48. Memorandum from Cass R. Sunstein, Adm'r, Office of Info. & Regulatory Affairs, for the Heads of Exec. Dep'ts & Agencies, & of Indep. Reg. Agencies, Executive Order 13,563, “Improving Regulation and Regulatory Review” (Feb. 2, 2011), <http://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2011/m11-10.pdf>.

comments received were not particularly helpful. Consequently, OIRA has not insisted on the inclusion of employment effect analysis as part of its regulatory review—so it has been largely left to agencies’ discretion whether or not to include it in their Regulatory Impact Analyses (RIAs). The closest thing to guidance OIRA has released is a literature review on the employment effects of regulation and a set of (very) general principles for employment-effect analysis, which it first included in its 2011 report and has revised and expanded in each subsequent year.<sup>49</sup>

The agency most actively producing jobs estimates of regulations has been the Environmental Protection Agency (EPA). Since 2011, EPA has included analysis of employment effects in RIAs for a large number of its rules. (Prior to 2011, they did so only intermittently.) In part, this is because the Clean Air Act requires the EPA to conduct “continuing evaluations of potential loss or shifts of employment” resulting from rules issued under its authority.<sup>50</sup> (Other statutes, like the Clean Water Act, contain similar language.)<sup>51</sup> Initially these jobs estimates were based on a paper by Morgenstern, Pizer, and Shih which examined four different types of regulations—often far afield from the actual regulation EPA was considering.<sup>52</sup> However, since 2013, the National Center for Environmental Economics (NCEE) has instructed EPA staff to no longer use Morgenstern, Pizer, and Shih estimates after replication efforts were unsuccessful.

Recent RIAs, including those for the final Clean Power Plan (2015), the Residential Wood Heater New Source Performance Standard (2015), and the Tier 3 Vehicle Emission and Fuel Standards Program (2014), all use a bottom-up approach based on data on labor use in the regulated sector(s) and in abatement-related activities and estimate both supply- and demand-side impacts.<sup>53</sup> These estimates produce jobs numbers that are essentially proportional to the cost of the regulation—making them at best a noisy estimate and at worst misleading for the majority of the time when monetary policy is not constrained by the zero lower bound and the net job impact of any regulation, like other microeconomic policies, should be thought of as

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49. OFFICE OF INFO & REGULATORY AFFAIRS, OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, 2011 REPORT TO CONGRESS ON THE BENEFITS AND COSTS OF FEDERAL REGULATIONS AND UNFUNDED MANDATES ON STATE, LOCAL, AND TRIBAL ENTITIES (2011), [http://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/2011\\_cb/2011\\_cba\\_report.pdf](http://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/2011_cb/2011_cba_report.pdf).

50. 42 U.S.C. § 7621 (2012).

51. 33 U.S.C. § 1367 (2012).

52. Richard Morgenstern et al., *Jobs Versus the Environment: An Industry-Level Perspective*, 43 J. ENVTL. ECON. & MGMT. 412 (2002).

53. EPA, EPA-452/R-15-003, REGULATORY IMPACT ANALYSIS FOR THE CLEAN POWER PLAN FINAL RULE; EPA, EPA-452/R-15-001, REGULATORY IMPACT ANALYSIS FOR RESIDENTIAL WOOD HEATERS NSPS REVISION (2015); EPA, EPA-420-R-14-005, CONTROL OF AIR POLLUTION FROM MOTOR VEHICLES: TIER 3 MOTOR VEHICLE EMISSION AND FUEL STANDARDS FINAL RULE REGULATORY IMPACT ANALYSIS (2014).

effectively zero because the Federal Reserve will offset any macroeconomic impact.

None of this is to say that further analytic work on jobs estimates and legal work to understand the impact of regulations would not be useful—they absolutely would be. But it is more likely that macroeconomic considerations would affect the design of the phase-in of regulations rather than long-run regulations themselves. For example, when the economy is at full employment it might make sense to have a longer period to phase in a regulation that would result in the premature obsolescence of the capital stock. Whereas when monetary policy is at the effective lower bound, a faster phase-in of such a regulation might have positive macroeconomic side effects by putting more resources back into productive use.

Finally, even if our knowledge were perfect, there is the political uncertainty around the question of whether we would actually use it. In a country like China, for example, much of regulatory and other policy is subordinated to the short-run goal of hitting the growth target. This affects, for example, how banks are encouraged to lend and environmental regulations are enforced. Clearly this is an extreme example but it illustrates pitfall of blindly following macroeconomic targets rather than benefit-cost analysis. In the United States, some have advocated that the regulatory agenda be judged by its impact on the rate of economic growth, which would effectively be dropping the benefit side of benefit-cost analysis and mismeasuring the costs. Other political considerations could also more easily enter into the process of regulatory decision making.

A number of authors have raised a range of other issues where law and macroeconomics could shift our thinking, including judicial decisions in bankruptcy proceedings and the law more generally.<sup>54</sup> These are all worth pursuing further and I would propose a two-part test for their application. First, how much of the policy is limited to certain short-run situations versus how generally applicable it is? For example, a regulation that requires people to dig a large hole and fill it in *might* pass a benefit-cost test in a very severe recession but would be unlikely to be good policy in normal times. Given that we are not in a recession most of the time, this policy would be unlikely to make sense as a permanent policy. It is possible, of course, to adopt regulatory fine-tuning—for example, the regulation could require people to dig holes and refill them whenever the unemployment rate rose above ten percent. But such triggers and fine tuning are hard enough in monetary and fiscal policy that the risks of misapplication would be substantial.

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54. See, e.g., Listokin *supra* note 1; Zachary Liscow, *Counter-Cyclical Bankruptcy Law: An Efficiency Argument for Employment-Preserving Bankruptcy Rules*, 116 COLUM. L. REV. 1461 (2016).

The second part of the test asks how advanced our economic understanding of the macroeconomic effects of any given microeconomic policy is. In the case of environmental regulations, for example, I do not think the current literature allows meaningful predictions about job effects in normal economic times, let alone predictions that are contingent on the state of the macroeconomy. As a result, even if such considerations are important, a Bayesian would give them relatively little weight as compared with the still difficult, but much more tractable, long-run benefit and cost questions that are done as part of the canonical analysis.

One particularly fruitful and potentially quantitatively large area for further implementation that requires both law and economics would be the handling of mortgage debt in situations of widespread house price declines or deep recessions, either through mortgage insurance or equity contracts for houses.<sup>55</sup> Such a change would potentially make sense not just during recessions but also in situations of localized house price declines or even helping households deal with the idiosyncratic risks they face. Moreover, shifting to more equity-like financing for homes could reduce the major role that debt plays in propagating recessions. Shifting to alternative financing instruments for homes has, however, faced a number of obstacles—including tax, legal, and regulatory—that would benefit from further thought.<sup>56</sup>

## II. Proposition 2: Labor Markets Do Not Necessarily Clear

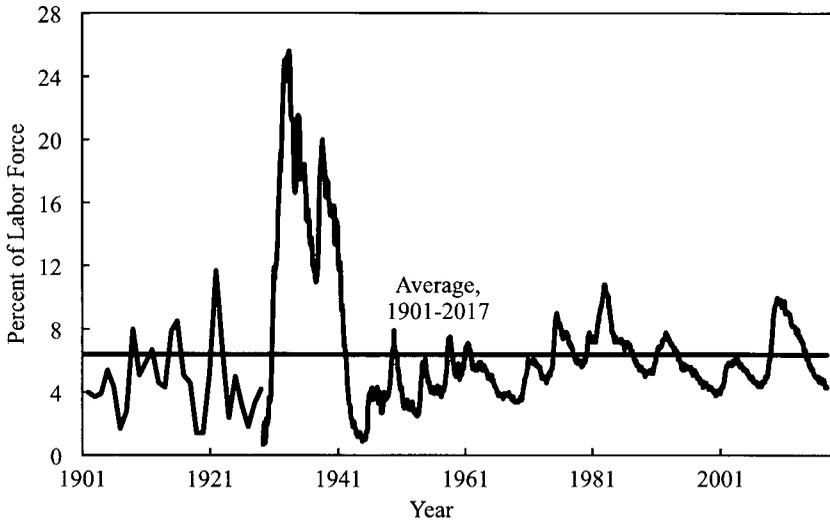
The first proposition examined the economy when it was in a deep recession—particularly with conventional monetary policy constrained—and found that the economic effects of fiscal policy, regulation, and other interventions could be different. The second proposition advances some evidence for the fact that even in normal times conventional market clearing may not be the best way to understand markets, especially labor markets.

Traditionally economics assumes that outside of recessions, labor markets clear. Figure 8 provides support for this belief. For over one hundred years the unemployment rate has generally been about six percent, cycling above and below it for temporary periods but always coming back to about the same place.

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55. See ATIF MIAN & AMIR SUFI, *HOUSE OF DEBT: HOW THEY (AND YOU) CAUSED THE GREAT RECESSION, AND HOW WE CAN PREVENT IT FROM HAPPENING AGAIN* (2014); Mian et al., *Foreclosures, House Prices, and the Real Economy*, 70 J. FIN. 2587 (2015).

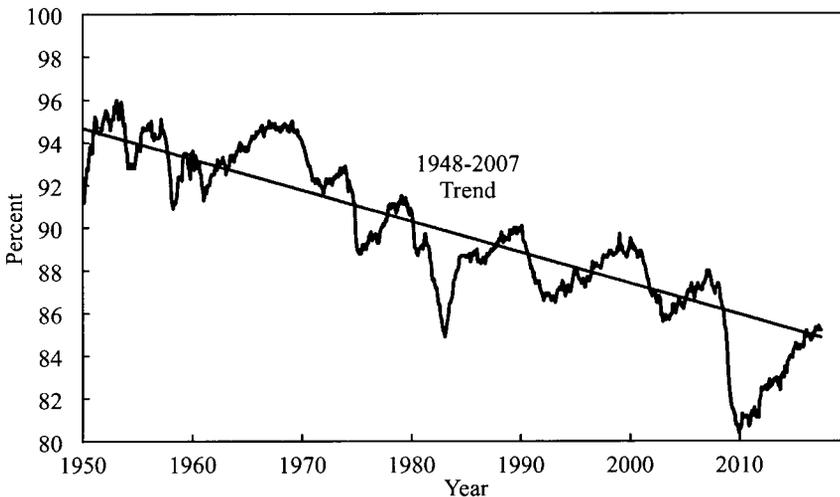
56. Caplin et al., *Facilitating Shared Appreciation Mortgages To Prevent Housing Crashes and Affordability Crises*, HAMILTON PROJECT, (Sept. 2008), [http://www.hamiltonproject.org/assets/legacy/files/downloads\\_and\\_links/Facilitating\\_Shared\\_Appreciation\\_Mortgages\\_to\\_Prevent\\_Housing\\_Crashes\\_and\\_Affordability\\_Crises.pdf](http://www.hamiltonproject.org/assets/legacy/files/downloads_and_links/Facilitating_Shared_Appreciation_Mortgages_to_Prevent_Housing_Crashes_and_Affordability_Crises.pdf); ROBERT J. SHILLER, *MACRO MARKETS: CREATING INSTITUTIONS FOR MANAGING SOCIETY'S LARGEST ECONOMIC RISKS* (1998).

Figure 8: Unemployment Rate, 1901-2017<sup>57</sup>

The unemployment rate, however, only tells part of the story. The unemployment rate is the number of people who are actively looking for work but do not have a job divided by the labor force, which is this same group plus the employed population. But the labor force participation rate, which is the fraction of the population that is either in a job or actively looking for one, has been falling for men since the 1950s and women since about 2000. As a result, the fraction of men who are employed has fallen steadily—from ninety-six percent in the mid-1950s to eighty-five percent today in the case of prime-age men (age 25-54) shown in Figure 9.

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57. The data was obtained from the Census Bureau, National Bureau of Economic Research, Bureau of Labor Statistics (Current Population Survey), and the author's calculations. Data prior to 1929 are annual rates for individuals 14 and older. Data from 1929 to 1947 are monthly rates for individuals 16 and older from the National Bureau of Economic Research. Data from 1948 to 2016 are monthly rates for individuals 16 and older derived from the Current Population Survey.

Figure 9: Prime-Age Male Employment-Population Ratio<sup>58</sup>

The question is what better reflects the answer to the question of whether markets are clearing, the unemployment rate or the employment-population rate? In general, one would favor the unemployment rate because it records the people who are saying that they actually want jobs. It does not reflect a failure of the labor market that a seventeen-year-old high school student, forty-year-old stay-at-home parent, or eighty-year-old retiree does not work. All three may be making a voluntary choice. The question is whether the decline shown in Figure 9 reflects a voluntary choice on the part of prime-age men. And all of the evidence suggests it does not.<sup>59</sup> One piece of evidence is that these men are not more likely to be married to a woman in the labor force, in fact they are less likely to be married to such a woman, as shown in Figure 10A. A second piece of evidence is that cash transfers appear to have trended down for this group as shown in Figure 10B—a small increase in the share receiving Social Security disability insurance payments has been more than offset by the reduction in the share receiving other cash transfers—so prime-age men are not simply withdrawing from the workforce to enjoy welfare.

58. The data was obtained from the Bureau of Labor Statistics (Current Population Survey), and the author's calculations.

59. See COUNCIL OF ECON. ADVISERS, *THE LONG-TERM DECLINE IN PRIME-AGE MALE LABOR FORCE PARTICIPATION* (2016), [http://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620\\_primeage\\_male\\_lfp\\_cea.pdf](http://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620_primeage_male_lfp_cea.pdf), for a detailed discussion.

Figure 10A: Share of Prime-Age Men Not in Labor Force with Spouse in Labor Force<sup>60</sup>

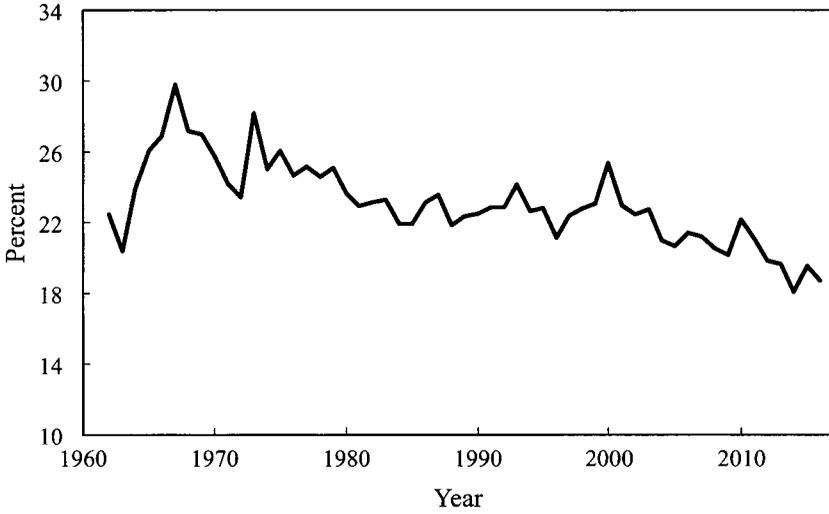
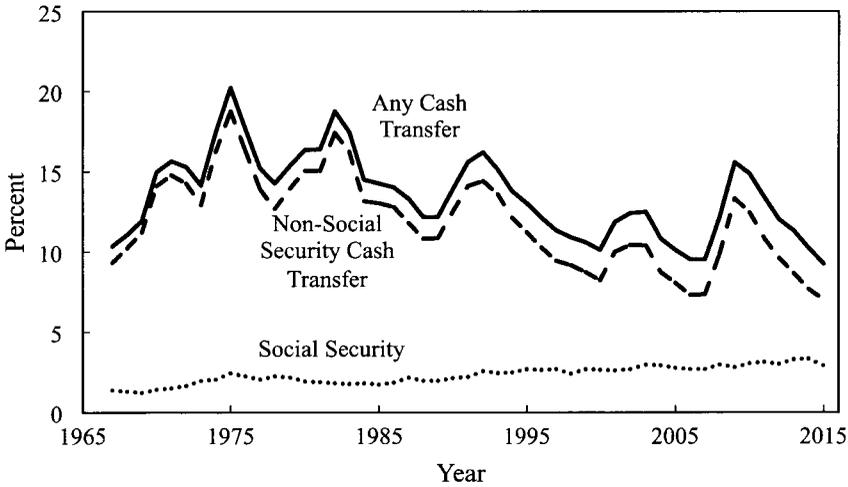


Figure 10B: Share of Prime-Age Men Receiving Any Government Cash Transfers<sup>61</sup>

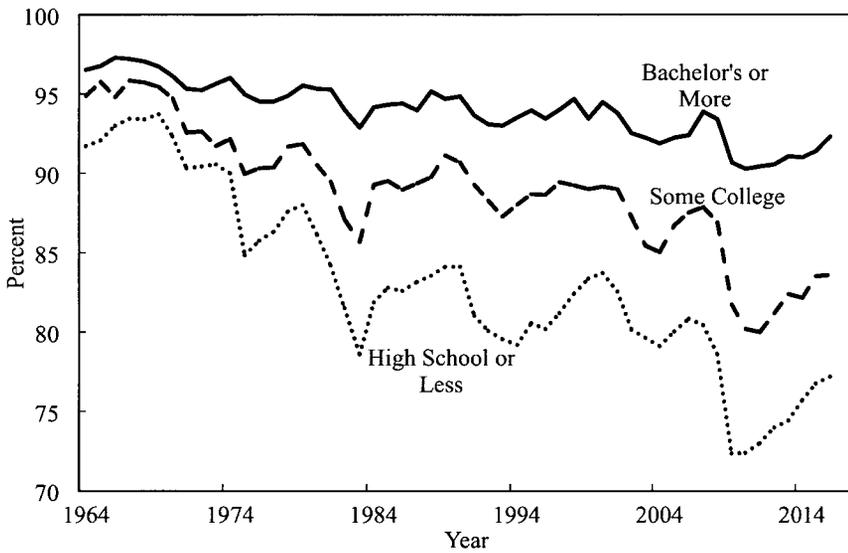


60. The data was obtained from Sarah Flood et al., *Integrated Public Use Microdata Series, Current Population Survey: Version 5.0 [dataset]*, IPUMS-CPS (2017), <https://doi.org/10.18128/D030.V5.0> and the author's calculations.

61. *Id.*

Instead, the decline in the employment of these men appears to reflect a decline in the demand for less-skilled workers, as manifested in both lower employment for less educated men as shown in Figure 11 and lower relative wages for less educated men as documented in the large literature on inequality.<sup>62</sup>

Figure 11: Prime-Age Male Employment-Population Ratio by Educational Attainment<sup>63</sup>

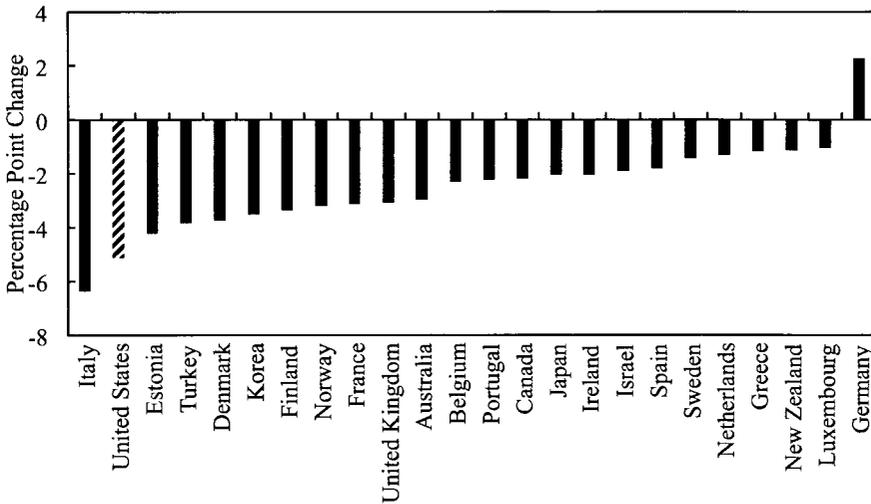


The decline in labor force participation rates has been much larger in the United States as shown in Figure 12, bringing the labor force participation rates for prime-age men and women in the United States to among the lowest in the OECD.

62. See, e.g., David H. Autor, Lawrence F. Katz & Melissa S. Kearney, *Trends in U.S. Wage Inequality: Revising the Revisionists*, 90 REV. ECON. & STAT. 300 (2006).

63. The data was obtained from Sarah Flood et al., *Integrated Public Use Microdata Series, Current Population Survey: Version 5.0 [dataset]*, IPUMS-CPS (2017), <https://doi.org/10.18128/D030.V5.0> and the author's calculations.

Figure 12: Change in Prime-Age Male Labor Force Participation Rates Across the OECD, 1990-2015<sup>64</sup>



These labor force issues have important implications for law and macroeconomics. First, part of the difference between the labor force experience of the United States and other advanced economies is the result of the unique American mass incarceration—which has resulted in a large number of ex-offenders, who have a much lower chance of getting employment, in the population. This illustrates the potentially large macroeconomic implications of decisions about the criminal justice system—implications that should be considered alongside the human consequences of the system.<sup>65</sup>

Second, these facts confound our understanding of labor market regulatory issues. The United States has some of the most flexible labor markets of any of the advanced economies, as measured by ease of hiring and firing, the minimum wage, and the extent of unionization.<sup>66</sup> But this has not made it commensurately more likely that U.S. labor markets clear. Better understanding of the interplay of legal rules and regulations with the

64. The data was obtained from the Organisation for Economic Co-operation and Development and the author’s calculations.

65. Harry J. Holzer et al., *Declining Employment Among Young Black Less Educated Men: The Role of Incarceration and Child Support*, 24 J. POL’Y ANALYSIS & MGMT. 329 (2005); Harry J. Holzer, *Collateral Costs: The Effects of Incarceration on the Employment and Earnings of Young Workers*, in *DO PRISONS MAKE US SAFER? THE BENEFITS AND COSTS OF THE PRISON BOOM*, (Stephen Raphael & Michael A. Stoll eds., 2009); Devah Pager, *The Mark of a Criminal Record*, 108 AM. J. SOC. 937 (2003).

66. See, e.g., OECD, *ECONOMIC POLICY REFORMS 2017: GOING FOR GROWTH* (2017) (showing the United States among the “top” in the OECD in all of these indicators).

performance of the labor market—in particular, ways in which flexibility does and does not help the market clear in an optimal matter—is critical.

As in Proposition 1, the persistent deviations from full employment highlight the importance of a host of legal and regulatory decisions in affecting not just the short-run performance of the economy but the long-run level of employment and well-being of people.

### III. Proposition 3: Microeconomic Competition Policies Can Have Large Macroeconomic Effects

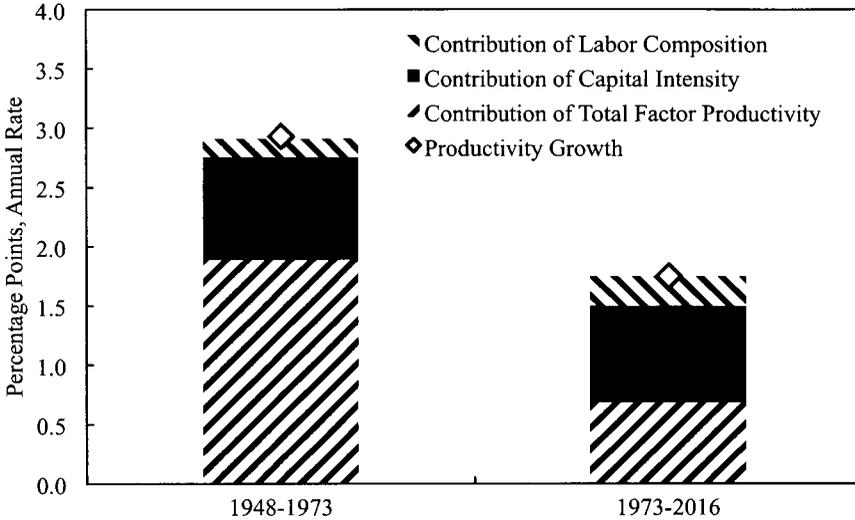
The third proposition is that microeconomic competition policies can have large macroeconomic effects, including on productivity growth. I am defining “competition” broadly to encompass not just antitrust but also policies like occupational licensing and land use restrictions. In addition, I am not arguing that individual antitrust matters should be settled on macroeconomic grounds. But instead that in designing general rules or assessing funding levels and prioritization one cannot just think about the microeconomic impacts in isolation from the macroeconomic context.

One of the dominant macroeconomic facts of the post-1973 period has been relatively slow productivity growth, with the exception of the tech boom from 1995-2005. Understanding the causes of this slowdown and potential remedies for it is one of the major macroeconomic challenges of our day.

#### *A. The Reduction in Total Factor Productivity Growth*

From a strict accounting perspective, the slowdown in overall productivity growth is largely accounted for by a slowdown in total factor productivity growth as shown in Figure 13. This is a measure of the underlying innovation in the economy, as opposed to the simple accumulation of capital or increase in skills.

Figure 13: Decomposition of Labor Productivity Growth, Private Nonfarm Business Sector<sup>67</sup>



*B. The Reduction in Business Dynamism*

Economists have produced a number of explanations for this slowdown in productivity growth including a set of “headwinds” facing the economy, the increased difficulty of developing new ideas, the reduction in aggregate demand leading to a reduction in aggregate supply, and a slowdown in the diffusion of ideas.<sup>68</sup> One plausible but much debated hypothesis that may explain at least part of the slowdown in productivity growth is the reduction in firm and labor market dynamism.<sup>69</sup>

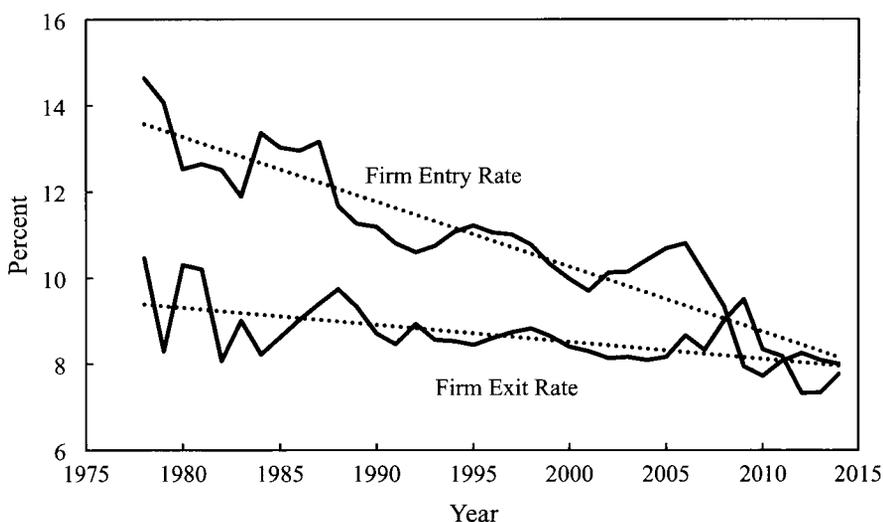
67. The data was obtained from the Bureau of Labor Statistics (Multifactor Productivity) and the author’s calculations.

68. See DAN ANDREWS, CHIARA CRISCUOLO & PETER N. GAL, FRONTIER FIRMS, TECHNOLOGY DIFFUSION AND PUBLIC POLICY: MICRO EVIDENCE FROM OECD COUNTRIES (2015); ROBERT J. GORDON, THE RISE AND FALL OF AMERICAN GROWTH: THE U.S. STANDARD OF LIVING SINCE THE CIVIL WAR (2016); Nicholas Bloom et al., *Are Ideas Getting Harder To Find?* (August 1, 2017) (unpublished paper) (on file with Stanford University).

69. See Ryan Decker et al., *The Role of Entrepreneurship in US Job Creation and Economic Dynamism*, 28 J. ECON. PERSP. 3 (2014), and Martin Neil Baily et al., *Productivity Dynamics in Manufacturing Plants*, in BROOKINGS PAPERS: MICROECONOMICS 1992, for support for this hypothesis. See Huiyu Li, *How Does Business Dynamism Link to Productivity Growth?*, FRBSF ECONOMIC LETTER, (Jan. 9, 2017), <http://www.frbsf.org/economic-research/publications/economic-letter/2017/january/business-dynamism-link-to-productivity-growth>, and Chang-Tai Hsieh & Peter J. Klenow, *The Reallocation Myth*, FED. RES. BANK KANSAS CITY, (Sept. 10, 2017), <http://www.kansascityfed.org/~media/files/publicat/sympos/2017/hsieh-klenow-paper.pdf?la=en>, for a more skeptical perspective.

Since the 1980s, young firms (those five years old or less) have been declining as a share of the economy. In 1982, young firms accounted for about half of all firms, and one-fifth of total employment. However, these figures fell to about one-third of firms and one-tenth of total employment in 2014. Much of this decrease is driven by declining firm dynamism—the entry and exit of firms. While firm exit has remained relative steady since the late 1970s, the firm entry rate has decreased significantly as shown in Figure 14.

Figure 14: Firm Dynamism, 1987-2014<sup>70</sup>



A similar reduction has been seen in labor market fluidity, including declines in job creation, job destruction, workers leaving jobs, changing occupations or industries, or moving to different places.<sup>71</sup>

This reduced fluidity in the economy may be interfering with two important sources of productivity growth. The first is the reallocation of capital to newer, more productivity entrants. And the second is the threat of newer entrants leading incumbent firms to be more productive.

70. The data was obtained from the Census Bureau (Business Dynamics Statistics) and the author's calculations.

71. See Raven S. Molloy et al., *Understanding Declining Fluidity in the U.S. Labor Market* (Fin. & Econ. Discussion Series Working Paper No. 2016-15, 2016).

### C. Microeconomic Evidence for Reduced Competition

A partial explanation for the decline in firm entry rates may be found in increased barriers to entry. These barriers to entry can come in the form of advantages that have accrued to incumbents over time. For example, increased economies of scale may mean that incumbents experience lower costs than new firms, making it harder for entrants to compete. Or demand-side network effects—when a product or service increases in quality, more people use it—may tip the scale in favor of a single provider. Incumbent advantages may also result from successful political lobbying, in which incumbent firms have the resources to lobby for rules that protect them from new entrants.

The increase in concentration in the economy has been documented in Autor et al.,<sup>72</sup> Gutiérrez and Philippon,<sup>73</sup> and the Council of Economic Advisers,<sup>74</sup> among other places. One very high-level indication of this trend is that the majority of industries have seen increases in the revenue share enjoyed by the fifty largest firms between 1997 and 2012 as shown in Table 1. Along similar lines, *The Economist* found that in forty-two percent of the roughly nine hundred industries examined, the top four firms controlled more than a third of the market in 2012, up from twenty-eight percent of industries in 1997.<sup>75</sup>

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72. See David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms* (Nat'l Bureau of Econ. Research, Working Paper No. 23396, 2017).

73. See Germán Gutiérrez & Thomas Philippon, *Declining Competition and Investment in the U.S.* (Nat'l Bureau of Econ. Research, Working Paper No. 23583, 2017).

74. See COUNCIL OF ECON. ADVISERS, BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER (2016), [http://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502\\_competition\\_issue\\_brief\\_updated\\_cea.pdf](http://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf).

75. See *Too Much of a Good Thing*, *ECONOMIST*, Mar. 26, 2016.

Table 1: Change in Market Concentration by Sector, 1997-2012<sup>76</sup>

Industry	Revenue Earned by 50 Largest Firms, 2012 (Billions \$)	Revenue Share Earned by 50 Largest Firms, 2012	Percentage Point Change in Revenue Share Earned by 50 Largest Firms, 1997-2012
Transportation and Warehousing	307.9	42.1	11.4
Retail Trade	1,555.8	36.9	11.2
Finance and Insurance	1,762.7	48.5	9.9
Wholesale Trade	2,183.1	27.6	7.3
Real Estate Rental and Leasing	121.6	24.9	5.4
Utilities	367.7	69.1	4.6
Educational Services	12.1	22.7	4.2*
Professional, Scientific and Technical Services	278.2	18.8	2.8*
Arts, Entertainment and Recreation	39.5	19.6	2.5*
Administrative/ Support	159.2	23.7	1.6
Health Care and Assistance	350.2	17.2	0.8*
Accommodation and Food Services	149.8	21.2	0.1
Other Services, Non-Public Admin	46.7	10.9	-0.2*

Note: Concentration ratio data is displayed for all North American Industry Classification System (NAICS) sectors for which data are available from 1997 to 2012. \* Indicates that the percentage point change is calculated using only taxable firms in that industry, as its 1997 revenue share data are only available for the 50 largest taxable firms and the 50 largest tax-exempt firms as separate categories, rather than for all firms combined. Performing this same calculation using data for only tax-exempt firms results in two additional industries showing a decline in concentration (Arts, Entertainment and Recreation, and Educational Services), while one shows a slight uptick (Other Services). Source: Economic Census (1997 and 2012), Census Bureau.

Of course, an increase in revenue concentration at the national industry level is neither necessary nor sufficient to indicate increases in market power: the sectors listed here are much larger than the relevant markets, whether in terms of sub-sectors or geography, and fifty firms is likely well above the number that would mark an industry as competitive. Nevertheless, it is one of many metrics used to create a snapshot of the current state of competition in today’s economy.

These broad trends are consistent with a number of industry-specific studies tracking concentration over longer periods of time. In financial services, a study found that the loan market share of the top ten banks increased from about thirty percent in 1980 to about fifty percent in 2010.<sup>77</sup> Concentration also increased in agriculture as evidenced by the fact that between 1972 and 2002, the share of revenues held by the top four firms increased in eight of nine agricultural industries tracked in a Congressional Research Service study.<sup>78</sup>

76. The table is copied from COUNCIL OF ECON. ADVISOR, BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER, WHITE HOUSE 4 tbl.1 (May 2, 2016), [https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502\\_competition\\_issue\\_brief\\_updated\\_cea.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf).

77. Dean Corbae & Pablo D’Erasmus, *A Quantitative Model of Banking Industry Dynamics* (Nov. 14, 2012) (unpublished manuscript), <http://www.frbatlanta.org/media/documents/news/conferences/2012/bankers-unconventional-policies/corbae.pdf>.

78. See Dennis A. Shields, Congressional Research Service, Report for Congress, Consolidation and Concentration in the U.S. Dairy Industry (2010), <http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R41224.pdf>.

Hospital market concentration has also been increasing, with Gaynor, Ho, and Town<sup>79</sup> finding that the average Herfindahl-Hirschman Index (HHI), a commonly used measure of market concentration, increased by about 50 percent to about 3,200, the level associated with just three equal-sized competitors in a market, from the early 1990s through 2006.<sup>80</sup> Similarly, wireless providers saw increased concentration, with the Federal Communications Commission finding that the average HHI in the markets they examined increased from under 2,500 in 2004 to over 3,000 in 2014.<sup>81</sup> Finally, the micro literature has also documented increasing railroad market concentration increases between 1985 and 2007.<sup>82</sup>

While these facts all suggest that concentration has increased, it is also necessary to consider the causes of that increase in concentration. Our normative evaluation of the policy implications would differ depending on whether this increase is the result of greater economies of scale, network externalities, or the result of artificial barriers to entry. Moreover, even if increased concentration has “good” causes, like network externalities that yield widespread benefit when everyone is using the same social network, the greater concentration may have harmful economic or political side effects as well.

#### *D. Macroeconomic Evidence that Increased Concentration Leads to Higher Rents*

One set of suggestive evidence that the increased concentration reflects increased market power and greater rents comes from macroeconomic data. One important macroeconomic fact is the decline in investment since the early 1980s, as shown in Figure 15A. What is striking is that this reduction in investment has coincided with an increased premium on investments in capital relative to the safe rate of return as shown in Figure 15B. The juxtaposition of higher prices with restricted quantities is a telltale sign of monopoly power.

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79. See Martin Gaynor, Kate Ho & Robert J. Town, *The Industrial Organization of Health-Care Markets*, 53 J. ECON. LITERATURE 235 (2015).

80. The Herfindahl-Hirschman Index (HHI) is a commonly used measure of market concentration that is created by summing up the squared shares of firms in a market. Higher values of the HHI indicate higher market concentration; it can be close to zero when a market is comprised of a large number of firms of small size and reaches a maximum of 10,000 when a market is controlled by a single firm. Antitrust agencies generally consider markets in which the HHI is between 1,500 and 2,500 to be moderately concentrated, and consider markets in which the HHI is in excess of 2,500 to be highly concentrated. For more detail, see *Herfindahl-Hirschman Index*, DEPARTMENT OF JUSTICE (July 29, 2015), <http://www.justice.gov/atr/herfindahl-hirschman-index>.

81. See FED. COMM’NS COMM’N, DA-15-1487, EIGHTEENTH ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO MOBILE WIRELESS, INCLUDING COMMERCIAL MOBILE SERVICES (2015).

82. See Marvin E. Prater et al., *Rail Competition Changes Since the Staggers Act*, 49 J. TRANSP. RES. F. 111 (2010).

More careful industry- and firm-level analysis by Gutiérrez and Philippon bears out this explanation of the slowdown in business investment.<sup>83</sup>

Figure 15A: Business Fixed Investment as Share of GDP<sup>84</sup>

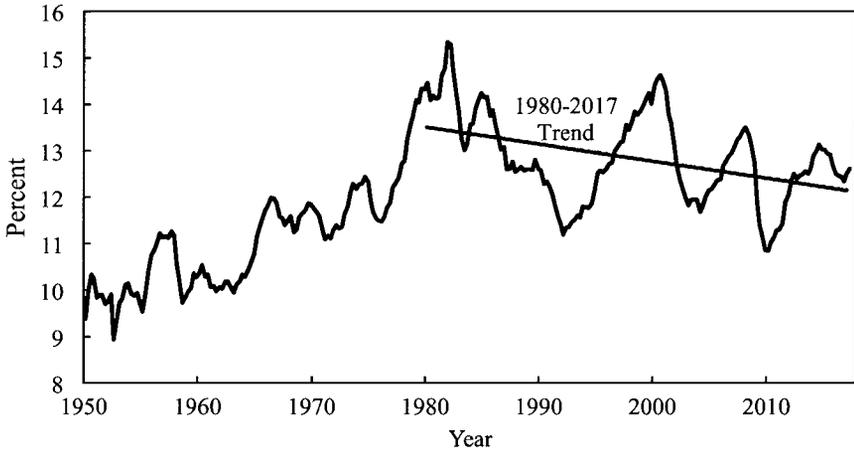
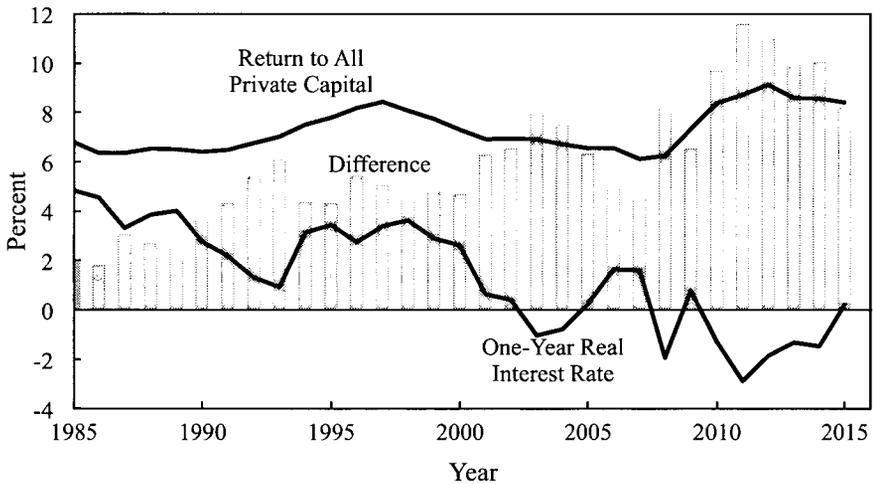


Figure 15B: Return to Capital v. Safe Rate of Return, 1985-2015<sup>85</sup>



83. See Gutiérrez & Philippon, *supra* note 73.

84. The data was obtained from the Bureau of Labor Statistics (National Income and Product Accounts) and the author's calculations.

85. The data was obtained from the Bureau of Economic Analysis, Federal Reserve, Bureau of Labor Statistics, and the author's calculations.

Other macroeconomic phenomenon, including the increased share of income going to capital and the increased dispersion of rates of return on capital, are also consistent with reduced competition.<sup>86</sup>

*E. Implications for Law and Macroeconomics*

Much of this evidence has been suggestive. The causes and macroeconomic consequences of increased concentration are not nearly as well understood as the decline in interest rates that was discussed in the first proposition. But the suggestive evidence is strong enough that, at the very least, scholars should take these macroeconomic links seriously—including the question of whether they have meaningful implications for policy.

In particular, they could have a bearing on antitrust. The traditional law and economics approach to antitrust focuses on static issues of surplus, in particular the impact on consumer prices.<sup>87</sup> This has the advantage of being a well-defined question that can be addressed using well-defined techniques, though admittedly not techniques that yield unambiguous answers. If the perspective in this analysis is correct, however, such an approach is missing the bigger part of the story: how market concentration affects the long-run trajectory of the economy. These dynamic growth effects do not lend themselves to widely accepted techniques but ultimately may be much more important than just the static considerations.

Macroeconomic effects could not be explicitly incorporated into any specific merger decision. However, to the degree that concentration has negative macroeconomic effects, a thumb on the scale for greater competition in ambiguous antitrust cases may be warranted going forward—which would be the opposite of the *de facto* practice over the last several decades.

Finally, the competitive approach has bearings beyond just narrow issues of mergers to broader questions of how to promote competition, including the strength of intellectual property protections, the ownership of personal data, and State and local regulatory issues like occupational licensing and land use restrictions.<sup>88</sup>

86. See Jason Furman & Peter Orszag, Presentation at Columbia University’s “A Just Society” Centennial Event in Honor of Joseph Stiglitz: A Firm-Level Perspective on the Role of Rents in the Rise in Inequality (2015), [http://obamawhitehouse.archives.gov/sites/default/files/page/files/20151016\\_firm\\_level\\_perspective\\_on\\_role\\_of\\_rents\\_in\\_inequality.pdf](http://obamawhitehouse.archives.gov/sites/default/files/page/files/20151016_firm_level_perspective_on_role_of_rents_in_inequality.pdf).

87. See RICHARD A. POSNER, *ANTITRUST LAW* (2d ed. 2001); ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* (1993).

88. Yuichi Furukawa, *The Protection of Intellectual Property Rights and Endogenous Growth: Is Stronger Always Better?*, 31 J. ECON. DYNAMICS & CONTROL 3644 (2007); Morris M. Kleiner, *Reforming Occupational Licensing Policies*, HAMILTON PROJECT, [http://www.brookings.edu/wp-content/uploads/2016/06/THP\\_KleinerDiscPaper\\_final.pdf](http://www.brookings.edu/wp-content/uploads/2016/06/THP_KleinerDiscPaper_final.pdf); Morris M. Kleiner, *GUILD-RIDDEN LABOR MARKETS: THE CURIOUS CASE OF OCCUPATIONAL LICENSING* (2015); Jason Furman, Chairman, Council of Econ. Advisers, *Barriers to Shared Growth: The Case of Land Use*

## Conclusion

Law and Macroeconomics looks at how rules and regulations can have a macroeconomic impact. That is more likely today than in the past because, with a lower equilibrium interest rate, the Federal Reserve will more often be constrained and thus unable to undo the macroeconomic effects of microeconomic job changes that result from these rules. But it has also always been true that labor markets do not clear and that microeconomic issues, like concentration, have major macroeconomic ramifications. Economists are moving quickly in many of these areas. Lawyers could play an important role as well.

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Regulation and Economic Rents, Remarks at The Urban Institute (Nov. 20, 2015); Edward Glaeser, *Reforming Land Use Regulations*, BROOKINGS, (Apr. 24, 2017), <http://www.brookings.edu/research/reforming-land-use-regulations>.