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The Countercyclical Benefits of Regulatory Costs

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Abstract

Legal academics, journalists, and senior executive branch officials alike have assumed that the cost of imposing new regulatory requirements is higher in severe recessions that drive the central bank's policy rate to zero than in other times. This is not correct; the aggregate output costs of regulatory requirements decrease, not increase, in such recessions. This article is the first to analyze how this effect arises, drawing on both conventional macroeconomic models and empirical findings from the econometrics literature. Scholars and policymakers have likely missed the countercyclical benefits of regulatory costs because of informal, *ad hoc* macroeconomic assumptions embedded in regulatory analysis.

JEL classification: E02, E6, K2, K3

Key words: law and economics, law and macroeconomics, zero lower bound

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This paper presents preliminary findings and is being distributed to economists and other interested readers solely to stimulate discussion and elicit comments. The views expressed in this paper are those of the author(s) and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System. Any errors or omissions are the responsibility of the author(s).

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1. INTRODUCTION

In September of 2011, Cass Sunstein—then the Administrator of the Office of Information and Regulatory Affairs (OIRA), the sub-office within the Office of Management and Budget that coordinates White House review of regulations—sent an unusual letter. It was a “return letter,” a letter that is only sent when OIRA formally rejects an agency regulation on behalf of the President. This return letter rejected one of the most important regulations of the Obama administration: the update to the National Ambient Air Quality Standards (NAAQS) for ozone (Sunstein 2011). The Environmental Protection Agency had calculated that tightening the ozone standard (for the first time since 1997) would prevent roughly 1,500-4,300 deaths, 6,600 hospital and emergency room visits, 170,000 lost days of work, and 600,000 lost days of school due to illness annually; these were only partial estimates, likely undercounting the benefits of the regulation (Environmental Protection Agency 2011). Monetizing these benefits, and subtracting the estimated costs of the regulation, produced a median estimate of \$1.4 billion (in 2006 dollars) in annual net benefits.¹

The reasons why the return letter was sent are unclear, but the costs of tightening the ozone standard during a sluggish economic recovery clearly weighed heavily on the minds of policymakers. In press reports, Chief of Staff William Daley is reported to have apologetically noted at the end of a meeting on the matter, “[a]s you know, it’s a very

¹ This is true using the higher of the two discount rates (7%), which more sharply reduced the present value of the regulation’s future benefits. The net benefits were even higher when analyzed with the lower of the two discount rates used in the analysis (3%).

difficult economic time” (Broder 2011). Sunstein emphasized in his return letter—that he notes, “the President directed me to write”—the need to “minimize regulatory costs and burdens, particularly in this economically challenging time” (Sunstein 2011). And in President Obama’s own statement on the matter, he claimed his decision was meant to “underscore the importance of reducing regulatory burdens . . . , particularly as our economy continues to recover” from recession (Obama 2011).

This argument did not go unnoticed. It received coverage in the press, with *The Economist* going furthest by arguing that “cost-benefit analysis” should build upon this insight by formally considering “the stage of the business cycle” in future regulatory reviews because “robbing consumers of a rule’s benefits may be more acceptable during a recession” (The Economist 2011). Scholarship—most forcefully, Jonathan Masur and Eric Posner’s 2017 article in the *Yale Journal on Regulation*—argued that, since a regulation is a “kind of tax,” regulations should ideally be weakened in recessions and strengthened in recoveries, like ordinary forms of fiscal and monetary policy (Masur and Posner 2017).² Such claims are taken as obvious—simple conventional wisdom—by most.

This Article aims to correct a critical blind spot of these arguments: while most regulations can be thought of as imposing a kind of tax, the aggregate output costs of imposing regulations are lower, not higher, in a severe recession that drives interest rates

² Masur and Posner built on the work of Yair Listokin, who had similarly argued that environmental concerns motivating regulation—such as opposition to the Keystone XL pipeline—should be given less weight during an economic downturn (Listokin 2017). More recently, other scholars have continued to assume that regulations have higher economic costs in severe downturns (Dominioni and Faure 2022).

down to zero (the zero lower bound, also commonly referred to as a “liquidity trap”³), as occurred in the long recovery following the 2008 financial crisis. In fact, under certain conditions, imposing additional regulatory costs on firms may even increase social welfare, hasten an economic recovery, and reduce the pain—as well as the long-term economic scars⁴—of deep recessions. Thus, given that the benefits of many regulations (e.g., those stemming from less ozone) do not vary much over the business cycle,⁵ the fact that the aggregate output costs of regulation decline during such recessions may imply that there is *more* reason, not *less* reason, to impose more stringent forms of such regulations in a liquidity trap.

All of this is the straightforward result of analysis using standard macroeconomic models, old and new, that incorporate liquidity traps in the form of a zero lower bound

³ So named because no matter how much additional liquidity (i.e., increase in the money supply) the central bank provides, the economy remains “trapped” at a low level of output and employment.

⁴ The long-term negative effects of recessions are referred to as “hysteresis” effects in the macroeconomic literature. There is a considerable literature providing more detail; *see, e.g.*, Yagan (2019); Blanchard (2018); Ball (2014); Delong and Summers (2012); Ball (2009). There is also recent discussion of hysteresis following pandemics specifically; *see, e.g.*, Jordà, Singh and Taylor (2022).

⁵ This may not always be the case for certain regulations: for example, during the recent pandemic-induced recession, a regulation requiring the installation of high efficiency particulate air (HEPA) filters may have *more* welfare benefits than in normal times (by reducing COVID-19 transmission), or workplace safety and accessibility regulations may have *less* welfare benefits than in normal times (as many people temporarily work from home). When regulatory benefits vary over the business cycle, they are critical to consider in conjunction with costs. However, this Article restricts its primary focus to the costs of regulations.

(or any effective lower bound) on nominal interest rates.⁶ This Article shows that the aggregate output costs of imposing new regulations are smaller at the zero lower bound both in traditional “Old Keynesian” models of aggregate demand and in the so-called “New Keynesian” dynamic stochastic general equilibrium (DSGE) models now widely used by central banks. New regulations—by raising regulated firms’ costs, prices, and hence expected inflation—help relax the zero lower bound constraint on nominal interest rates that keeps real interest rates inefficiently high.

Because macroeconomic assumptions inform regulatory policymaking, it is critical that more formal and well-grounded macroeconomic models replace the informal macroeconomic assumptions embodied in the Obama administration’s statements and previous legal scholarship. Indeed, when macroeconomic forces and a focus on recovery from recessions that drive the economy to the zero lower bound were last at the center of regulatory policymaking—in the depths of the Great Depression and the early New Deal—efforts to increase prices through the National Industrial Recovery Act formed a core part of the Roosevelt administration’s successful effort to stimulate the economy.⁷ Though such efforts were derided by some economists for decades, recent work has revealed how such measures, by breaking the connection between insufficient aggregate

⁶ None of the details of this Article hinge on the particular (e.g., zero) lower bound on nominal interest rates, just that there is such a bound. Whether negative nominal interest rates remain stimulative or have counterproductive effects (Eggertsson, et al. 2023) is beyond the scope of this Article.

⁷ See the National Industrial Recovery Act of 1933, Pub. L. 73–67, 48 Stat. 195; before NIRA could expire in June of 1935, the Supreme Court struck down Title I of the Act in *Schechter Poultry Corp. v. United States*, 295 U.S. 495 (1935).

demand and future disinflation, likely contributed to stimulating a deeply depressed economy (Eggertsson 2012).

At the moment, the zero lower bound may seem like a distant concern—as this Article was drafted, the federal funds rate was the highest it has been since 2001 (Federal Reserve Bank of St. Louis 2024)—but markets expect interest rates to fall markedly over the next ten years (U.S. Department of the Treasury 2024). Regardless, severe recessions will inevitably strike: the Great Recession and the early phase of the COVID-19 recession of 2020 both pushed the economy to the zero lower bound,⁸ and as a result, the U.S. has spent 60% of the last 15 years with the Federal Reserve’s policy rate at zero (Federal Reserve Bank of St. Louis 2024). Given indications of persistently low real interest rates (i.e., “secular stagnation”), there is reason to believe that understanding the relationship between regulatory costs and an economy in a liquidity trap will grow more relevant over time; shortfalls in aggregate demand will put advanced economies at elevated risk of liquidity traps for the foreseeable future, due to the reduced power of monetary policy (Eggertsson, Mehrotra, and Robbins 2019; Federal Reserve Bank of New York 2024).

On the other hand, in 2022, the Russian invasion of Ukraine spiked oil prices after the United States had escaped the liquidity trap.⁹ This Article confirms that in such a

⁸ Regarding the Great Recession (and Great Depression), see Eggertsson and Egiev (2019); regarding the Covid recession, see Guerrieri, et al. (2022).

⁹ Oil prices rose more than 60% from the beginning of January 2022 through June 2022. (Federal Reserve Bank of St. Louis 2022). Well before the vast majority of this increase, or certainty about the coming

scenario (a negative shock to aggregate supply in ordinary times) regulatory requirements do not exhibit declining aggregate output costs.¹⁰

The remainder of this Article consists of four sections. Section 2 lays out the traditional, Old Keynesian model of aggregate supply and aggregate demand; summarizes the intuitive argument that regulatory requirements do additional economic harm during a recession; and, in light of the Old Keynesian model, explains why the intuitive argument is wrong specifically in a liquidity trap. It does all of this using simple figures intended for a less-technical legal audience.¹¹ Sections 3, 4, and 5 respond to three potential concerns about the models being relied upon in this analysis. Section 3 addresses concerns that the model is analyzing a strawman by demonstrating that a large fraction of the Biden administration's important regulations are the kinds of regulations captured by the models in this Article. Section 4 provides empirical support for these models, using evidence from the recent Great Recession as well as the Great Depression. Section 5 addresses concerns that while the aggregate *output* costs of regulations may fall in a liquidity trap, the social *welfare* costs of regulations may nevertheless increase.

Russian invasion of Ukraine (or its effect on commodity prices), the Federal Reserve had announced plans to begin rate hikes (Schneider and Saphir 2022).

¹⁰ However, note that as the U.S. economy becomes less dependent on fossil fuels, their importance as a potential source of negative aggregate supply shocks continues to decline (Blanchard and Riggi 2013).

¹¹ Appendix 1, of potentially greater interest for those with a more technical background in macroeconomics, develops this Article's analysis of regulatory costs in liquidity traps, demonstrating that in the benchmark, micro-founded New Keynesian DSGE model the costs of regulatory requirements still decline (and can even, in some circumstances, become beneficial) in a liquidity trap.

Section 6 moves beyond these concerns to focus on the difficulties of accounting for the business-cycle dynamics of regulations within traditional benefit-cost analyses, the sort used by agencies and reviewed by OIRA. It emphasizes the importance of doing so, given its centrality to policymakers' thinking in the depths of a recession. More broadly, it discusses the importance of the still-nascent law and macroeconomics literature—for example, Listokin (2012); Liscow (2016); Listokin (2017); Hayashi and Murphy (2017); and Dominioni and Faure (2022)¹²—moving away from informal analysis and towards the use of formal models, and engagement with empirics, at the center of recent advances in macroeconomics.

2. THE INTUITIVE ARGUMENT, AND WHAT IT GETS WRONG IN A LIQUIDITY TRAP

1. *Aggregate Supply and Aggregate Demand: The Basics of Business-cycle Macroeconomics*

This Section analyzes the aggregate effects of regulation using a simple textbook model of the macroeconomy, the “Old” Keynesian AD-AS (aggregate demand – aggregate supply) model.¹³ The AD-AS model’s name reflects two key relationships between inflation (π) and aggregate output (Y). Consider a simple closed economy with

¹² An exception to the usual lack of formality in law and macroeconomic analysis can be found in Listokin (2019).

¹³ A similar exposition can be found in Mishkin (2017).

no government spending where aggregate output is composed of consumption and investment. Consumption increases as a function of aggregate output: people consume more when they earn more income, and aggregate output is equal to aggregate income. Investment decreases as a function of real interest rates (r): firms invest less when financing investments is more costly. Accordingly, we can use Figure 1 to trace out an investment-savings relationship for output as real interest rates vary:

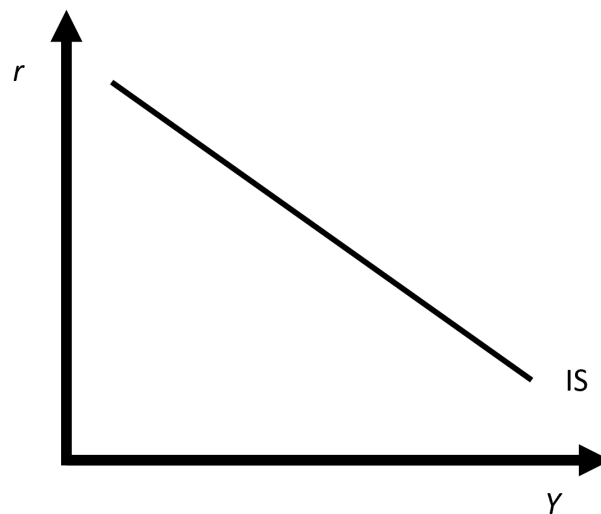


Figure 1

This is the traditional “Investment-Savings” (IS) diagram developed by Hicks (Hicks 1937).

To derive the rest of the AD curve requires relating the real interest rate to inflation. First note that the real interest rate is defined as the nominal interest rate less *expected* inflation, π^e :

$$r = i - \pi^e$$

Thus, to determine how the real interest rate responds to inflation requires determining how both the nominal interest rate and expected inflation respond to inflation. This Article proceeds by making the common simplifying assumption that expected inflation is “adaptive,” so that expected inflation equals current inflation ($\pi^e = \pi$).¹⁴ This “adaptive expectations” assumption is not crucial; Appendix 1 confirms that the aggregate output costs of regulation decline in a liquidity trap even in the more complicated, micro-founded New Keynesian model (in which agents have rational expectations).

For nominal interest rates i , note that the central bank (which controls i) always moves interest rates to ensure that real interest rates fall whenever inflation falls, and vice versa (to avoid inflationary or deflationary spirals). Thus, lower inflation ordinarily leads to lower real interest rates, and vice versa. But at the zero lower bound (ZLB), i.e., when some shock is large enough to push the economy to $i = 0$, the relationship between inflation and real interest rates reverses. The nominal interest rate is now stuck at zero, so further deflation—which reduces π^e —now *raises* the real interest rate. While the central bank would like to further reduce the nominal interest rate, it cannot at the ZLB. That is why an economy at the ZLB is referred to as being in a “liquidity trap”: the central bank cannot escape the ZLB by increasing the money supply (liquidity)—it is trapped. This implies the following relationship for r and π plotted in Figure 2:

¹⁴ This is not an unreasonable assumption; historically, current and expected inflation move together (Hazell, et al. 2022).

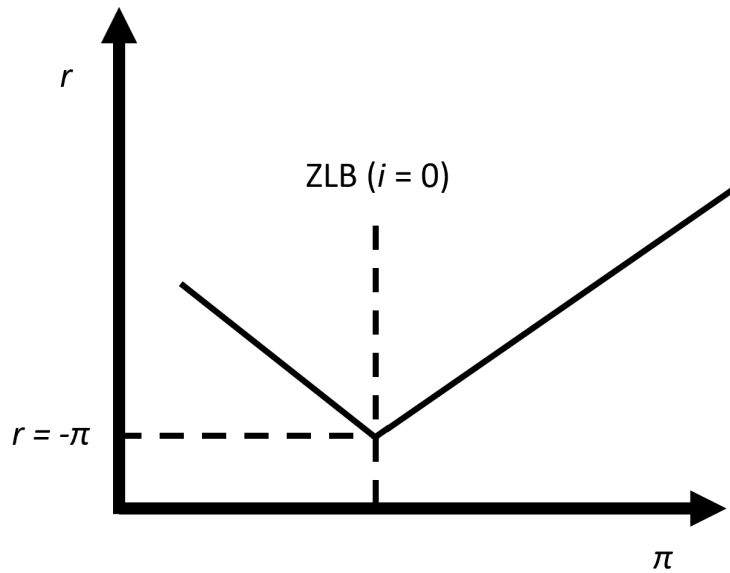


Figure 2

Decreased inflation implies decreased real interest rates and increased output—up until the point the economy hits the ZLB, when nominal interest rates are at zero. Then, further deflation implies *higher* real interest rates, and lower aggregate output. Thus, the AD curve has a kink in it because of the ZLB, as seen in Figure 3:

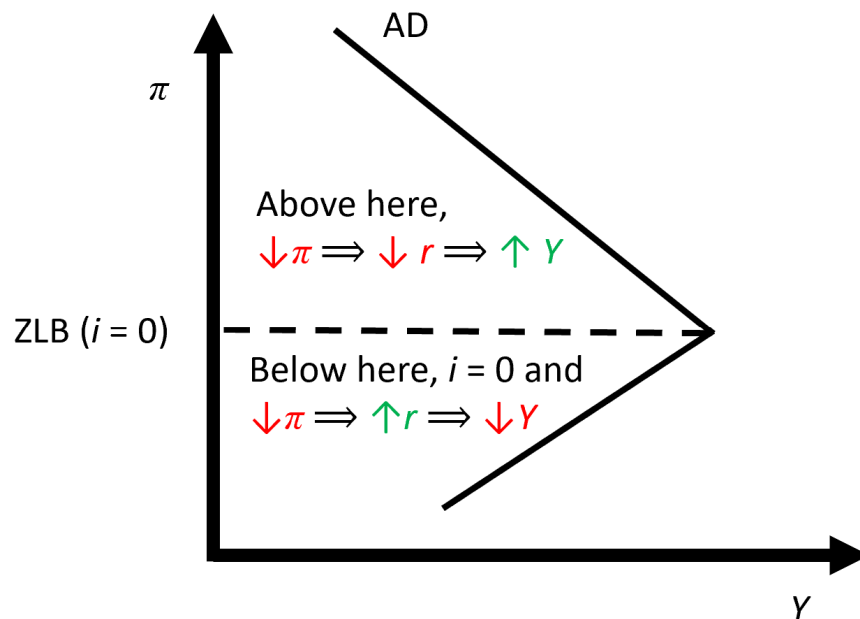


Figure 3

This change in the relationship between inflation and real interest rates at the ZLB is key—both in this model and the more sophisticated model presented in Appendix 1—in changing the relationship between inflationary shocks (such as changes in regulation) and output.

Now all that remains is to motivate the aggregate supply (AS) relationship between aggregate output and inflation. To begin analyzing the supply side of the economy, assume that nominal wages are somewhat “sticky” such that as inflation rises, real wages fall, causing firms to want to employ more labor and increase output. However, at some point, all workers are employed doing their highest-productivity work, and aggregate output cannot rise any more (the economy is supply-constrained). In normal times, AS intersects AD where the AD curve is downward sloping. But as seen in Figure 4, when a shock to aggregate demand pushes the economy into a liquidity trap,

key dynamics change, with profound implications for the costs of regulatory requirements:

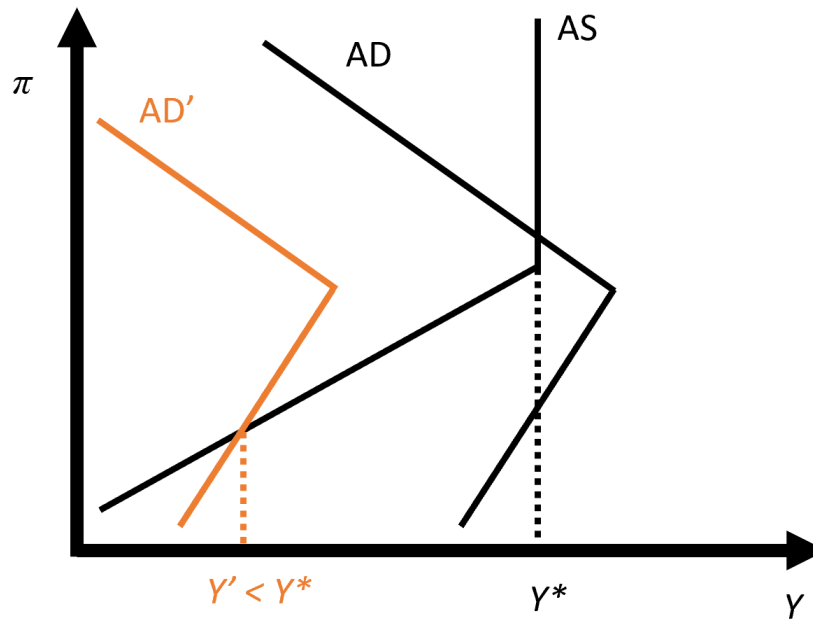


Figure 4

But before turning to a discussion of the counter-intuitive dynamics of this Keynesian model in Section 2.3, Section 2.2 first explores the intuitive argument for why imposing regulatory burdens would seem to be more costly during a recession.

2. The Intuitive Argument

Masur and Posner (2017) most fully develop the intuitive argument that regulations have a higher output cost in a deeper recession, which others, such as Dominiononi and Faure (2022), have followed. They start by reasoning that when the government “cuts taxes, it increases the take-home pay of workers, who (in theory) spend some of the additional money on goods and services” (Masur and Posner 2017, 862). In

turn, “providers of those goods and services are then able to spend the additional money they have earned on other goods and services,” which creates a multiplier effect on economic output in excess of the quantity of taxes cut (*id.*). Empirically, they note that leading studies have indeed found large multipliers on tax cuts in some circumstances (*id.*, 863 (citing Romer and Romer (2010))).

Masur and Posner reason that “[r]egulations are similar to taxes,” yet note that “[n]ot all taxes are equally useful for fiscal stimulus” when cut, and that “regulations similarly vary in ways that make some of them more appropriate for stimulus than others” (*id.*, 867). Primarily, Masur and Posner argue that regulations are specifically “like corporate taxes, and suspending regulations should stimulate economic activity just as would a cut in the corporate tax rate” (*id.*). In their view, suspending a regulation saves a firm its variable costs associated with the regulation; however, Masur and Posner note that the stimulative effect of the cut depends on “how the firm uses the money that it saves” (*id.*, 870). If the savings are simply reinvested, “the regulatory cut will not serve as a stimulus”; if they are returned to shareholders, “the stimulus is likely to be limited or nil because shareholders are typically wealthy and unlikely to spend much of their savings” (*id.*). However, they note, if “the firm buys inputs,” this will have a stimulative effect, although they state that “it may be doubtful that a firm will expand production in the middle of a recession” (*id.*). Accordingly, Masur and Posner follow Listokin in qualifying their claim by noting that regulations are more stimulative if they require firms to make capital expenditures, increasing aggregate demand (*id.*, 870-71 (citing Listokin (2017))).

3. *What the Intuitive Argument Gets Wrong in a Liquidity Trap*

To understand the role of regulations, it is helpful to analogize them to taxes, as Masur and Posner do.¹⁵ Cutting back regulations that function like a kind of tax on firms—whether on labor, capital, or corporate profits¹⁶—has counterintuitive results in a liquidity trap.¹⁷

¹⁵ Masur and Posner followed in a long tradition in this respect. For one early treatment see, e.g., Averch and Johnson (1962); for a more recent treatment see, e.g., Fullerton and Heutel (2010).

¹⁶ Masur and Posner analogize regulations to a corporate tax, which are levied on the net profits of corporation. Regulations are probably better modeled as akin to taxes on specific kinds of labor or physical capital, which must be paid when these inputs are purchased (regardless of a firm's net profit). This is because regulations ordinarily make certain types of physical capital more expensive to use (in Masur and Posner's example, requiring a factory to reduce pollution more by running a "scrubber" more often) or require more labor to be employed to produce the same amount of output (for example, in capping the number of hours truck drivers can be on the road each day or week). Accordingly, Appendix 1 takes this approach. While this distinction between taxes on corporate profits and taxes on physical capital is relevant to the magnitude of each tax's effect on aggregate output at the ZLB and away from it, it does not alter the sign of that effect (Eggertsson 2011).

¹⁷ Both Masur and Posner—as well as Listokin—correctly note that regulations requiring firms to buy goods or services that they would not otherwise purchase increase aggregate demand, and therefore increase aggregate output at the ZLB. Such regulations are often better modeled as imposing a fixed cost or lump-sum tax; others are best modeled as a hybrid of a fixed cost (or lump-sum tax) and variable costs (or tax on labor or capital inputs) and would therefore affect both aggregate demand and aggregate supply. Appendix 1 briefly discusses the case of regulations that impose such fixed costs; the expansionary effect

As shown in Section 2.1, in a liquidity trap, monetary policy can stimulate aggregate demand (AD) no further, no matter how much the central bank increases the money supply. In that context, consider suspending a regulation that falls on capital inputs to production, the primary case that Masur and Posner focus on. Cutting taxes on a kind of capital would show up in our AD-AS model as the AS curve shifting out (to the right), as in Figure 5. The shift in aggregate supply causes aggregate supply to intersect with aggregate demand at a lower level of inflation. Ordinarily, this would also mean a higher level of aggregate output, but when the economy falls into a liquidity trap (AS intersects AD below the kink in the AD curve) lower inflation raises the real interest rate, lowering aggregate output.¹⁸ Thus, suspending regulations—and thereby reducing the cost of capital—lowers output and lowers incomes in a liquidity trap, all because aggregate supply increased. The reasoning is similar when considering the suspension of a regulation that increases the cost of labor for firms, which also shows up in this model as the AS curve shifting out (to the right), with the same result: inflation and aggregate output decline. In fact, if we consider a regulation that falls on firms in the same manner as the corporate tax, as Masur and Posner claim, the same result appears.¹⁹ Yet again, the AS curve shifts out, and output falls, as seen in Figure 5.

on aggregate demand would only enhance the counter-cyclical benefit of regulatory costs that this Article focuses on.

¹⁸ In the diagrams from Section 2.1, this is the part of the AD curve below the kink.

¹⁹ For an explanation of this in a more formal model, see Appendix 1.

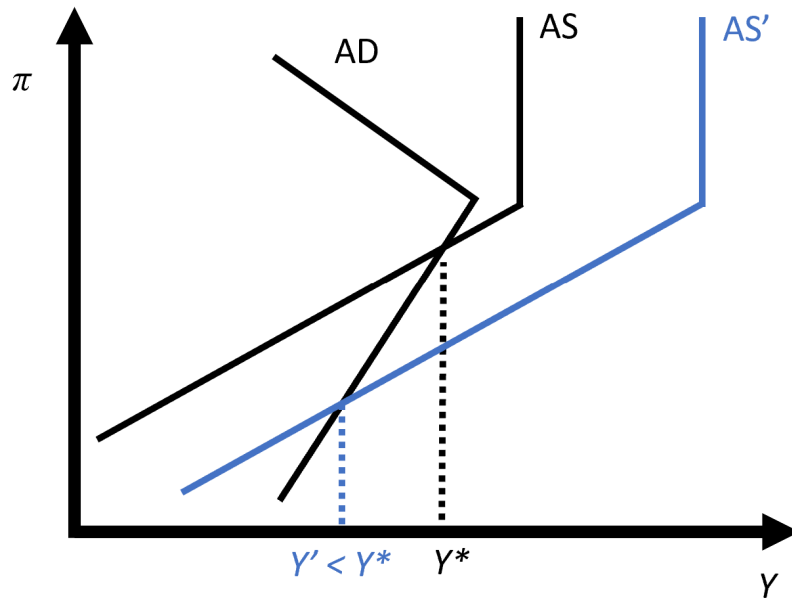


Figure 5

These results come out of a simple, traditional Keynesian AD-AS model. The logic is fairly intuitive, as one considers a regulation and works through the model. Returning to the example of a regulation that requires factories to run a pollution “scrubber” more often: the higher costs imposed on the factory push prices up; because the economy is in a liquidity trap (nominal interest rates are zero), higher prices mean higher inflation, which reduces the real interest rate; a lower real interest rate means it is less expensive for firms to invest, so they invest more, and aggregate output increases. One might be suspicious that the results are the product of some flaw in the classic AD-AS model, or the simplifying assumption of “adaptive” inflation expectations. But the same result emerges—in richer form—from the benchmark, micro-founded New Keynesian model which does not assume adaptive inflation expectations. For more details, see Appendix 1.

We take a moment to emphasize this last point, because it demonstrates the robustness of the conclusion to current debates in macroeconomics about how inflation expectations are formed, and how much inflation expectations influence individuals' behavior. As elaborated upon in Section 5, the strong theoretical prediction of the model outlined in this section—that imposing regulatory costs *increases* output in a liquidity trap—may not be certain. But so long as regulatory costs cause actual increases in inflation, and inflation has any expansionary benefits in a liquidity trap, it will follow that regulation has *lower* aggregate output costs in a liquidity trap.

* * *

Skepticism about the real-world import of the theoretical results of this section or Appendix 1 may center on three lines of argument. First, one may think that regulatory costs take the form not only of constrictions on aggregate supply—like the taxes analogized to in the Old Keynesian model of this section and the newer model of Appendix 1—but also constrictions of aggregate demand. Second, one may doubt that these models' predictions are borne out in the empirical evidence. Third, one may be concerned that even if the aggregate *output* costs of a regulation decline in a liquidity trap, the social *welfare* costs of a regulation still increase. The first objection is addressed in Section 3, the second objection is addressed in Section 4, and the third objection is addressed in Section 5.

3. DO REAL REGULATIONS LOOK LIKE REGULATIONS IN THE MODELS?

To address concerns that regulations may negatively affect aggregate demand, offsetting the aggregate supply effect of regulations just discussed, we analyzed important regulatory actions of the Biden administration. Canvassing all items listed in the “Brookings Institution Reg Tracker,” which covers “a curated selection of particularly important regulatory changes” (Brookings Institution 2023), we identified 90 regulatory actions proposed or finalized by the Biden administration through May 2023. We analyzed each regulation for its likely near-term effect on aggregate demand and aggregate supply. Keeping to the focus of this Article, we evaluated only the effects of regulatory costs and changes in federal expenditures. Regulatory benefits—health improvements from reductions in pollutants, etc.—were not considered, but would be unlikely to affect the near-term results presented, as such benefits phase in over substantially longer time horizons. The full summary of this analysis is presented in Appendix 2.

Overall, we found that 53 of the 90 “particularly important” regulatory actions in the Brookings tracker were what we call traditional regulations, i.e., of the type discussed throughout this Article: with costs imposing negative near-term effects on aggregate supply, and with neutral or positive effects on aggregate demand. It is worth reiterating that, to the extent such regulations have positive effects on aggregate demand, this only enhances the case that the regulation would be beneficial in a recession that pushes the central bank’s policy rate to the zero lower bound. Returning to the simple AD-AS model of Section 2, the effect of a regulation that simultaneously increases aggregate demand and decreases aggregate supply can be seen in Figure 6.

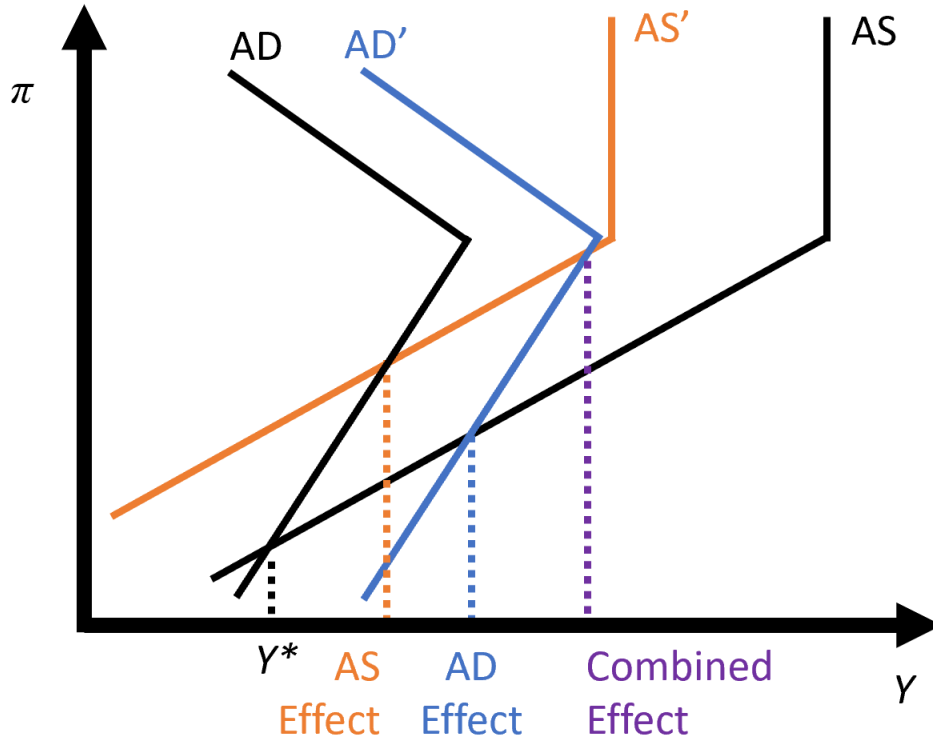


Figure 6

Of the other 37 regulatory actions, 16 were social regulations (e.g., a rule prohibiting categorical bans on students participating in sports teams based on their gender identity) or regulations affecting government procedures (e.g., a rule no longer causing all Health and Human Services rules to sunset after ten years) that had essentially no effect on near-term aggregate demand or aggregate supply.

Within the 21 regulations not falling into these two categories, eight were regulations primarily affecting rates of immigration to the United States. A formal analysis of the effects of changing immigration flows in a liquidity trap is beyond the

scope of this Article.²⁰ However, standard macroeconomic principles suggest that increasing immigration increases both aggregate demand (as immigrants consume) and aggregate supply (as immigrants work), which informs our classification of the aggregate demand and aggregate supply effects in Appendix 2.

Regarding the 13 regulations not yet discussed, four were regulations that primarily increased federal government spending, increasing aggregate demand; one regulation primarily reduced federal government spending, decreasing aggregate demand. The effects of increasing or decreasing federal expenditures at the zero lower bound are well understood, and policymakers are less likely to be confused about those effects than the effects of traditional regulatory costs at the zero lower bound.

Of the remaining eight regulations, three were supply-side regulations. These regulations reduced regulatory costs, increasing aggregate supply, while having no immediate effect on aggregate demand. In a liquidity trap, the effect of these supply-side regulations is the opposite of the traditional regulations that this Article focuses on. One could instead say that there are counter-cyclical *costs* to the regulatory *benefits* of those regulations: their benefits (cost-reductions) have a downside—through their disinflationary effect—that should be considered and weighed when moving forward with such supply-side regulations at the zero lower bound. Much as a liquidity trap is not the best time to cut spending, even of less-than-maximally-efficient policies, a liquidity

²⁰ The micro-founded model of Appendix 1 abstracts from considering changes in the composition and level of the population and focuses on the effects of changes in regulatory costs (as akin to taxes).

trap is not the best time to pursue supply-side (sometimes, if inaptly, referred to as “deregulatory”) regulation.

The remaining five regulations do not fall neatly into any category. One paired an increase scope of a tax (a negative effect on aggregate demand) with increased compliance costs for regulated firms (a negative effect on aggregate supply). Two were focused on slowing the spread of COVID-19, with an ambiguous net effect on aggregate supply. One involved a national security-motivated export ban of certain semiconductor technology to China, with a consequent negative effect on both aggregate demand and aggregate supply. The final regulation both accelerated federal spending on broadband investment (a positive effect on aggregate demand) and reduced regulatory costs for broadband infrastructure companies (a positive effect on aggregate supply).

In summary, an enormous fraction of “particularly important” regulatory activity is focused on the types of traditional regulations this Article focuses on, imposing costs that reduce aggregate supply to effectuate some kind of regulatory benefit. 53 of the 62 regulations that were not social or governmental regulations with little effect on aggregate demand and supply, regulations affecting immigration flows, or regulations primarily affecting spending programs were traditional regulations of this type. Qualitatively, these 53 regulations include the premier and highest-impact regulations of the Biden administration, such as its regulation of greenhouse gas emissions from powerplants. Further, large negative aggregate demand effects from such regulations are unusual (none were identified among this set of 53). Some traditional regulations have positive aggregate demand effects, but as noted earlier in this Section, positive aggregate

demand effects only add to the stimulative benefit of the regulation at the zero lower bound.

4. DO THE EMPIRICS SUPPORT THE THEORY?

The model in Section 2 is the Old Keynesian AD-AS model; the model in Appendix 1, a standard New Keynesian DSGE model—which are widely used in macroeconomic analyses and reflect more plausible microeconomic foundations—produces the same result. Yet the counter-intuitive implication that imposing the same regulatory requirement has lower aggregate output costs—and is even stimulative—while the economy is in a liquidity trap, has led some to question whether these models accurately describe reality.

Two recent articles have questioned the standard New Keynesian DSGE model on this basis. Wieland (2019) analyzed Japanese data following the 2011 earthquake, as well as the global economic response to positive shocks to the price of oil, and found that both were contractionary, not expansionary. Wieland analyzed Japanese gross domestic product (GDP) on a quarterly basis, while data used in the oil shock analysis was no more frequent than monthly; in this context, lower-frequency data may make it more difficult to identify the effects of oil shocks. Another limitation of Wieland’s analysis is that the oil shocks themselves were only weakly identified, meaning they did not actually move

oil prices much.²¹ Garin, Lester and Sims (2019) analyzed utilization-adjusted TFP data, similarly finding that positive supply shocks from productivity were stimulative in a liquidity trap. The TFP data was analyzed at a quarterly frequency.

To overcome the data limitations in these papers, and investigate whether the benchmark New Keynesian DSGE models are indeed flawed, more recent research has turned to high-frequency financial market data²² and more clearly identified exogenous shocks.

Taking the latter tack—using more clearly identified exogenous shocks—Miyamoto, Nguyen, and Sergeyev (2023) and Miyamoto, Nguyen, and Sergeyev (2022) use new data on the variation in oil futures prices in a tight window around OPEC production announcements (Känzig 2021) to identify oil shocks uncorrelated with other economic news and which are stronger instruments for the price of oil than those used in Wieland (2019). Their analysis provides evidence in favor the Keynesian model’s predictions. Miyamoto, Nguyen, and Sergeyev show that away from the ZLB, industrial production is positively correlated with oil shocks. However, at the ZLB, this correlation flips: a negative oil shock leads to increases in industrial production over the next few years. A similar result obtains (in reverse) when analyzing the effect of negative oil shocks on the unemployment rate, rather than industrial production.

²¹ See Wieland (2019) Figure 5b and discussion in Känzig (2021), who provides a novel oil price shock series which is a stronger instrument for oil prices than previous series.

²² High frequencies also help ensure that the shocks are more likely to be unanticipated, relative to data at monthly or quarterly frequencies (Nakamura and Steinsson 2018).

Taking the former tack—using high-frequency financial market data—with similar results, Datta, et al. (2021) find that during the period that the federal funds rate was zero, after 2008—i.e., while the economy was in a liquidity trap—stock prices were positively correlated with oil prices. Prior to this, the correlation between oil prices and equities was slightly negative, exactly as would be implied by the Old Keynesian model. The reversal in the correlation also appears when focusing only on the responses of oil prices and equities to clearly identified macroeconomic data surprises. This is entirely consistent with the New Keynesian DSGE model outlined in Appendix 1, under which a positive shock to oil prices would cause expected inflation to rise, lowering the real interest rate and stimulating the economy while in a liquidity trap (and accordingly, raising stock prices) but increasing the real interest rate and depressing the economy (accordingly, lowering stock prices) otherwise.

One might think that Wieland's and Datta et al.'s findings can be reconciled: equities respond positively to oil shocks, but GDP declines. For example, it could be the case that diminished consumption from people who spend more cents of each dollar they earn (high marginal-propensity-to-consume individuals) bearing the brunt of higher oil prices outweighs any reflationary effect on GDP, but that the higher stock prices of oil companies outweigh the lower stock prices of sellers of consumer goods when looking at average equity prices. But the data do not support this attempt to reconcile Wieland with Datta et al.: when equities are separated by industries, consumer durables also flip from having a small (but significant) negative relationship with oil prices in the pre-zero-lower-bound period to a large (and significant) positive relationship with oil prices in the zero-lower-bound period (*id.*, 221-22). Indeed, equity prices in every single industrial

sector—consumer nondurables, manufacturing, business equipment, telecommunications, etc.—exhibit this changing relationship. For additional support, Datta et al. also find that surprises in the data releases of core PPI (the producer price index, excluding food and energy) were negatively correlated with equity returns during the pre-zero-lower-bound period, but positively correlated with equity returns during the post-zero lower bound period (id., 237-39). Similarly, Gourio and Ngo (2020) find that during the period where the ZLB is binding, stock returns flip from being negatively correlated with inflation data surprises to being positively correlated with inflation data surprises.

The higher equity prices observed by Datta et al. as well as Gourio and Ngo could arise not from increases in firms' expected cash flows, but solely from lower real interest rates. That is, the increase in equity prices could solely result from the effect of oil shocks (or inflation surprises) on higher inflation, lower real rates, and therefore a reduction in the discount rate applied to firms' future real cash flows (which could be flat, or even decline slightly). This is a strong assumption.²³ Even if it were the case, however, it would still provide evidence that the economic costs of regulation decline in a liquidity trap, as it would be evidence that cost shocks have offsetting reflationary benefits by lowering real interest rates during ZLB episodes, even if those reflationary benefits are not greater than the cost harms (the strong theoretical prediction of the model). That is, if real cash flows are declining in a manner masked in equity prices by the effect of

²³ One that could, in principle, be tested empirically, using publicly available data on firms' expected future cash flows, the average pass-through of oil shocks to a decline in real rates, and the average change in equity prices following the oil shock.

declining real interest rates, it is still the case the decline in real interest rates are contributing to real cash flows declining by less than they otherwise would—outside of a liquidity trap—as demand for products is increased by the decline in the real interest rate.²⁴

Focusing specifically on regulations, consider the analysis of environmental policies in Mohommad (2021). Examining data from 31 countries and the OECD environmental policy stringency (EPS) index, Mohammad finds that tightening the stringency of environmental policies—and correspondingly, increasing costs on firms—has a positive effect on employment when the output gap (an estimate of how far GDP is from its potential) is very large (id, 11).²⁵ But as the output gap declines (actual GDP rises relative to potential GDP), the effect on employment falls and eventually becomes negative (id.). Mohommad investigates the mechanism by which increasing EPS increases employment by considering the effect of tighter EPS on inflation (id., 12). The analysis reveals that, controlling for other variables, tighter EPS has a positive effect on inflation. This lends more support to the New Keynesian DSGE model’s prediction that

²⁴ In a simple model of Section 2, this occurs because the firms’ cost of investing declines, leading firms to invest more. In a richer model, lower real interest rates would increase output through more causal pathways; for example, the increase in asset values observed in Datta et al. or Gourio and Ngo increase household wealth, leading households to consume more (Chodorow-Reich, Nenov, and Simsek 2021).

²⁵ The output gap is estimated using the IMF World Economic Outlook database (id., 9).

increasing regulatory costs boosts aggregate output and employment in a liquidity trap by spurring expected inflation, thereby causing the real interest rate to decline.²⁶

Accordingly, multiple lines of evidence analyzing economies in the lead-up to and aftermath of the Great Recession—from financial market correlations and analysis of environmental policies across many countries—support the counterintuitive result that the aggregate output costs of regulations could be smaller, and are even an economic boon, in the depths of a liquidity trap. We can also look to analysis of the Great Depression. Eggertsson finds that New Deal policies that boosted prices—essentially constituting an increase in firms’ markups—can explain much of the recovery in output and inflation from 1933 to 1937 (Eggertsson 2012). Following the New Deal, these policies were much derided, but Eggertsson notes that at the time they were explicitly advocated for on the basis that they would halt deflation and increase consumption—the exact mechanism discussed above.

While the empirical literature on liquidity traps is actively developing, the most recent and well-identified findings support the result that the aggregate output costs of regulations are smaller in a liquidity trap.

5. WHAT ABOUT WELFARE?

²⁶ It also supports the secondary claim of this Article: in an economy that is not at the ZLB, increased regulatory costs both lower output directly and spur inflation, leading monetary policy to tighten, and output and employment to fall further.

Up to this point, this Article has focused on the claim that the direct economic costs of regulation to affected firms are offset—to some degree—by reflationary benefits at the ZLB. Accordingly, the aggregate output costs of that regulation are lower when the economy is at the ZLB. But the models and the empirical evidence surveyed in Section 2, Section 4, and Appendix 1 provide serious reasons to think that the aggregate output costs of regulation are *exceeded* by these reflationary economic benefits during ZLB periods, so that aggregate output actually *rises* in response to the new regulatory costs instead of *falling* as it would in other times, when the economy is not at the ZLB. We can think of this as the “strong thesis” of the effect of regulatory costs at the ZLB. However, complete certainty in this “strong thesis” would be unwarranted. For one, some of the evidence surveyed in Section 4 cuts the other way. In addition, this strong result does not obtain in all extensions of the New Keynesian model.²⁷

Clearly, the “weak thesis” (to reiterate: that the direct economic costs of regulation to affected firms are offset—to some degree—by aggregate reflationary economic benefits at the ZLB) is overwhelmingly supported by the empirical evidence just surveyed and will hold in any reasonable model. In a liquidity trap, any inflation caused by regulations is, to some degree, a benefit for just the same reason that, outside of a liquidity trap, higher-than-target inflation is a problem (one that leads the central bank to suppress aggregate output by hiking interest rates). Thus, the aggregate output

²⁷ For an example of a model where the weak thesis holds, but not the strong thesis does not, see Liu, Huang, and Lai (2022).

costs of regulation in a liquidity trap are lower than in normal times, even if such regulation is not literally expansionary.

However, this weak thesis only implies that the traditional²⁸ net benefits of a regulation increase in a liquidity trap, as costs are offset by reflationary benefits. In the recent revision to the federal government's regulatory benefit-cost analysis guidance, new emphasis was placed on evaluating the benefits and costs of regulations in *welfare* terms (Office of Management and Budget 2023).

What does this distinction mean? Consider a policymaker facing the conundrum that the Obama administration faced, as described in the Introduction: whether to go ahead with a proposed regulation while the economy is in a liquidity trap, which will temporarily raise firms' variable costs (and hence prices and inflation), or wait for the economy to recover before implementing the regulation. If the strong thesis is true, the administration clearly should not wait: imposing the regulation now is expansionary, and the economy is in a recession. But if the weak thesis is true, we only know that aggregate output will fall by *less* if the regulation is imposed now, due to its offsetting reflationary benefits, than if it is imposed when the economy has recovered. In other words, if the administration waits until the economy is away from the ZLB, the regulation's costs will produce a larger drop in aggregate output at that time. What should a policymaker do if the weak thesis is true?

²⁸ As noted in the U.S. federal government's guidance, traditional net benefits have been calculated using individual willingness-to-pay or willingness-to-accept values, except for mortality effects, which have been calculated using population-average values (Office of Management and Budget 2023).

To answer this question formally requires a *welfare function*, or some rule for evaluating the desirability of different feasible paths of aggregate output, inflation, unemployment, and so on. It is conventional to assume that social welfare is nonlinear in the deviations of aggregate output and inflation from potential²⁹; see Campbell and Weber (2021) for an example. Chapter Four, Appendix A of Galí (2003) justifies this assumption by showing that household welfare is proportional to the following expression:

$$Welfare \propto \sum_{t=0}^{\infty} -\lambda(\pi_t - \tilde{\pi})^2 - (y_t - \tilde{y})^2$$

In this expression, \tilde{y} and $\tilde{\pi}$ indicate the long run “potential” values of aggregate output and inflation, respectively, and the expression assumes (for simplicity, and consistent with the focus of this Article) that there is no discounting of the future. The weight on inflation relative to output, λ , is determined by household preferences and the parameters reflecting the underlying economy: firm market power, the level of price stickiness, and so on. Note that this expression is negative everywhere, so maximizing welfare means keeping aggregate output and inflation as close to their potential values as possible.

Consider a further simplification where λ is set to zero:³⁰

²⁹ We ignore unemployment purely for simplicity; Galí (2011) shows how to incorporate unemployment into the model used in Appendix 1. Gordon (1973) provides an intuitive discussion on why we might also think the social welfare costs of deviations in unemployment from its long-run value are nonlinear.

³⁰ This is an unconventional assumption (for example, in the model in Appendix 1, it would require assuming that firms can freely adjust prices, implying a Phillips curve with an infinitely steep slope; that

$$Welfare \text{ (if } \lambda = 0) \propto \sum_{t=0}^{\infty} -(y_t - \tilde{y})^2.$$

If seeking to optimize this simplified social welfare function, then a policymaker may want to wait to impose a regulation if the economy is in a recession at the ZLB. The fact that the social welfare loss is the *square* of deviations of aggregate output from its long-run potential value means that the *marginal effect on social welfare* of a \$1 decline in aggregate output is much greater when aggregate output is already below potential (i.e., in a recession) than when aggregate output is at potential. The fact that the marginal effect of regulatory costs on aggregate output, under the weak hypothesis, is qualitatively smaller at the ZLB does not necessarily mean that it is a bad idea to wait.

Intuitively, the social welfare function looks this way in part because it was derived from the preferences of a household which prefers to smooth consumption over time, due to a declining marginal utility of income. This social welfare function encodes that preference: the household prefers a smooth stream of income to one that is lumpy. Thus, even though waiting until the economy is no longer at the ZLB to impose the regulation means that the total stream of aggregate output (equivalently, aggregate income) is *lower*, it might be optimal from a social welfare perspective because it is *smoother*.

Conversely, as λ becomes arbitrarily high (rather than being set to zero), only the inflation gap matters for social welfare, and the inflation created by regulatory costs

households have infinite risk aversion; etc.). This discussion merely serves to simplify the exposition of the potential policymaker's dilemma.

causes social welfare to increase whenever inflation is below potential, as in the case of a liquidity trap.³¹ With such a social welfare function, the reflationary benefits of regulation for aggregate output at the ZLB are irrelevant: the policymaker should simply always try to implement inflationary regulations when inflation is below trend (as is the case at the ZLB) and avoid doing so when inflation is above trend.

These two illustrative cases for the social welfare function serve to highlight the importance of λ for this simple welfare function. More generally, determining an appropriate social welfare function and analyzing the effects of any regulation on social welfare is no simple task. For example, assuming a declining marginal utility of income implies not only that consumption smoothing is optimal, but also that the same economic cost will have a different welfare cost depending on the income of the person who bears it. A concern with social welfare thus requires careful consideration of the incidence of regulatory costs and the incidence of the resulting reflationary benefits across the affected population.

A full analysis of the incidence of these costs and benefits—critical to the determination of the change in social welfare, if the weak thesis is true—is beyond the scope of this Article. Relevant factors would include the extent to which aggregate reflationary benefits offset regulatory costs to firms, the elasticity of substitution between regulated inputs of production and other inputs of production, the degree of firms' market

³¹ Deviations in inflation from its long-run value have social welfare costs in the model of Appendix 1, for example, because they create inefficient price dispersion in the model among otherwise identical firms; see Section 4.2.2 of Galí (2003) for a discussion.

power in regulated product markets, the degree of firms' or unions' market power in labor markets, and much more.³²

What can be stated with a fair degree of confidence is that if the newer evidence surveyed in Section 4 is correct, and the strong thesis is true, the aggregate output costs of regulation are negative in a liquidity trap. As a result, they are highly likely to be worth pursuing under any reasonable definition of social welfare. This would imply that, in a liquidity trap, policymakers should not seek to delay the timing of regulations that they would have otherwise gone forward with.³³

6. THE NECESSITY AND DIFFICULTY OF INCLUDING BUSINESS-CYCLE EFFECTS IN BENEFIT-COST ANALYSIS

The most effective way to ensure that the macroeconomic effects of regulations are adequately and consistently analyzed would be to do so as an ordinary part of regulatory review. For a certain category of “significant” regulations—those with over \$200 million of benefits, costs, or transfers in any year—Executive Order 14094 (amending Executive Order 12866) requires that the agency conduct a monetized benefit-

³² Formally, and continuing to use the simple model of Appendix 1 as an example, we can show that the parameters governing the strength of firm market power, price rigidities, etc. determine λ in the social welfare function above; see Chapter 4, Appendix A of Galí (2003) for details.

³³ More generally, an increase in social welfare resulting from the imposition of regulatory costs in a liquidity trap is (all else equal) increasingly more likely as the magnitude of the reflationary economic benefit increases.

cost analysis (Biden 2023). Pursuant to Executive Order 12866, agencies conduct this analysis in accordance with OMB’s best practices for benefit-cost analyses, as established in OMB Circular No. A-4; for example, EPA estimated the net benefits of its 2011 ozone regulation in accordance with the 2003 version of Circular A-4 (Environmental Protection Agency 2011). The 2023 revision to Circular A-4 contains a new call for agencies to consider how the effects of their regulations may differ over the course of the business cycle when relevant (Office of Management and Budget 2023). But accounting for the macroeconomic effects of regulations in a regulatory impact analysis will not be easy. Indeed, previous difficulties integrating the costs of unemployment in benefit-cost analysis demonstrate the enormous hurdles to institutionalizing such effects in benefit-cost analysis.³⁴

³⁴ Traditionally, benefit-cost analysis excludes consideration of the unemployment effects of regulations because it assumes the economy is at full employment, and thus, unemployed workers can obtain new jobs with similar salaries with relative ease after being laid off (Furman 2017, 724). This is a simplifying assumption, but it is straightforwardly the case that if spells of unemployment are almost always brief and new jobs provide roughly similar wages to eliminated ones—as should be the case in an economy operating at full employment—the costs of unemployment should be quite small (relative to other costs in the analysis of most economically significant regulations). Nevertheless, Masur and Posner argued a decade ago that benefit-cost analysis should consider the effects of unemployment (Masur and Posner 2012). In response to their work, OMB solicited public comment on methodologies for estimating employment effects in benefit-cost analysis (Office of Management and Budget 2013). However, “the comments received were not particularly helpful,” and as a result, the costs of unemployment remain ordinarily unmonetized in federal agencies’ regulatory impact analyses (Furman 2017, 725-26).

One difficulty is that mainstream macroeconomists naturally concern themselves with understanding the aggregate behavior of the economy. Since regulatory benefits and costs are usually small and difficult to identify—relative to, e.g., changes in tax policy or government spending induced by war or recessions—their aggregate effects over the business cycle have received little attention in the macroeconomics literature. However, the effect of the business cycle on regulations has received attention: as noted in the Introduction, policymakers are concerned with the state of the business cycle when weighing the merits of regulations. This suggests that policymakers should be interested in the predictions that state-of-the-art macroeconomic models make regarding aggregate responses to regulatory choices.

While the results of this Article rely on simple pedagogical models that can be analyzed “by hand” with just pen-and-paper, nothing prevents federal agencies from borrowing more sophisticated models meant for the quantitative analysis of optimal tax policy and government spending over the business cycle to more precisely inform benefit-cost analysis. As a starting point, one can simply proceed as this Article has, following the observation that a regulation is often similar to a particular kind of tax. Having mapped a regulation in question into a particular tax, one can easily make predictions about the effects of the regulation on aggregate output using more sophisticated versions of the DSGE model presented in Appendix 1. These models are already widely used in government. Indeed, Congress’s Joint Committee on Taxation (Staff of the Joint Committee on Taxation 2018) and the Federal Reserve System (Board of Governors of the Federal Reserve System 2017) already incorporate such DSGE models when evaluating the impact of changes in fiscal and monetary policy,

respectively, and there is growing use of DSGE models in national agencies and international bodies around the world (Yagihashi 2020).

These suggestions are only a starting point; higher GDP is not itself a benefit, so any model would need to determine the willingness-to-pay or dollar-denominated welfare effects of a given regulatory change in order to serve as an input to benefit-cost analysis. In addition, it would be ideal if in future work mainstream DSGE models were tailored to fit the needs of particular regulators. Doing so is most likely to be worth the additional analytic work when proposed regulatory changes are large. In that vein, the Environmental Protection Agency's ongoing efforts to develop a large-scale computable general equilibrium model, SAGE, to evaluate the long-run costs and benefits of environmental regulation represents an important advance in this area (Marten, Schreiber and Wolverton 2021). However, despite SAGE's many features, it is not designed to capture business cycle dynamics and abstracts from the possibility of being at the ZLB. Thus, scope remains for further developing models to inform regulatory decisions over the course of the business cycle. Given the long-run trend towards lower real interest rates (Eggertsson, Mehrotra, and Robbins 2019; Federal Reserve Bank of New York 2024), such models may be needed sooner rather than later.

6. CONCLUSION

When faced with a recession that plunges the economy into a liquidity trap, the first-best solution is for Congress to use fiscal policy to overcome the shortfall in aggregate demand. But as was observed in the slow, grinding recovery from the Great

Recession, sometimes fiscal policy falls short of what is needed to pull the economy out of a liquidity trap. And when the legislative branch fails, the executive branch should rely on its existing authorities to minimize unnecessary suffering.

In such a situation, the executive branch should hunt for regulatory policies that cause firms and individuals to spend, which can substitute for a lack of sufficient government expenditures. For example, the executive branch may want to develop regulations that increase federal expenditures in automatic spending programs, or transfer resources from people who spend fewer cents of each dollar they earn (low marginal-propensity-to-consume individuals) to people who spend more cents of each dollar they earn (high marginal-propensity-to-consume individuals). These will have stimulative effects.

But beyond such cases, there will be tough decisions—like the ones that the Obama administration faced in 2011—about whether to move forward on important regulatory priorities that address environmental, health, safety, or other concerns. This Article has shown that, at a minimum, periods at the zero lower bound reduce the aggregate output costs of beneficial regulatory action. And while it is not yet fully certain, there is strong evidence to support the claim that in these dire economic circumstances, the social welfare costs of imposing regulatory requirements are likely to have also fallen, making the case for regulatory action stronger.

APPENDIX 1. ANALYZING REGULATORY COSTS IN A NEW KEYNESIAN DSGE MODEL

This Appendix develops a model based upon Eggertsson (2011), a nonlinear model environment, which augments the textbook three-equation New Keynesian DSGE model—Galí (2015); Woodford (2003)—with two different kinds of government spending and three different taxes. We are most interested in the payroll tax, τ_t^w , which imposes a cost to the firm to hiring labor. This tax can equivalently be thought of as a regulatory requirement that increases labor costs for firms. Reducing the payroll tax, or relaxing such regulatory requirements, is analogous to lowering the price of variable inputs, which results in lower prices and ultimately lower inflation. As we will show, at the ZLB, this is contractionary; the social planner prefers a higher τ_t^w until the economy escapes the liquidity trap.

Households maximize a utility function given by

$$E_t \sum_{T=t}^{\infty} \beta^{T-t} \left[u(C_T) - \int_0^1 v(l_T(j)) dj \right]$$

where β is the discount factor, C_t aggregates consumption at time t over a continuum of differentiated goods using a Dixit-Stiglitz function, $l_t(j)$ is the quantity of type- j labor supplied at time t , u is a concave function of the utility of consumption, and v is an increasing convex function of the disutility of labor relative to leisure. The household budget constraint is given by

$$P_t C_t + B_t \leq (1 + i_{t-1}) B_{t-1} + (1 - \tau_t^p) \int_0^1 Z_t(i) di + (1 - \tau_t^w) \int_0^1 W_t(j) l_t(j) dj$$

where B_t are one-period riskless bonds (which we can assume are the only assets that are traded, for simplicity and without loss of generality), i_t is the nominal interest rate on bonds traded at time t , P_t is a price index at time t taking Dixit-Stiglitz functional form, $Z_t(i)$ is the profits of firm i at time t (which are distributed to households in a lump sum), $W_t(j)$ is the wage earned by type- j workers at time t . There are two types of taxes in this model: a payroll tax, τ_t^w , and a tax on firms' profits, τ_t^p . These taxes are equivalent to different types of regulatory requirements, and we will refer to them as such going forward. Note that the model assumes that these taxes (i.e., the cost of the regulatory requirements) decay over time.³⁵

Households take prices and wages as fixed, and maximize utility subject to the following first-order conditions:

$$u_c(C_t) = (1 + i_t)\beta E_t u_c(C_{t+1}) \frac{P_t}{P_{t+1}}$$

$$(1 - \tau_t^w) \frac{W_t(j)}{P_t} = \frac{v_l(l_t(j))}{u_c(C_t)}$$

³⁵ This is a reasonable assumption in the context of regulatory requirements for at least four reasons. First, learning-by-doing tends to allow firms to find less costly ways to comply with regulatory requirements (Argote and Epple 1990). Second, learning-by-doing is enhanced by technological innovation that reduces the costs of most inputs over time. Third, and relatedly, technological obsolescence tends to reduce the relevance of regulatory requirements to productive processes over time (Frankel 1955). For example, a regulation that increased costs on producing CD-ROMs likely has little relevance to Spotify's costs today. Fourth, firms will attach a reasonable probability to the prospect that regulations will be modified or rescinded by a future administration, or by a future statute, particularly if the political party in power flips in Washington.

$$\lim_{T \rightarrow \infty} E_t \frac{B_T}{P_T} u_c(C_t) = 0$$

where u_c is the marginal utility of consumption, and v_l is the marginal disutility of labor.

Each goods-producer produces a different good, i , and producers are monopolistically competitive. There are many goods in each of the infinite number of industries, j , and goods in each industry are produced with industry-specific labor. Firms all change their prices at the same time in each industry, with Calvo pricing; each industry has an equal probability, $0 < \alpha < 1$, of not updating its prices in each period. Any firm that updates its price at time t sets the same new optimal price, p_t^* . For simplicity, each good is produced with just one input, labor, with a common production function for each i producer

$$y_t(i) = l_t(i)$$

where, as a reminder, $l_t(i)$ is industry-specific (j) labor hired by firm i . The demand for good i takes the form

$$y_t(i) = Y_t \left(\frac{p_t(i)}{P_t} \right)^{-\theta}$$

where Y_t , aggregate output, is defined by $Y_t \equiv C_t + G_t$, and θ is the elasticity of substitution between different i -goods. Profits for each firm i (which produces good i) in industry j is described by

$$Z_t(i) = p_t(i) Y_t \left(\frac{p_t(i)}{P_t} \right)^{-\theta} - W_t(j) Y_t \left(\frac{p_t(i)}{P_t} \right)^{-\theta}$$

Firms set prices by choosing p_t^* to maximize

$$\max_{p_t^*} E_t \left\{ \sum_{T=t}^{\infty} (\alpha\beta)^{T-t} \lambda_T (1 - \tau_T^P) \left[p_t^* Y_t \left(\frac{p_t^*}{P_t} \right)^{-\theta} - W_T(j) Y_T \left(\frac{p_t^*}{P_t} \right)^{-\theta} \right] \right\}$$

where λ_t is the marginal utility of nominal income for the household at time t .

This yields the following first-order condition:

$$E_t \left\{ \sum_{T=t}^{\infty} (\alpha\beta)^{T-t} \frac{u_c(C_T)}{P_T} (1 - \tau_T^P) \left(\frac{p_t^*}{P_T}\right)^{-\theta-1} \times \left[Y_T \frac{p_t^*}{P_T} - \frac{\theta}{\theta-1} \frac{1}{(1 - \tau_T^W)} \frac{v_l \left(Y_T \left(\frac{p_t^*}{P_T}\right)^{-\theta} \right)}{u_c(C_T)} \right] \right\} = 0$$

The price index is specified as

$$P_t = [(1 - \alpha)(p_t^*)^{1-\theta} + \alpha P_{t-1}^{1-\theta}]^{\frac{1}{(1-\theta)}}$$

Let y_t be the deviation of output from its long-run value at time t , so that positive values of y_t denote expansions or booms, and negative values denote recessions.

Similarly, let π_t be the deviation of inflation from its long-run value (which, for simplicity and without loss of generality, we will assume to be zero³⁶). Accordingly, equilibrium can be well-approximated in a two equation New Keynesian AD-AS model, with AD

$$y_t = -\sigma(i_t - \pi_{t+1} - r_t^e) + y_{t+1}$$

and AS

$$\pi_t = \kappa y_t + \kappa\psi\chi^w + \beta\pi_{t+1}$$

where σ , κ , ψ , and χ^w are positive constants.³⁷ The variable r_t^e goes by many names: it is most often referred to as the “natural” (but sometimes “efficient,” “neutral,”

³⁶ The Federal Reserve in fact has a flexible average inflation target of 2% (Federal Open Market Committee 2022).

³⁷ For details on the interpretation of these constants, see Eggertsson (2011, 68).

“Wicksellian,” or “market-clearing”) real rate of interest; it is also known as r^* in other notations (Bernanke 2017).

The AD equation shows that, in this model, current output is increasing in expected future output (y_{t+1}) and decreasing in the distance of the real interest rate (the nominal interest rate, i_t , minus expected inflation, π_t) from the natural real rate of interest, r_t^e . The AS equation shows that, in this model, current inflation depends on current demand, y_t , variable labor costs due to regulations, τ_t^w , and expected future inflation, π_{t+1} . This equation is also known as the “New Keynesian Phillips Curve” because it relates output and inflation in a manner similar to the traditional Phillips Curve (Phillips 1958); (Phelps 1967).

Finally, the model is closed by specifying the central bank’s behavior. We choose a slightly different functional form for the central bank policy rule than Eggertsson (2011), instead using:

$$i_t = \phi\pi_{t+1} + r_t^e$$

with $\phi > 1$, which ensures that in the long run the unique equilibrium of this economy does not feature runaway inflation.³⁸ Note, however, that the central bank’s policy rule is constrained to be above zero: $i_t \geq 0$. Accordingly, the central bank’s policy rule is specified by

$$i_t = \max\{\phi\pi_{t+1} + r_t^e, 0\}$$

This is the complete model without capital; we will return to the role of capital later.

³⁸ This difference is purely for tractability.

Even in this more complex model, we can again see that the ZLB constraint causes similar problems. If the market-clearing interest rate r_t^e falls below the negative ϕ times inflation ($-\phi\pi_t$)—zero, in this model—due to, e.g., a financial crisis (Cúrdia and Woodford 2010), the central bank will not be able to match it with the policy rate i_t , and a recession will ensue. As noted previously, this situation describes the 1930s, the “Great Recession” of 2008, and also the recent COVID crisis in its initial phase.³⁹ In each case, a massive shock caused demand for current consumption to fall relative to output, pushing prices and interest rates down (less consumption implies more saving, which drives the “market clearing” interest rate lower). The Federal Reserve tried in each case to boost current demand by lowering interest rates to the market-clearing level, but failed, as it was constrained by the ZLB.

To see these dynamics at play, consider a three-period model where the market clearing rate $r_0^e < 0$ and $r_1^e = r_2^e = r^e$, the long-run value of r . To keep things simple, suppose that it is known that the shock to aggregate demand will only last one period, and that by $t = 2$ the economy will be back in steady-state with $y_2 = \pi_2 = 0$ and $i_2 = r_2^e = r^e$. What should the government do today, in $t = 0$, about new regulatory burdens that are planned to be in place in $t = 1$, that is, $\tau_1^w - \tau_0^w > 0$?⁴⁰

Given our simplifying assumptions, current output, y_0 , boils down to

³⁹ See *supra* note 8.

⁴⁰ Current regulations, τ_0^w only affect current inflation, so given our monetary policy rule current regulations do not directly impact current output, y_0 ; moreover, we may think that—in practice—current regulation is “already in place” and too burdensome to change in real time based on economic developments.

$$y_0 = -\sigma(\max\{\phi\kappa\psi\chi^w\tau_1^w + r_0^e, 0\} - r_0^e) + \sigma\kappa\psi\chi^w\tau_1^w$$

Now consider two cases. When the ZLB binds, i.e.,

$$\phi\kappa\psi\chi^w\tau_1^w + r_0^e < 0$$

then the previous expression for current output becomes:

$$y_0 = \sigma r_0^e + \sigma\kappa\psi\chi^w\tau_1^w$$

To put this result in plain English, at the zero lower bound, there is a recession (since, above, we specified $r_0^e < 0$) *unless* τ_1^w is sufficiently high! New regulatory burdens that increase labor costs are *expansionary* in this model when the ZLB binds.⁴¹ This expression shows that, in this model, increasing regulatory burdens raises current output (y_0) because the inflation it causes helps to “relax” the ZLB constraint: higher inflation reduces the real interest rate, which has expansionary effects.

These benefits of high inflation are absent in “normal times,” when the ZLB does not bind. To see this, imagine the government went overboard imposing new regulatory burdens, for no reason other than to raise the price level. It is easy to see, by examining the first equation in the previous paragraph, that increasing τ_1^w only increases y_0 until the government causes enough inflation to escape the ZLB, i.e., when

$$\phi\kappa\psi\chi^w\tau_1^w + r_0^e = 0$$

At that point, additional regulations will decrease output:

$$y_0 = \sigma(1 - \phi)\kappa\psi\chi^w\tau_1^w$$

because $\phi > 1$ entails that $\sigma(1 - \phi)\kappa\psi\chi^w\tau_1^w < 0$. This should be intuitive: in normal times, the model’s dynamics reflect the fact that more stringent regulations raise the cost

⁴¹ Or, alternatively, raising payroll taxes.

of labor for firms and result in lower wages and higher inflation, which the Federal Reserve responds to by raising interest rates and curbing demand in order to reduce inflation. Contrast this with the situation at the ZLB, where interest rates are already sub-optimally high, so the Federal Reserve does not raise interest rates in response to higher inflation.

Now let us consider an economy in which each firm uses both capital and labor as inputs in the Cobb-Douglas production function

$$y_t(i) = K_t(i)^\gamma l_t(i)^{1-\gamma}$$

where $K_t(i)$ is firm- i -specific capital at time t , and γ is the capital output elasticity.

Assume that investment increases the firm's capital stock in $t + 1$ ($K_{t+1}(i)$) by the following relationship:

$$I_t(i) = \varphi \left[\frac{K_{t+1}(i)}{K_t(i)}, \xi_t \right] K_t(i)$$

where $I_t(i)$ is firm- i -specific investment at time t , ξ_t is an adjustment shock, and the function φ satisfies certain conditions allowing for determinacy.⁴² Eggertsson (2011) shows that, in reasonable parameterizations, a cut to the corporate tax rate (τ_t^P)—which had previously dropped out of the model without capital—now reduces output at the ZLB.⁴³ While, as previously noted, corporate taxes are a dubious proxy for regulatory burdens (and vice versa), in this model, the sign of the relationship between corporate

⁴² For a list of these conditions, see Eggertsson (2011, 97).

⁴³ The sign of the relationship between τ_t^w and output is unaffected (id., 99).

taxes and output at the ZLB is the opposite of that implied by Masur & Posner's analysis.⁴⁴

Finally, consider the case where regulation takes the form of a one-time mandated purchase of a *fixed* quantity of goods or services (a new scrubber, a one-time inspection, etc.). It is not hard to show that this is isomorphic to tax-and-spend fiscal policy where the government finances the purchase of output with a lump-sum tax on households. This is expansionary in the model, and more so at the ZLB when the added inflation caused by the shock does not induce the central bank to raise real interest rates.⁴⁵

⁴⁴ See *supra* notes 15-**Error! Bookmark not defined.** and accompanying text.

⁴⁵ See Eggertsson (2011) for a thorough discussion of the effects of government spending at the ZLB in this model.

APPENDIX 2. ANALYSIS OF BROOKINGS TRACKER BIDEN ADMINISTRATION REGULATIONS

<u>Biden Administration Regulations AD/AS Effects</u>						
Regulation	Agency	Proposed or Final?	Likely Near-term AD Effect?	Likely Near-term AS Effect?	Narrative Description of Near-term AD/AS Effect of Costs and Federal Outlays	Category
Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards	EPA (OTAQ)	Final	Neutral to positive	Negative	By requiring that vehicles meet minimum emission standards, EPA is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks	DOT (NHTSA)	Final	Neutral to positive	Negative	By requiring that vehicles meet minimum fuel economy standards, DOT is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles	EPA (OTAQ)	Proposed	Neutral to positive	Negative	By requiring that vehicles meet minimum emission standards, EPA is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Enforcement of Title IX of the Education Amendments of 1972 With Respect to Discrimination Based on Sexual Orientation and Gender Identity in Light of <i>Bostock v. Clayton County</i>	Ed (OCR)	Final	Neutral	Neutral	Allowing students to use bathrooms that match their gender identity not likely to have important near-term AD or AS effects.	Social

Revised Definition of “Waters of the United States”	DOD (USACE) and EPA (OW)	Final	Positive	Negative	By subjecting more areas to regulation as waters of the United States, this rule is likely to impose new expenditures to comply with stricter regulation (e.g., reducing emission of hazardous pollutants into wetlands) that have a positive AD effect and negative near-term AS effect. This can be thought of as being akin to a combination of fixed and variable taxes on owners of such wetlands.	Traditional
Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards	EPA (OTAQ)	Final	Neutral to positive	Negative	By requiring that vehicles meet minimum emission standards, EPA is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles-Phase 3	EPA (OTAQ)	Proposed	Neutral to positive	Negative	By requiring that vehicles meet minimum emission standards, EPA is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Medicare and Medicaid Programs; Policy and Technical Changes to the Medicare Advantage, Medicare Prescription Drug Benefit, Program of All-Inclusive Care for the Elderly (PACE), Medicaid Fee-For-Service, and Medicaid Managed Care Programs for Years 2020 and 2021	HHS (CMS)	Final	Negative	Neutral to negative	The primary impact of this rule is to reduce improper overpayments to Medicare Advantage Organizations through more rigorous auditing. By reducing federal outlays, this has a direct negative effect on AD. To the extent that changes in audit procedures create new costs for Medicare Advantage Organizations, the rule could have negative AS effects as well.	Reducing federal expenditures
Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance: Sex-Related Eligibility Criteria	Ed (OCR)	Proposed	Neutral	Neutral	This proposed rule would prohibit categorical bans on students participating in sports teams based on their gender identity, but allow for bans based on competitive concerns or risk of injury; this is not likely to have important near-term AD or AS effects.	Social

for Male and Female Athletic Teams						
Prudence and Loyalty in Selecting Plan Investments and Exercising Shareholder Rights	DOL (EBSA)	Final	Neutral	Neutral	The rule clarifies that those who manage 401(k)s may consider the impact of ESG factors on an investment. Clarifying that funds may consider ESG factors has no obvious near-term AD or AS effects.	Social
Energy Conservation Program: Energy Conservation Standards for Air Cleaners; Final Rule	DOE (OEERE)	Final	Neutral to positive	Negative	By requiring that air conditions meet minimum energy efficiency standards, DOE is increasing the cost of air conditioners, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency air conditioner production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
PFAS National Primary Drinking Water Regulation Rulemaking	EPA (OW)	Proposed	Positive	Negative	By limiting the quantity of six kinds of PFAS in drinking water and requiring more testing for the presence of PFAS, this rule is likely to act in the manner of one-time tax imposing a fixed cost (e.g., purchase of new water treatment equipment) that increases AD in the near-term and imposes ongoing variable costs of compliance (e.g., chemical purchases) that also decreases near-term AS.	Traditional
National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units-Revocation of the 2020 Reconsideration and Affirmation of the Appropriate and Necessary Supplemental Finding	EPA (OAR)	Final	Neutral to positive	Negative	By requiring firms to either switch to low-sulfur coal or install, and more frequently run, a variety of control technologies (e.g., scrubbers) to reduce emissions of mercury and other air toxins, this rule has a clear negative near-term effect on AS and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Deferred Action for Childhood Arrivals	DHS (USCIS)	Final	Neutral	Neutral	Because this rule codifies existing DACA guidance through rulemaking, it is not anticipated to have substantial costs or benefits (relative to the baseline).	Government process

Circumvention of Lawful Pathways	DHS (USCIS) and DOJ (EOIR)	Final	Neutral	Neutral	This rule, in combination with associated actions such as expanded processing through the use of the CBP One app, both limited and increased the ability of asylum-seekers to access the United States in several ways. The net effect of these changes, which to some degree offset, likely has small net near-term effects on AD and AS. (Generally, increases in immigration would be expected to have a positive effect on both AD and AS, and vice versa.)	Immigration levels
Coverage of Certain Preventive Services Under the Affordable Care Act	Treasury (IRS), DOL (EBSA), and HHS (CMS)	Proposed	Neutral	Neutral	This proposed rule would ensure that individuals would retain health care coverage related to contraceptive care, even when a provider has a religious objection to providing such coverage. This likely has no significant near-term effect on AD or AS.	Social
Restoring Affirmatively Furthering Fair Housing Definitions and Certifications	HUD (OFHEO)	Final	Neutral	Neutral to negative	This rule restored the Obama administration “Affirmatively Furthering Fair Housing” (AFFH) rule that required any community receiving block-grant funding from HUD to complete a comprehensive assessment to analyze its housing and draft a plan for addressing patterns of segregation and discrimination. Requiring the drafting of such plans may have a slight negative near-term effect on AS.	Traditional
Affirmatively Furthering Fair Housing	HUD (OS)	Proposed	Neutral	Neutral to negative	This proposed rule would expand the scope and frequency of assessments that program recipients have to go through. Like the AFFH rule, this may have a slight negative near-term effect on AS.	Traditional
Factoring Criteria for Firearms With Attached “Stabilizing Braces”	DOJ (ATFE)	Final	Negative	Negative	By clarifying the definition of “short-barreled rifles” to include pistols that have been enhanced with stabilizing braces, this rule clarifies that they are subject to higher taxes, stricter registration requirements, longer processing times, and background checks for all transfers. As such, the taxes likely have a negative near-term AD effect, and the background check requirements likely have a negative near-term AS effect.	Other
Energy Conservation Program: Energy Conservation Standards for Refrigerators, Refrigerator-Freezers, and Freezers	DOE (OEERE)	Proposed	Neutral to positive	Negative	By requiring that refrigerators and freezers meet minimum energy efficiency standards, DOE is increasing the cost of refrigerators and freezers, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency refrigerator and freezer production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional

Energy Conservation Program: Energy Conservation Standards for Residential Clothes Washers	DOE (OEERE)	Proposed	Neutral to positive	Negative	By requiring that washing machines meet minimum energy efficiency standards, DOE is increasing the cost of washing machines, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency washing machines, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Enhanced Reporting of Proxy Votes by Registered Management Investment Companies; Reporting of Executive Compensation Votes by Institutional Investment Managers	SEC	Final	Neutral	Negative	This rule requires investment managers to report proxy votes relating to executive compensation, imposing a small cost on such investment managers (akin to a tax on capital in that sector), with a corresponding small negative near-term effect on AS.	Traditional
Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review	EPA (OAR)	Proposed	Neutral to positive	Negative	This supplemental proposed rule would tighten methane emissions standards for new sources of oil and natural gas, and require that states create plans to reduce methane emissions from existing sources of oil and natural gas. By requiring firms to run equipment to monitor, eliminate or minimize these emissions, the rule would have a clear negative near-term effect on AS and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Public Charge Ground of Inadmissibility	DHS (USCIS)	Final	Positive	Neutral	This rule rescinded a Trump administration rule that likely discouraged immigrant families from applying for public benefits, creating a positive near-term AD effect.	Increasing federal expenditures
Reconsideration of the National Ambient Air Quality Standards for Particulate Matter	EPA (OAR)	Proposed	Neutral to positive	Negative	By lowering the National Ambient Air Quality Standards (NAAQS) for fine particulate matter below 2.5 micrometers in diameter (PM2.5) would impose costs in the form of purchasing, installing, and operating the various PM2.5 control technologies. Accordingly, the proposed rule would have a negative near-term effect on AS, and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional

Energy Conservation Program: Energy Conservation Standards for General Service Lamps	DOE (OEERE)	Proposed	Neutral to positive	Negative	By requiring that light bulbs meet minimum energy efficiency standards, DOE is increasing the cost of light bulbs, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency light bulbs, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Improving Income Driven Repayment for the William D. Ford Federal Direct Loan Program and the Federal Family Education Loan (FFEL) Program	Ed (OPE)	Final	Positive	Neutral to negative	The primary effect of this rule is to reduce student loan payments to the government, increasing AD in the near-term. Costs on student loan servicers include the need to update their computer systems and their borrower communications, which could have small near-term AS effects.	Increasing federal expenditures
Federal Acquisition Regulation: Disclosure of Greenhouse Gas Emissions and Climate-Related Financial Risk	DOD, GSA, and NASA	Proposed	Neutral	Negative	This proposed rule, by requiring certain federal contractors to disclose their greenhouse gas emissions and climate-related financial risk, would impose costs on federal contractors (akin to a tax) and produce a negative near-term AS effect.	Traditional
Safeguarding the Rights of Conscience as Protected by Federal Statutes	HHS (OCR)	Proposed	Neutral	Neutral	This proposed rule would roll back regulatory authority for medical service providers to deny patients procedures, referrals, and payment for abortion and certain other services. This would have no substantial near-term AD or AS effects.	Social
Phasedown of Hydrofluorocarbons: Establishing the Allowance Allocation and Trading Program Under the American Innovation and Manufacturing Act	EPA (OAR)	Final	Neutral to positive	Negative	This rule creates a cap-and-trade scheme for hydrofluorocarbons (HFCs), phasing down their use over time. The costs of limiting use of HFCs has a negative near-term effect on AS, and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Phasedown of Hydrofluorocarbons: Allowance Allocation Methodology for 2024 and Later Years	EPA (OAR)	Proposed	Neutral to positive	Negative	This proposed rule would alter HFC caps (starting in 2024) and make a number of other minor changes, which will tend to have the effect of more quickly phasing down HFCs. The costs of limiting use of HFCs has a negative near-term effect on AS, and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional

Independent Contractor Status Under the Fair Labor Standards Act (FLSA): Withdrawal	DOL (WHD)	Final	Positive	Negative	This rule withdrew a Trump administration rule that would have increased the number of workers classified as independent contractors rather than employees (a status which comes with increased costs for employers). As a result, it has a near-term negative effect on AS. Because workers' compensation is likely to increase as a result of being classified as employees rather than independent contractors, in part effectuating a transfer of income from lower marginal propensity to consume capital owners to higher marginal propensity to consume workers, the rule likely has a positive near-term effect on AD.	Traditional
Employee or Independent Contractor Classification Under the Fair Labor Standards Act	DOL (WHD)	Proposed	Neutral	Neutral	This proposed rule is, essentially, a codification of practice prior to the Trump administration rule that the previous rule withdrew. As such, DOL indicates that it will have little effect. To the extent it would expand the scope of workers classified as employees rather than independent contractors, the analysis of the Independent Contractor Status rule would apply.	Government process
Institutional Eligibility Under the Higher Education Act of 1965, as Amended; Student Assistance General Provisions; Federal Perkins Loan Program; Federal Family Education Loan Program; and William D. Ford Federal Direct Loan Program	Ed (OPE)	Final	Positive	Neutral	This rule makes it easier for those with student loans who were misled by an educational institution to no longer be required to pay back those loans, if held by the Department of Education. The primary effect of this rule is to reduce student loan payments to the government, increasing AD in the near-term.	Increasing federal expenditures
National Primary Drinking Water Regulations: Lead and Copper Rule Revisions; Delay of Effective and Compliance Dates	EPA (OW)	Final	Neutral	Neutral	This rule delays a previous lead and copper rule's compliance date (January 16, 2024 to October 16, 2024), to give EPA time to formulate a new regulation. This has no substantial near-term effects on AD or AS.	Government process

Occupational Exposure to COVID-19; Emergency Temporary Standard	DOL (OSHA)	Final	Neutral	Negative to positive	This emergency temporary standard required that health care employers take steps to control COVID-19 hazards in the workplace; allow paid leave for workers to get vaccinations; and other measures. These imposed near-term costs on employers (a near-term negative effect on AS) but may have mitigated the spread of COVID-19 (a near-term positive effect on AS).	Other
COVID-19 Vaccination and Testing; Emergency Temporary Standard	DOL (OSHA)	Final	Neutral	Negative to positive	This emergency temporary standard required employers with 100 or more employees to either mandate that all employees become fully vaccinated for COVID-19 or undergo regular COVID-19 testing and wear a mask in the workplace. These imposed near-term costs with respect to testing and compliance on employers (a near-term negative effect on AS) but may have mitigated the spread of COVID-19 (a near-term positive effect on AS).	Other
Advanced Methods To Target and Eliminate Unlawful Robocalls; Call Authentication Trust Anchor (7/18/2022)	FCC (WCB)	Final	Neutral to positive	Negative	This rule requires U.S. phone carriers that connect calls from outside the U.S. to phone networks within the U.S. to deploy technology to reduce spam calls originating abroad. This cost on phone carriers creates a near-term negative AS effect and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Advanced Methods To Target and Eliminate Unlawful Robocalls, Call Authentication Trust Anchor (7/10/2023)	FCC (WCB)	Final	Neutral to positive	Negative	This rule extends the obligations discussed in the prior rule to additional phone carriers. This cost on phone carriers creates a near-term negative AS effect and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Termination of the Migrant Protection Protocols Program	DHS (OS)	Final	Positive	Positive	The rescission of the Trump administration Migrant Protection Protocols allows asylum-seekers at the southern border of the U.S. to enter the U.S. after being approved by Customs and Border Patrol, while their asylum request is pending in immigration court. As this increases the number of asylum-seekers in the U.S., it is likely to have a positive near-term effect on AD (due to asylum seekers' consumption) and on AS (due to asylum seekers who enter the labor force).	Immigration levels

Food Labeling: Nutrient Content Claims; Definition of Term “Healthy”	HHS (FDA)	Proposed	Neutral to positive	Negative	This proposed rule would alter which foods can be labeled “healthy.” Increased costs for manufacturers responding to the rule by reformulating food products, changing labels, and increased recordkeeping would have a near-term negative effect on AS and potentially positive effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention	EPA (OLEM)	Proposed	Neutral to positive	Negative	This rule re-instates a requirement for third-party audits for facilities with high accident rates (rescinded by a Trump administration rule); requires facilities with high accident rates determine safer technologies and methods of handling materials; and imposes more thorough investigations of chemical spills. The costs of these measures has a negative near-term effect on AS, and potentially positive near-term effect on AD (to the extent that along with the variable cost, akin to a tax, also includes a one-time compliance expenditure/fixed cost tax).	Traditional
Implementation of Additional Export Controls: Certain Advanced Computing and Semiconductor Manufacturing Items; Supercomputer and Semiconductor End Use; Entity List Modification	DOC (BIS)	Final	Negative	Negative	This rule prohibits American firms from exporting microchips or microchip manufacturing equipment to China. This is a negative shock to AD (via the reduction in spending, due to a reduction in U.S. income because of the reduction in Chinese purchases of such exported goods; partially offset by a depreciation of the dollar, which boosts other exports by a lesser amount). Compliance costs also somewhat negatively affect near-term AS.	Other
Migratory Bird Hunting; Migratory Bird Hunting Regulations on Certain Federal Indian Reservations and Ceded Lands for the 2022-23 Season	DOI (FWS)	Final	Neutral	Positive	This rule liberalizes hunting restrictions on Indian tribes, including hunting schedules, hunting by tribal members on ceded land, and flexibility in daily bag and possession limits. By increasing the scope of hunting with respect to Indian tribes, this rule has a modest near-term positive AS effect.	Supply-side
Tobacco Product Standard for Menthol in Cigarettes	HHS (FDA)	Proposed	Neutral	Negative	This proposed rule would ban the sale of menthol cigarettes. The costs of the rule on firms creates a negative near-term AS effect.	Traditional
Tobacco Product Standard for Characterizing Flavors in Cigars	HHS (FDA)	Proposed	Neutral	Negative	This proposed rule would ban the sale of cigars with characterizing flavors (other than tobacco). The costs of the rule on firms creates a negative near-term AS effect.	Traditional

Energy Conservation Program: Energy Conservation Standards for Manufactured Housing	DOE (OEERE)	Final	Neutral to positive	Negative	By requiring that manufactured homes meet minimum energy efficiency standards, DOE is increasing the cost of manufactured homes, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency manufactured housing, the effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Definition of “Frame or Receiver” and Identification of Firearms	DOJ (ATFE)	Final	Neutral	Negative	This rule requires that certain gun kits have serial numbers and that the buyer completes a background check and directs gun dealers to add serial numbers to any ghost guns that come into their possession before resale. These costs result in a negative effect on AS.	Traditional
Final Priorities, Requirements, Definitions, and Selection Criteria- Expanding Opportunity Through Quality Charter Schools Program (CSP)- Grants to State Entities (State Entity Grants); Grants to Charter Management Organizations for the Replication and Expansion of High-Quality Charter Schools (CMO Grants); and Grants to Charter School Developers for the Opening of New Charter Schools and for the Replication and Expansion of High-Quality Charter Schools (Developer Grants)	Ed (OESE)	Final	Neutral	Negative	This rule requires charter schools to submit a “community impact analysis” to the Department of Education in order to receive federal funds. The costs of producing such an analysis have a negative near-term effect on AS.	Traditional

Nondiscrimination in Health Programs and Activities	HHS (CMS and OCR)	Proposed	Neutral	Negative	This proposed rule would restore the Obama administration protections for gender identity; marital, family, or parental status; pregnancy status (including pregnancy termination); expand protections for sexual orientation; and restore and expand health care access for people with limited English proficiency and people with disabilities, including mandating accessibility of telehealth services. It also streamlines the process for objections against providing health care on grounds of religion or conscience. Compliance costs would have a negative near-term effect on AS.	Traditional
Medical Devices; Ear, Nose, and Throat Devices; Establishing Over-the-Counter Hearing Aids	HHS (FDA)	Final	Neutral	Positive	This rule allows the sale of air conduction hearing aids without a visit to a doctor or a prescription. This reduction in regulatory burden has a positive near-term effect on AS.	Supply-side
Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat	DOI (FWS) and DOC (NOAA)	Final	Neutral	Negative	This rule rescinds the Trump administration’s prior definition of the word “habitat” in the Endangered Species Act. As a result, the term includes more habitats. The additional costs of complying with the Act’s requirements, with this broader scope of application, has a negative near-term effect on AS.	Traditional
New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule	EPA (OAR)	Proposed	Neutral to positive	Negative	This proposed rule would place new limits on fossil fuel powerplants’ greenhouse gas emissions. By increasing the cost of energy production, this reduces near-term AS. If this induces accelerated investments in low-emission power production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance	Ed (OCR)	Proposed	Neutral	Neutral	This proposed rule defines “harassment” in Title IX as all sex-based harassment, rather than just sexual harassment, and prohibits discrimination in schools based on gender identity, sexual orientation, sex stereotyping, sex characteristics, or pregnancy. This is not likely to have important near-term AD or AS effects.	Social

Streamlining and Implementation of Economic Growth, Regulatory Relief, and Consumer Protection Act Changes to Family Self-Sufficiency (FSS) Program	HUD (PIH and FHC)	Final	Neutral	Neutral	This rule expands the eligibility criteria of the Family Self-Sufficiency program to include tenants of multifamily properties that participate in rent assistance programs and allow any adult member of the household to apply for the program rather than only the head of the household. This is not likely to have important near-term AD effects (as it does not change overall spending) or AS effects.	Social
Withdrawing Rule on Securing Updated and Necessary Statutory Evaluations Timely	HHS	Final	Neutral	Neutral	This rule withdraws the Trump administration SUNSET rule, meaning that HHS regulations will not automatically expire after ten years unless renewed. This is not likely to have any important near-term AD or AS effects.	Government process
Exercise of Time-Limited Authority To Increase the Fiscal Year 2022 Numerical Limitation for the H-2B Temporary Nonagricultural Worker Program and Portability Flexibility for H-2B Workers Seeking To Change Employers	DHS (USCIS) and DOL (ETA and WHD)	Final	Positive	Positive	This rule increased the number of H-2B visas with position start dates on or before March 31, 2022 by 20,000. By increasing immigration to the U.S., the rule has a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
Exercise of Time-Limited Authority To Increase the Numerical Limitation for Second Half of FY 2022 for the H-2B Temporary Nonagricultural Worker Program and Portability Flexibility for H-2B Workers Seeking To Change Employers	DHS (USCIS) and DOL (ETA and WHD)	Final	Positive	Positive	This rule increased the number of H-2B visas with position start dates on or between April 1, 2022 and September 30, 2022 by 35,000. By increasing immigration to the U.S., the rule has a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
E15 Reid Vapor Pressure Fuel Waivers	EPA	Final	Neutral	Positive	This rule allows gasoline composed of 15% ethanol to be sold from June 1 to September 15, 2022. This lowering of costs and fuel prices has a near-term positive effect on AS.	Supply-side
National Environmental Policy Act Implementing Regulations Revisions	CEQ	Final	Neutral	Negative	Clarifies that agencies are required to do more rigorous assessment of environmental impacts and that NEPA assessments apply to a wider scope of projects. The additional costs of such assessments has a negative near-term effect on AS.	Traditional

Pipeline Safety: Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments	DOT (PHMSA)	Final	Neutral to positive	Negative	This rule imposes various requirements on natural gas gathering pipelines in rural areas. By increasing natural gas costs, it reduces near-term AS. If this induces accelerated investments in renewable energy sources, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Revised Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS	EPA (OAR)	Final	Neutral to positive	Negative	This rule requires additional emissions reductions of nitrogen oxides from power plants in the 12 upwind states. By increasing the cost of energy production, this reduces near-term AS. If this induces accelerated investments in low-emission power production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Federal Implementation Plan Addressing Regional Ozone Transport for the 2015 Ozone National Ambient Air Quality Standard	EPA (OAR)	Proposed	Neutral to positive	Negative	This proposed rule expands the nitrogen oxides emission reduction requirements to apply to additional states, to chemical manufacturers, industrial boilers, and incinerators (not just power plants), and creates a cap-and-trade program. By increasing the cost of energy production, this reduces near-term AS. If this induces accelerated investments in low-emission power production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Rescission of the Notice of July 23, 2019, Designating Aliens for Expedited Removal	DHS (OS)	Final	Positive	Positive	This rule rescinds a Trump administration rule that applied expedited removal to more noncitizens. Because expedited removal procedures result in fewer noncitizens successfully challenging erroneous orders of removal, the likely effect is to increase immigration to the United States. The result is a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
The Enhancement and Standardization of Climate-Related Disclosures for Investors	SEC	Proposed	Neutral	Negative	This proposed rule requires publicly traded companies to disclose climate risks to its business, greenhouse gas emissions targets, and climate-related goals. The additional reporting costs result in a negative near-term effect on AS.	Traditional
Energy Conservation Program for Appliance Standards: Procedures, Interpretations, and Policies for Consideration in New or Revised Energy	DOE (OEERE)	Final	Neutral	Neutral	This rule reverses a Trump administration regulation imposing a minimum energy savings threshold, requirements to conduct extraneous comparative analyses of proposed standards, and a 180-day buffer between testing and new standard proposals. As a rule governing internal agency	Government process

Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment					practice, it has (in and of itself) no substantial near-term AD or AS effect.	
Private Fund Advisers; Documentation of Registered Investment Adviser Compliance Reviews	SEC	Proposed	Neutral	Negative	This proposed rule would require investment fund advisers to disclose information, review compliance with disclosure, bar preferential treatment of any investor absent public disclosure, and various other requirements. In the near-term, the costs and constraints this imposes has a negative effect on AS.	Traditional
Broadband Infrastructure Deployment	DOT (FHWA)	Final	Positive	Positive	This rule makes it easier for broadband to be installed alongside other highway construction projects by requiring state departments of transportation to establish a registration process for broadband infrastructure companies that wish to take advantage of this fast-track process; coordinate with state and private entities to take full advantage of the dig once policy and other right of way highway laws by coordinating construction efforts along highways; and set up an electronic notification process to notify broadband companies participating in broadband installation of any policy changes over time that may affect their work. This will hasten the expenditure of the \$65 billion for expanding broadband access in the Infrastructure Investment and Jobs Act. The hastened (or even increased) spending has a near-term positive effect on AD. The fast-track process reforms has a near-term positive effect on AS.	Other
Increasing the Minimum Wage for Federal Contractors	DOL (WHD)	Final	Positive	Negative	The rule raised the minimum wage for federal contractors to \$15 from \$10.95, and to \$10.50 from \$7.65 for tipped workers. Because workers at contracting firms will see wage increases (even when not working on federal contracts) to remain eligible for federal contracts, this will likely (in part) result in a transfer from lower marginal-propensity-to-consume firm owners, likely somewhat increasing near-term AD. This additional wage cost pressure will also have a near-term negative effect on AS.	Traditional

Corporate Average Fuel Economy (CAFE) Preemption	DOT (NHTSA)	Final	Neutral to positive	Negative	This action by DOT (along with the parallel action by EPA) allowed California to impose more stringent vehicle emission standards, and allowed other states to adopt those standards. In effect, this operates to increase vehicle emissions standards. Accordingly, by allowing California (and other states to require that that vehicles meet minimum emission (fuel efficiency) standards, DOT is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Notice of Decision	EPA (OAR)	Final	Neutral to positive	Negative	This action by EPA (along with the parallel action by DOT) allowed California to impose more stringent vehicle emission standards, and allowed other states to adopt those standards. In effect, this operates to increase vehicle emissions standards. Accordingly, by allowing California (and other states to require that that vehicles meet minimum emission (fuel efficiency) standards, EPA is increasing the cost of vehicles, reducing near-term AS. If this induces vehicle manufacturers to accelerate investments in low-emission vehicle (e.g., electric vehicle) production, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Energy Conservation Program: Definition of Showerhead	DOE (OEERE)	Final	Neutral to positive	Negative	By requiring that showerheads meet minimum water efficiency standards, DOE is increasing the cost of showerheads, reducing near-term AS. If this induces manufacturers to accelerate investments in high-efficiency showerheads, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional
Federal Acquisition Regulation: Minimizing the Risk of Climate Change in Federal Acquisitions	DOD, GSA, and NASA	Proposed	Neutral to positive	Negative	This rule would require that the social cost of greenhouse gas emissions be taken into account for all government procurement processes, and that federal agencies give preference to proposals with a lower carbon impact. The additional costs of accounting for GHG emissions has a negative near-term effect on AS. If this induces providers of government goods and services to accelerate investments in low-GHG emissions goods and services, the near-term effect on AD could be positive. Otherwise, no substantial near-term AD effect is likely.	Traditional

Modification of Registration Requirement for Petitioners Seeking To File Cap-Subject H-1B Petitions, Implementation of Vacatur	DHS (USCIS)	Final	Neutral	Negative	This rule restores the lottery system to determine the 85,000 H-1B visa recipients each year, rather than a system that gives preference to high-income applicants. The lower average productivity of H-1B visa recipients due to this change is likely to have a negative AS effect.	Traditional
Regulations Governing Take of Migratory Birds; Revocation of Provisions	DOI (FWS)	Final	Neutral	Negative	This rule rescinds a Trump administration rule that limited the prohibition on actions that harm migratory birds, excluding incidental or accidental actions. By including incidental—not just intentional—killing, etc., of migratory birds, the rule’s additional compliance costs and broader scope of application has a negative near-term effect on AS.	Traditional
Security Bars and Processing; Delay of Effective Date (three rules)	DHS (USCIS) and DOJ (EOIR)	Final	Positive	Positive	These rules delayed the effective date of a Trump administration rule that would have banned the granting of asylum or withholding of removal of any individual who passed through a country with a COVID-19 outbreak. Because the delay averted reduction in asylee arrivals, the result of the increase in immigration relative to the baseline is a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
Strengthening Wage Protections for the Temporary and Permanent Employment of Certain Immigrants and Non-Immigrants in the United States, Implementation of Vacatur	DOL (ETA)	Final	Positive	Positive	This withdrew a Trump administration rule that would have significantly raised the minimum wage that employers would have been required to pay foreign workers seeking employment-based visas, substantially reducing immigration. As such, the effect of the increased immigration is a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
Prescription Drug and Health Care Spending	OPM, Treasury (IRS), DOL (EBSA), HHS (CMS)	Final	Neutral	Negative	This rule requires that health insurers report information on prescription drug and health care expenditures to the federal government. This reporting requirement imposes small costs on regulated firms, resulting in a negative near-term AS effect.	Traditional

Tip Regulations Under the Fair Labor Standards Act (FLSA); Partial Withdrawal	DOL (WHD)	Final	Positive	Negative	This rule rescinds parts of a Trump administration rule, effectively making it easier for workers to qualify for the full federal minimum wage rather than the tipped minimum wage. The likely income transfer from employers with a lower marginal propensity to consume to employees with a higher marginal propensity to consume is likely to have a positive near-term AD effect. The increased costs imposed by the rule are likely to have a negative near-term AS effect.	Traditional
Requirements Related to Surprise Billing; Part I & Requirements Related to Surprise Billing; Part II	OPM, Treasury (IRS), DOL (EBSA), HHS (CMS)	Final	Neutral to positive	Negative	This rule protects individuals from receiving surprise bills from out-of-network providers or air ambulance services for emergency medical care, and prohibits out-of-network providers at in-network facilities from issuing surprise bills for non-emergency care, and sets guidelines regarding the cost-sharing amounts for such services. The compliance costs result in a near-term negative AS effect. To the extent that there are transfers from health care providers to beneficiaries, a positive near-term AD effect is possible.	Traditional
Strengthening Transparency in Pivotal Science Underlying Significant Regulatory Actions and Influential Scientific Information; Implementation of Vacatur	EPA (OSAPE)	Final	Neutral	Neutral	This rule vacates a Trump administration rule that required EPA to only consider studies that are based on publicly available data when regulating. As a rule governing internal agency practice, it has (in and of itself) no substantial near-term AD or AS effect.	Government process
Ensuring Access to Equitable, Affordable, Client-Centered, Quality Family Planning Services	HHS (OASH)	Final	Neutral	Neutral	This rule reinstates the ability of clinics that provide abortions or abortion referrals to receive Title X funding. It does not increase total Title X funding, so it has no likely near-term AD effect.	Social
Reinstatement of HUD's Discriminatory Effects Standard	HUD (ASFHEO)	Proposed	Neutral	Neutral	This proposed rule would reverse a Trump administration rule and return to the standard that disparate impact is used to evaluate discrimination in the sale, rental, or financing of dwellings and in other housing-related activities on the basis of race, color, religion, sex, disability, familial status, or national origin. This is not likely to have a near-term AD or AS effect.	Social

Rescinding the Rule on Increasing Consistency and Transparency in Considering Benefits and Costs in the Clean Air Act Rulemaking Process	EPA (OAR)	Final	Neutral	Neutral	This rule rescinds a Trump administration rule that set the criteria that EPA must use to calculate benefits and costs of implementing any new rule under the Clean Air Act, including the incorporation of indirect costs but exclusion of indirect benefits. As a rule governing internal agency practice, it has (in and of itself) no substantial near-term AD or AS effect.	Government process
National Vaccine Injury Compensation Program: Rescission of Revisions to the Vaccine Injury Table	HHS (HRSA)	Final	Neutral	Negative	This rule rescinds a Trump administration rule that would have made it more difficult for people who suffer shoulder injuries or faint after vaccination to get compensated. The increased costs on vaccination providers likely have a negative AS effect.	Traditional
Vacating Matter of L-E-A-, 27 I&N Dec. 581 (A.G. 2019) ("L-E-A- 11"), Matter of A-B-, 27 I&N Dec. 316 (A.G. 2018) ("A-B- I"), and Matter of A-B-, 28 I&N Dec. 199 (A.G. 2021) ("A-B- II")	DOJ (OS)	Final	Positive	Positive	This action vacated rulings by Trump administration Attorneys General Jeff Sessions and William Barr that prohibited foreigners from seeking asylum in the US based on domestic or gang-related violence. This reversal will make more asylum-seekers eligible for asylum, likely increasing immigration to the United States. The effect of the increased immigration is a positive near-term effect on AD (increased consumption) and AS (increased labor supply).	Immigration levels
Protections for Borrowers Affected by the COVID-19 Emergency Under the Real Estate Settlement Procedures Act (RESPA), Regulation X	CFPB	Final	Positive	Negative	This rule establishes temporary procedural safeguards to help ensure that borrowers avoid mortgage foreclosure due to the effects of the COVID-19 pandemic. By limiting foreclosures and imposing compliance costs on mortgage lenders, this rule has a negative near-term effect on AS. By allowing mortgage borrowers to defer foreclosure, it also effectuates a transfer to them (who likely have a higher average marginal propensity to consume) from the lenders (affecting individuals that are likely to have a lower average marginal propensity to consume), likely creating a positive near-term AD effect.	Traditional
National Oil and Hazardous Substances Pollution Contingency Plan; Monitoring Requirements for Use of Dispersants and Other Chemicals	EPA (OEM)	Final	Neutral to positive	Neutral to negative	This rule imposes monitoring requirements of dispersants used in the event of an oil spill. The costs of compliance with the monitoring requirements, in the event of a spill, has a negative effect on AS. Should the rule result in purchases of equipment needed for compliance that would have otherwise not occurred, it would have a positive near-term effect on AD.	Traditional

Thrifty Food Plan, 2021	USDA (FNS)	Final	Positive	Neutral	This action increases average Supplemental Nutrition Assistance Program (SNAP) benefits by \$36.24 per person per month, an increase of more than 25 percent from pre-2021 levels. This additional expenditure on SNAP benefits has a positive near-term effect on AD.	Increasing federal expenditures
Federal Acquisition Regulation: Amendments to the FAR Buy American Act Requirements	DOD, GSA, and NASA	Final	Positive	Negative	This rule strengthens the application of Buy American Act requirements to federal procurement. As such, it is likely to increase costs and have a negative near-term effect on AS. By shifting federal government spending from foreign producers to domestic producers, it is likely to have a positive near-term effect on AD.	Traditional

REFERENCES

- Argote, Linda, and Dennis Epple. 1990. "Learning Curves in Manufacturing." *Science* 920-924.
- Averch, Harvey, and Leland L. Johnson. 1962. "Behavior of the Firm Under Regulatory Constraint." *The American Economic Review* 1052-1069.
- Bachmann, Rüdiger, Tim O. Berg, and Eric R. Sims. 2015. "Inflation Expectations and Readiness to Spend: Cross-Sectional Evidence." *American Economic Journal: Economic Policy* 1-35.
- Ball, Laurence. 2009. "Hysteresis in Unemployment." In *Understanding Inflation and the Implications for Monetary Policy: A Phillips Curve Retrospective*, by Jeff Fuhrer, Yolanda K. Kodzycki, Jane Sneedon Little and Giovanni P. Olivei, 361-382.
- Ball, Laurence. 2014. "Long-Term Damage from the Great Recession in OECD Countries." *European Journal of Economics and Economic Policies: Intervention* 149-160.
- Bernanke, Ben S. 2017. "The Mayekawa Lecture: Some Reflections on Japanese Monetary Policy." *Institute for Monetary and Economic Studies, Bank of Japan* 23-38.
- Biden, Joseph. 2023. "Executive Order 14094." *Federal Register*. April 11.
- . 2021. *Modernizing Regulatory Review*. January 20. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/modernizing-regulatory-review/>.
- Blanchard, Olivier J., and Marianna Riggi. 2013. "Why Are the 2000s So Different from the 1970s? A Structural Interpretation of Changes in the Macroeconomic Effects of Oil Prices." *Journal of the European Economic Association* 1032-1052.
- Blanchard, Olivier. 2018. "Should We Reject the Natural Rate Hypothesis?" *Journal of Economic Perspectives* 97-120.
- Blanchard, Olivier, and Jordi Galí. 2007. "Real Wage Rigidities and the New Keynesian Model." *Journal of Money, Credit and Banking* 35-61.
- Board of Governors of the Federal Reserve System. 2017. *Estimated Dynamic Optimization (EDO) Model*. March 16. <https://www.federalreserve.gov/econres/edo-models-about.htm>.

- Broder, John M. 2011. "Re-election Strategy is Tied to a Shift on Smog." *New York Times*, November 16.
- Brookings Institution. 2023. *Tracking Changes in the Biden Era*. May 5.
<https://www.brookings.edu/articles/tracking-regulatory-changes-in-the-biden-era/>.
- Cabellero, Ricardo J., and Alp Simsek. 2022. "A Note on Temporary Supply Shocks with Aggregate Demand Inertia." *NBER*. July. <https://www.nber.org/papers/w29815>.
- Campbell, Jeffrey R., and Jacob P. Weber. 2021. "Discretion rather than rules: Equilibrium uniqueness and forward guidance with inconsistent optimal plans." *Review of Economic Dynamics* 243-254.
- Chodorow-Reich, Gabriel, Plamen T. Nenov, and Alp Simsek. 2021. "Stock Market Wealth and the Real Economy:." *American Economic Review* 1613-1657.
- Coibion, Olivier, Yuriy Gorodnichenko, Saten Kumar, and Mathieu Pedemonte. 2020. "Inflation expectations as a policy tool?" *Journal of International Economics* 1-27.
- Cúrdia, Vasco, and Michael Woodford. 2010. "Credit Spreads and Monetary Policy." *Journal of Money, Credit and Banking, Supplement 1* 3-35.
- Datta, Deepa D., Benjamin K. Johannsen, Hannah Kwon, and Robert J. Vigfusson. 2021. "Oil, Equities, and the Zero Lower Bound." *American Economics Journal: Macroeconomics* 214-253.
- Delong, J. Bradford, and Lawrence H. Summers. 2012. "Fiscal Policy in a Depressed Economy." *Brookings Papers on Economic Activity* 223-274.
- Dominioni, Goran, and Michael Faure. 2022. "Environmental Policy in Good and Bad Times: The Countercyclical Effects of Carbon Taxes and Cap-and-Trade." *Journal of Environmental Law* 269-286.
- Eggertsson, Gauti B. 2012. "Was the New Deal Contractionary?" *American Economic Review* 524-555.

- Eggertsson, Gauti B. 2011. "What Fiscal Policy Is Effective at Zero Interest Rates?" *NBER Macroeconomics Annual* 59-112.
- Eggertsson, Gauti B., and Sergey K. Egiev. 2019. "Fundamental Driven Liquidity Traps: A Unified Theory of the Great Depression and the Great Recession." *Working Paper*.
- Eggertsson, Gauti B., Neil R. Mehrotra, and Jacob A. Robbins. 2019. "A Model of Secular Stagnation: Theory and Quantitative Evaluation." *American Economic Journal: Macroeconomics* 1-48.
- Eggertsson, Gauti, Ragnar Juelsrud, Lawrence H. Summers, and Ella G. Wold. 2023. "Negative Nominal Interest Rates and the Bank Lending Channel." *Review of Economic Studies*.
- Environmental Protection Agency. 2011. "Regulatory Impact Analysis: Final National Ambient Air Quality Standard for Ozone."
- Federal Open Market Committee. 2022. *Statement on Longer-Run Goals and Monetary Policy Strategy*. January 25.
https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.
- Federal Reserve Bank of New York. 2024. *Measuring the Natural Rate of Interest*. July 7.
Accessed July 7, 2024. <https://www.newyorkfed.org/research/policy/rstar>.
- Federal Reserve Bank of St. Louis. 2022. *Crude Oil Prices: West Texas Intermediate (WTI) – Cushing, Oklahoma*. <https://fred.stlouisfed.org/graph/?g=RwYl>.
- . 2024. *Federal Funds Effective Rate*. July 1. Accessed July 7, 2024.
<https://fred.stlouisfed.org/series/FEDFUNDS>.
- Frankel, Marvin. 1955. "Obsolescence and Technological Change in a Maturing Economy." *American Economic Review* 296-319.
- Fullerton, Don, and Don Heutel. 2010. "The General Equilibrium Incidence of Environmental Mandates." *American Economic Journal: Economic Policy* 64-89.
- Furman, Jason. 2017. "How Lawyers Can Help Macroeconomists in the Wake of Three Major Challenges." *Yale Journal on Regulation* 709-742.

- Gali, Jordi. 2011. "Monetary Policy and Unemployment." In *Handbook of Monetary Economics*, by Benjamin M. Friedman and Michael Woodford, 487-546.
- . 2003. *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and Its Applications*. Princeton: Princeton University Press.
- . 2015. *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and Its Applications*.
- Garin, Julio, Robert Lester, and Eric Sims. 2019. "Are Supply Shocks Contractionary at the ZLB? Evidence from Utilization-Adjusted TFP Data." *The Review of Economics and Statistics* 160-175.
- Gerlter, Mark, and Peter Karadi. 2015. "Monetary Policy Surprises, Credit Costs, and Economic Activity." *American Economic Journal: Macroeconomics* 44-76.
- Giles, Chris, Colby Smith, and Martin Arnold. 2021. *Central banks differ on dispelling nightmare of stagflation*. October 4. <https://www.ft.com/content/35b9b640-8b44-4f4b-b03c-40cd2fff2cfd>.
- Gordon, Robert J. 1973. "The Welfare Cost of Higher Unemployment." *Brookings Papers on Economic Activity* 133-205.
- Gourio, François, and Phuong Ngo. 2020. "Risk Premia at the ZLB: A Macroeconomic Interpretation." *Federal Reserve Bank of Chicago Working Paper*.
- Guerrieri, Veronica, Guido Lorenzoni, Ludwig Straub, and Ivan Werning. 2022. "Macroeconomic Implications of COVID-19; Can Negative Supply Shocks Cause Demand Shortages?" *American Economic Review* 1437-1474.
- Hayashi, Andrew, and Daniel P. Murphy. 2017. "Savings Policy and the Paradox of Thrift." *Yale Journal on Regulation* 743-790.
- Hazell, Jonathan, Juan Herreño, Emi Nakamura, and Jón Steinsson. 2022. "The Slope of the Phillips Curve: Evidence from U.S. States." *The Quarterly Journal of Economics* 1299-1344.

- Hicks, J. R. 1937. "Mr. Keynes and the "Classics"; A Suggested Interpretation." *Econometrica* 147-159.
- Jordà, Òscar, Sanjay R. Singh, and Alan M. Taylor. 2022. "Longer-Run Economic Consequences of Pandemics." *Review of Economics and Statistics* 166-175.
- Känzig, Diego R. 2021. "The Macroeconomic Effects of Oil Supply News: Evidence from OPEC Announcements." *American Economic Review* 1092-1125.
- Kerr, Sari Pekkala, and William R. Kerr. 2011. "Economic Impacts of Immigration: A Survey." *Finnish Economic Papers* 1-32.
- Liscow, Zachary D. 2016. "Counter-Cyclical Bankruptcy Law: An Efficiency Argument for Employment-Preserving Bankruptcy Rules." *Columbia Law Review* 1461-1501.
- Listokin, Yair. 2019. "A Theoretical Framework for Law and Macroeconomics." *American Law and Economics Review* 46-80.
- Listokin, Yair. 2012. "Equity, Efficiency, and Stability: The Importance of Macroeconomics for Evaluating Income Tax Policy." *Yale Journal on Regulation* 45-89.
- Listokin, Yair. 2017. "Law and Macroeconomics: The Law and Economics of Recessions." *Yale Journal on Regulation* 791-856.
- Liu, Shih-fu, Wei-chi Huang, and Ching-chong Lai. 2022. "The Paradox of Toil at the Zero Lower Bound in a TANK Model." *European Economic Review* 1-25.
- Longhi, S., P. Nijkamp, and J. Poot. 2010. "Joint impacts of immigration on wages and employment: review and meta-analysis." *Journal of Geographical Systems* 355–387.
- Marten, Alex, Andrew Schreiber, and Ann Wolverton. 2021. *SAGE Model Documentation (2.0.1)*. Environmental Protection Agency.
- Masur, Jonathan S., and Eric A. Posner. 2012. "Regulation, Unemployment, and Cost-Benefit Analysis." *Virginia Law Review* 579-634.
- Masur, Jonathan S., and Eric A. Posner. 2017. "Should Regulation Be Countercyclical?" *Yale Journal on Regulation* 857-893.

- Mishkin, Frederic S. 2017. *Macroeconomics: Policy and Practice*.
- Miyamoto, Wataru, Thuy Lan Nguyen, and Dmitry Sergeyev. 2022. "Oil Shocks when Interest Rates Are at the Zero Lower Bound." *FRBSF Economic Letter* 1-5.
- Miyamoto, Wataru, Thuy Lan Nguyen, and Dmitriy Sergeyev. 2023. "How Oil Shocks Propagate: Evidence on the Monetary Policy Channel." *NBER Summer Institute 2023 Monetary Economics*. July 13. https://conference.nber.org/conf_papers/fl186352.pdf.
- Mohammad, Adil. 2021. "Employment Effects of Environmental Policies – Evidence from Firm-Level Data." *IMF Working Paper*.
- Nakamura, Emi, and Jón Steinsson. 2018. "High-Frequency Identification of Monetary Non-Neutrality: The Information Effect." *The Quarterly Journal of Economics* 1283-1330.
- Obama, Barack. 2011. *Statement by the President on the Ozone National Ambient Air Quality Standards*. September 2. <https://obamawhitehouse.archives.gov/the-press-office/2011/09/02/statement-president-ozone-national-ambient-air-quality-standards>.
- Office of Management and Budget. 2013. "2012 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities."
- . 2023. "Circular No. A-4." November 9. <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf>.
- Phelps, Edmund S. 1967. "Phillips Curves, Expectations of Inflation and Optimal Unemployment Over Time." *Economica* 254-281.
- Phillips, A. W. 1958. "The Relationship Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957." *Economica* 283-299.
- Rachel, Lukasz, and Lawrence H. Summers. 2019. "On Secular Stagnation in the Industrialized World." *Brookings Papers on Economic Activity* 1-54.
- Revesz, Richard L. 2023. "Request for Comments on Proposed OMB Circular No. A-4, "Regulatory Analysis"." *Federal Register*. April 7.

- Romer, Christina D., and David H. Romer. 2010. "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." *The American Economic Review* 763-801.
- Romer, Christina H., and David H. Romer. 2004. "A New Measure of Monetary Shocks: Derivation and." *American Economic Review* 1055-1084.
- Schneider, Howard, and Ann Saphir. 2022. "Fed Likely to Hike Rates in March as Powell Vows Sustained Inflation Fight." *Reuters*, January 26.
- Staff of the Joint Committee on Taxation. 2018. "Overview of the Joint Committee Macroeconomic Modeling."
- Sunstein, Cass R. 2011. "Administrator, Office of Information and Regulatory Affairs." *Letter to Lisa P. Jackson, Administrator, Environmental Protection Agency*. September 2.
- The Economist. 2011. *Clause and Effect*. October 29. <https://www.economist.com/finance-and-economics/2011/10/29/clause-and-effect>.
- U.S. Department of the Treasury. 2024. *Daily Treasury Par Real Yield Curve Rates*. July. Accessed July 7, 2024. https://home.treasury.gov/resource-center/data-chart-center/interest-rates/TextView?type=daily_treasury_yield_curve&field_tdr_date_value_month=202407.
- Wieland, Johannes F. 2019. "Are Negative Supply Shocks Expansionary at the Zero Lower Bound?" *Journal of Political Economy* 973-1007.
- Woodford, Michael. 2003. *Interest and Prices: Foundations of a Theory of Monetary Policy*.
- Yagan, Danny. 2019. "Employment Hysteresis from the Great Recession." *Journal of Political Economy* 2505-2558.
- Yagihashi, Takeshi. 2020. "DSGE Models Used by Policymakers: A Survey." *Policy Research Institute, Ministry of Finance, Japan, PRI Discussion Paper Series*.