
THE 2023 REPORT
OF THE
JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES
ON THE
2023 ECONOMIC REPORT
OF THE PRESIDENT

REPUBLICAN RESPONSE

JUNE 27, 2023

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Joint Economic Committee Republicans

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Views of Vice Chairman David Schweikert

The Employment Act of 1946 declares:

It is the continuing policy and responsibility of the Federal Government [...] to promote maximum employment and production, increased real income, balanced growth, a balanced Federal budget, adequate productivity growth, proper attention to national priorities, achievement of an improved trade balance [...] and reasonable price stability.¹

The Employment Act underscores the goal of affording “useful employment opportunities, including self-employment, for those able, willing, and seeking work.”² Emphasizing the role of “free competitive enterprise” instead of “Federal Government control” over the economy, it places a “primary emphasis on the expansion of private employment.”³ It encourages reducing Federal outlays as a share of GDP (gross domestic product) to “the lowest level consistent with national needs and priorities.”⁴ The Employment Act further declares “that inflation is a major national problem requiring improved government policies” addressing “improved and coordinated fiscal and monetary management, the reform of outmoded rules and regulations, [and] the correction of structural defects in the economy that prevent or seriously impede competition in private markets.”⁵

Today we are losing ground on fulfilling these essential responsibilities. The labor force participation rate for prime-age men (those ages 25–54) has declined since the 1960s and stands near its all-time low. Real GDP growth and productivity growth have dramatically slowed since the 1980s. As a share of GDP, Federal debt held by the public is projected to reach 115 percent by FY2033—breaking the record set due to World War II

spending.⁶ The Social Security and Medicare Part A trust funds are projected to become insolvent in FY2033, entailing automatic and severe benefit cuts that could double the rate of senior poverty throughout the U.S.⁷ The trade balance has badly deteriorated. Inflation has soared to a four-decade high while wage growth has not kept up. The purchasing power of a dollar has fallen by almost 16 percent since January 2021. Under the Biden Administration, America's families, especially the poorest, are falling further and further behind.

These macroeconomic failures underscore the important role of the U.S. Congress Joint Economic Committee. Established by the Employment Act, the purpose of the Committee is to provide expert advice to Congress on economic policymaking. For example, the Joint Economic Committee provided the intellectual leadership behind the bipartisan fiscal reforms that helped squash inflation during the Reagan Administration.⁸ As a result, the U.S. saw three decades of low inflation and greater economic stability.⁹

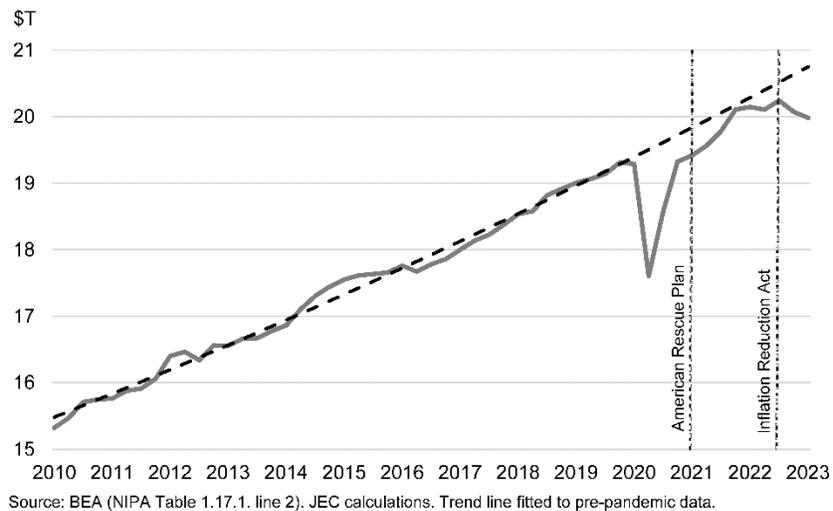
The Joint Economic Committee has a statutory obligation to report "its findings and recommendations with respect to each of the main recommendations" in the 2023 *Economic Report of the President* (henceforth the *Report*).¹⁰ Unfortunately, the Biden Administration has proposed doubling down on the failed policies of the past. The Administration's proposals to expand the scope of government would further worsen economic growth, further diminish the participation of prime-age men, and further curtail market competition and technological innovation.

The Republican section of the 2023 *Joint Economic Report* (henceforth the *Response*) delivers its findings and recommendations in five chapters.

Chapter 1 ("The Fiscal Roots of Inflation") explains the nation's unsustainable fiscal path and its inflationary consequences. The

re-emergence of high and volatile inflation during 2021 and 2022 is best explained by the large, unbacked fiscal expansion undertaken by the Biden Administration, such as the ironically titled “Inflation Reduction Act.” The chapter further argues that inflation is not explained by a sudden outburst of “corporate greed.” This rhetorical excuse chasing to justify preferred policies only serves to increase political partisanship—it does nothing to address our economic problems.

Figure 0-1: Bidenomics Has Stalled Our Recovery.
U.S. Real Gross Domestic Income Is Still \$773 Billion Below Trend.



Chapter 2 (“A Framework for U.S. Debt Stabilization”) highlights the ballooning U.S. debt-to-GDP ratio, which is set to rise to 115 percent by FY2033 and 181 percent by FY2053. It explains the importance of fiscal responsibility for creating long-run price stability in a fiat money economy. This chapter offers a framework for stabilizing the Federal debt by reducing the primary deficit as a share of GDP, increasing real GDP growth, and reducing Federal borrowing costs. It concludes by exploring proposals for improving U.S. budgeting and debt management.

Chapter 3 (“The Social Costs of Obesity”) measures some of the personal and economic costs of obesity. As I have long argued, demographics and disease are primary drivers of our debt. This chapter details how obesity and obesity-related diseases will contribute \$5.6 trillion to the primary deficit over the next decade.

Chapter 4 (“How (Not) to Increase Economic Growth”) estimates the macroeconomic effects of the Biden Administration’s proposals to increase taxes by \$4.7 trillion over the next 10 years. Contrary to their analysis, these proposals would severely inhibit long-run U.S. real GDP growth. This chapter also rebuts the notion that hiking taxes is about “fairness,” contrary to the impression given by the *Report*. The Federal government is predominantly financed by taxes paid by households in the top income quintile.

Chapter 5 (“Getting Prime-Age Men Back to Work”) evaluates the long-term decline in prime-age men’s labor force participation and highlights several contributing government-created barriers. It surveys potential reforms for increasing their participation and estimates the value of doing so could expand annual GDP by \$215 billion, grow government revenue by \$400 billion over the next 10 years, and increase average household income by \$1,325 per year.

We have reached the point where we can no longer play politics with our nation’s fiscal health. It is time to come together, as well as to be open and honest about our nation’s fiscal challenges. That is our moral obligation to the communities we serve.

Chapter 1: The Fiscal Roots of Inflation

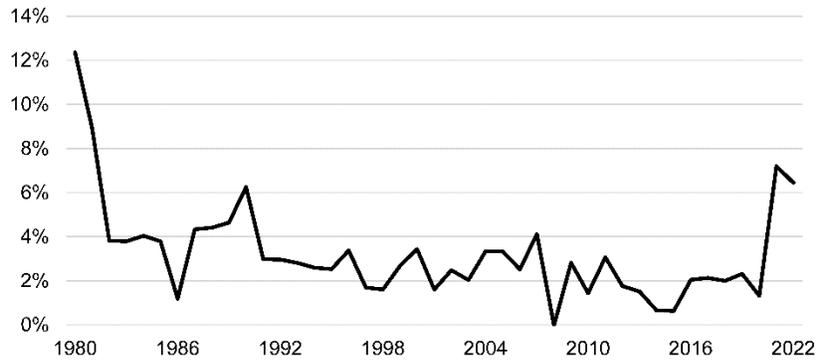
The Biden Administration has failed in its responsibility under the Employment Act to “promote [...] price stability.”¹¹ Worse, prices have risen faster than wages, leaving workers behind. The burden of inflation likely has disproportionately fallen on lower-income Americans. This chapter provides analysis showing that the recent surge of inflation was caused by the Administration’s reckless fiscal policy, not a sudden outbreak of so-called “corporate greed.”¹² Over the long-run, restoring price stability will require Congress to restore fiscal responsibility.

In 2022, Inflation Surged to a Four-Decade High

Inflation spiked during the first two years of the Biden Administration. The CPI-U (Consumer Price Index for All Urban Consumers: All Items) rose by 7.0 percent in 2021, the highest rate in four decades. It increased by another 6.5 percent in 2022 (Figure 1-1).¹³ This rate of inflation is more than triple the Federal Reserve’s 2 percent annual target.¹⁴ In total, the national average of consumer prices rose by 14 percent during 2021 and 2022.¹⁵ Price increases in some metropolitan regions were substantially higher, such as Phoenix (20.3 percent), Miami and Tampa (19.3 percent), and Atlanta (18.6 percent).¹⁶

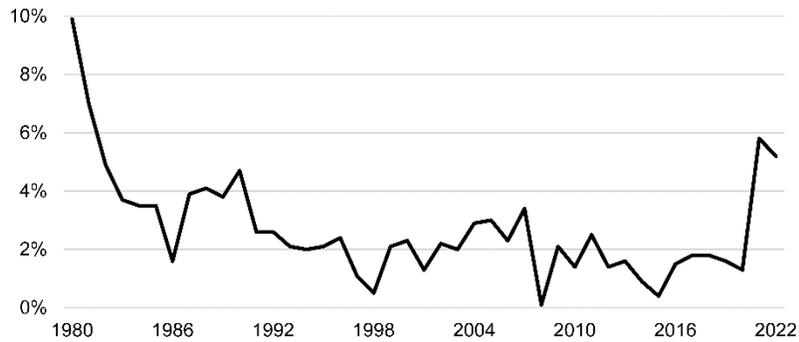
Contrary to the assessment of President Biden’s CEA (Council of Economic Advisers) in 2021, inflation has not been “transitory.”¹⁷ The prices of necessities have grown particularly fast. Over President Biden’s first two years, home food prices rose by 19 percent, home energy prices rose by 39 percent, shelter prices (such as rents) rose by 12 percent, clothing prices rose by 9 percent, new vehicle prices rose by 18 percent, and gas prices rose by 47 percent.¹⁸

Figure 1-1: Percent Change in the Consumer Price Index (CPI-U), All Items, December to December



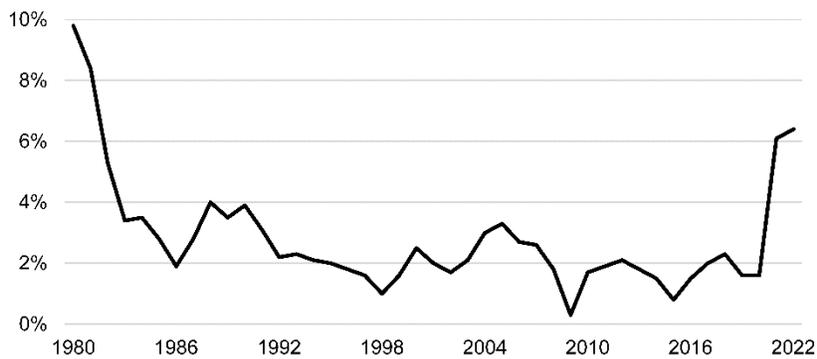
Source: BLS (series ID: CUSR0000SA0)

Figure 1-2: Percent Change in the Personal Consumption Expenditures (PCE) Price Index, December to December



Source: BEA (NIPA Table 2.8.7. line 1)

Figure 1-3: Percent Change in the Gross Domestic Product (GDP) Price Index, Q4 to Q4



Source: BEA (NIPA Table 1.1.4. line 1)

There has been a decades-long debate about whether (or to what degree) the CPI-U overstates inflation.¹⁹ Regardless, alternative measures of inflation also show that U.S. inflation reached a four-decade high during the first two years of the Biden Administration.

- The chained CPI-U for all urban consumers (C-CPI-U) is an improved version of the CPI that better accounts for changes in consumption patterns in response to changing prices.²⁰ C-CPI-U rose by 6.5 percent in 2021 and 6.6 percent in 2022.²¹
- The percent change in the PCE (personal consumption expenditures) price index is the Federal Reserve System's preferred inflation gauge.²² The PCE price index suggests that inflation reached 4.0 percent and 6.3 percent in 2021 and 2022, respectively (Figure 1-2).²³
- The percent change in the GDP (gross domestic product) price index measures inflation across the entire U.S. economy, including the price of investment goods.²⁴ GDP inflation was 4.5 percent and 6.0 percent in 2021 and 2022, respectively (Figure 1-3).²⁵

Inflation has remained stubbornly high in H1 2023. Moreover, although the inflation rate has slowed from its four-decade high, consumer goods and services generally remain much more expensive than before. As of June 2023, consumer prices are 15.7 percent higher than when President Biden took office in January 2021.²⁶ In other words, contrary to the president's initial claim, these price increases have not turned out to be "temporary."²⁷

Inflation Is a Greater Burden for the Poorest Households

Economic inequality may compound the harm of high inflation.²⁸ The CEA notes that lower-wage workers (such as service workers) have seen higher rates of earnings growth than average.²⁹ Nevertheless, research has shown that lower-income households also tend to experience above-average inflation. For example,

Greg Kaplan and Sam Schulhofer-Wohl estimate that between Q3 2004 and Q3 2013, “average inflation cumulates to 33 percent for households with incomes below \$20,000 but just 25 percent for households with incomes above \$100,000.”³⁰

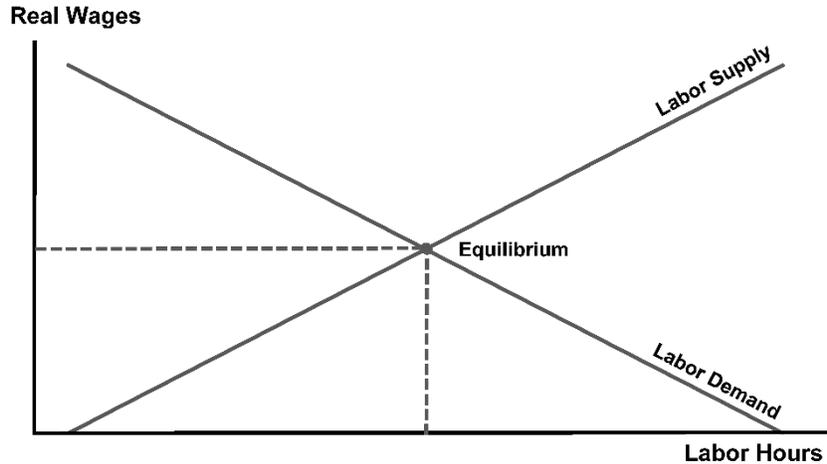
Inflation may disproportionately burden lower-income workers because they tend to consume a higher proportion of their incomes.³¹ Shutao Cao et al. estimate that a 3 percent increase in inflation reduces well-being by 13 percent of one-year consumption and that this is “mostly borne by the poor and old” who “hold 10 times more money per unit of consumption than their young and rich counterparts.”³²

Average Wages Have Not Kept Up With Rising Prices

Americans’ wages have not kept up with rising consumer prices. After adjusting for CPI-U inflation, the BLS (Bureau of Labor Statistics) reports that AHE (average hourly earnings) fell by 2.0 percent and 1.6 percent in 2021 and 2022, respectively.³³ Since President Biden took office, real AHE have fallen by about 3.2 percent.³⁴ These real wage declines are consistent with a long economic literature emphasizing wage stickiness due to employment contracts and labor search frictions.³⁵ As both Milton Friedman and Edmund Phelps hypothesized, nominal wages have been slow to adapt to unexpected inflation.³⁶ In this way, the worker shortage described by the *Report* can be understood as a consequence of inflation, not its cause (see Figures 1-4 and 1-5).

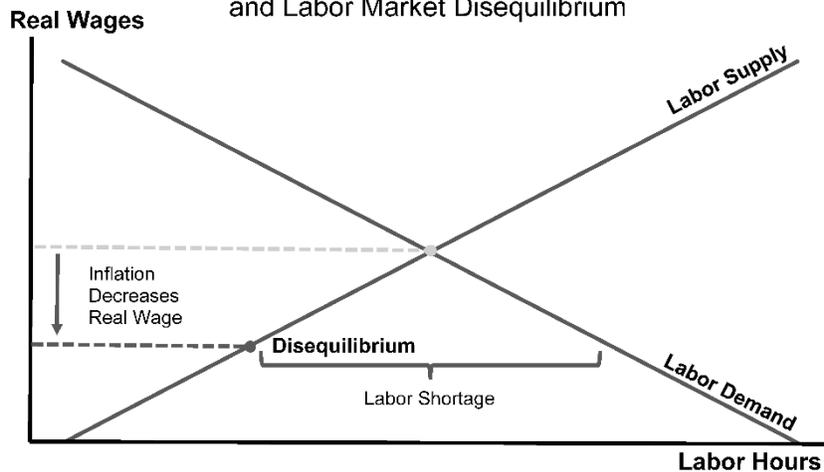
While the *Report* notes nominal AHE rose faster for lower-wage workers, households facing higher inflation rates require greater nominal wage growth just to keep up.³⁷ For example, the inflation-adjusted AHE for production and nonsupervisory employees fell by 1.5 percent and 0.8 percent in 2021 and 2022, respectively.³⁸ Differences in household-level inflation can exacerbate economic inequality. For example, Philip Hoffman et al. document that

Figure 1-4: Labor Market Equilibrium



The **labor demand curve** shows the quantity of labor that firms would hire at each level of wages. Profit maximizing firms hire labor to the point that the wage equals the marginal product of labor. The **labor supply curve** shows the quantity of labor that workers would offer at each level of wages. The **equilibrium point** is the intersection of the labor supply and labor demand curves. It is the level of wages and labor supplied and demanded satisfactory to both workers and firms, clearing the market.

Figure 1-5: Unexpected Inflation and Labor Market Disequilibrium



The unexpected increase in consumer prices reduces the prevailing real (i.e., inflation adjusted) wage below its market-clearing level. At this disequilibrium outcome, labor demanded is greater than labor supplied. This labor shortage persists until wages rise enough to return the real wage to the equilibrium.

rising food and fuel prices drove up inequality in Europe from 1500 to 1815.³⁹ They document that globalization between 1815 and 1914 helped reverse this trend by lowering the price of grain.

As the *Report* correctly notes, AHE growth can also reflect changes to the composition of the labor force, not just individual wage growth.⁴⁰ Lower-wage service workers suffered disproportionate job losses in 2020 because of the COVID-19 pandemic and government restrictions on in-person economic activity.⁴¹ Because AHE is not adjusted for industry composition, the re-entry of these workers may downwardly bias measured AHE growth.

The *Report* instead suggests using the ECI (Employment Cost Index), which is composition adjusted.⁴² Using the ECI, real total compensation fell by 2.6 percent and 1.4 percent in 2021 and 2022, respectively.⁴³ Average real earnings began recovering in H2 2022, but even returning to pre-2021 real earnings will not undo the real income losses suffered for the past two and a half years.⁴⁴

Accounting Alone Is Insufficient to Understand Inflation

As Americans have again felt the pain of high inflation, the cause of that inflation has become the topic of public debate. Many commentators have attempted to explain the factors driving inflation by breaking down the “contributions” to overall inflation from various sub-categories. The different metrics of inflation presented earlier (CPI-U, PCE, and GDP) can be broken down into growth of different subcategories. For example:

- food prices, energy prices, shelter prices, and other prices;⁴⁵
- business profits, labor costs, taxes, and import prices;⁴⁶ or
- the money supply, money velocity, and real GDP.⁴⁷

However, these are accounting identities, meaning that the terms are defined such that the relationships are always true.

Commentators have then tried to infer the causes of inflation from events correlated with price increases in these sub-categories.

- Seeing a large rise in energy prices, some have argued that the cause of inflation was the Russo-Ukrainian War.
- Seeing a large rise in import prices, some have argued that the cause of inflation was pandemic-era supply chain stress.
- Seeing a large rise in the money supply, some have argued that the cause of inflation was overly easy monetary policy.
- Seeing a large rise in corporate profits, some have argued that the cause of inflation was firms raising prices above costs.

However, as the *Report* acknowledges, economists cannot infer causal relationships from accounting identities alone.⁴⁸ Among many other economists, Richard Lipsey stressed this distinction in his critique of Keynesian economics.⁴⁹ Indeed, this distinction is a special case of Kant's analytic-synthetic distinction.⁵⁰ In the case of inflation, economists cannot determine the cause of inflation by tautologically decomposing inflation into "contributions" from suggestively named categories.

Rather, accounting identities are only the starting point for economic analysis. As Friedman emphasized, understanding causality also requires making behavioral assumptions and distinguishing between competing assumptions based on their predictive ability and parsimony.⁵¹ In other words, analysis of causality requires applying economic theory. Economists also need to distinguish between changes in relative prices and changes in the overall price level. Understanding the cause of inflation, in other words, requires an explanation of *why prices tend to rise together*, not why one price rose relative to others.

While the *Report* reviews many hypotheses for inflation, it does not defend any specific hypothesis. Instead, it sidesteps the need

for more rigorous analysis by proposing an ecumenical acceptance of all proposed explanations.⁵²

The possible causes discussed here likely played some role in the level and elevated nature of inflation in 2022—and the pandemic was a large exacerbating cause to each. Interactions between causes likely worsened inflation. Frequently cited hypotheses include the shock to energy, food, and other commodity prices associated with Russia’s invasion of Ukraine; pandemic-related supply chain issues; the extension of zero interest rate monetary policy and accompanying quantitative easing; household transfers legislated as part of the CARES Act, the American Rescue Plan, and related legislation; and households’ accumulative of “excess savings.”⁵³

The problem with this approach is that any observation can be rationalized by assuming enough *ad hoc* causes. Over 2,000 years ago, Aristotle explained the principle of parsimony: “[w]e may assume the superiority *ceteris paribus* of the demonstration which derives from fewer postulates or hypotheses.”⁵⁴ In other words, progress can often be made by using simpler assumptions to engage complex puzzles.⁵⁵ In a survey of Nobel laureates in economic science, almost all respondents said that simplicity was an explanatory virtue and emphasized the role of simplicity in their own research.⁵⁶

Fiscal Theory Explains Recent U.S. Inflation

Of the competing explanations, the fiscal theory of the price level provides a predictive and parsimonious explanation for the dramatic surge of inflation during 2021 and 2022. Specifically, in a fiat money economy inflation occurs when government debt

rises relative to people's expectations about future surpluses to repay the debt. Boiled down, fiscal theory is the hypothesis that "persistent high inflation is always and everywhere a fiscal phenomenon," albeit often one with a central bank accomplice.⁵⁷

Using a simple model for illustration, JEC economists estimate that President Biden's deficit spending caused a 17.1 percent cumulative inflation, compared with the observed CPI inflation of 15.7 percent from January 2021 to June 2023 (see Box 1-1).⁵⁸ The model's key assumption is that the public does not expect the "emergency" spending undertaken during the Biden Administration (e.g., the American Rescue Plan, the Inflation Reduction Act, and Infrastructure Investment and Jobs Act) to be repaid via future primary surpluses.

Many fiat-money-issuing countries have resorted to inflationary finance in emergencies. For example, Francesco Bianchi and Leonardo Melosi cite President Roosevelt's use of two budgets during the Depression: a "regular budget" that he committed to balance, and an "emergency budget" that he did not clearly commit to balance.⁵⁹ Bianchi and Melosi propose an analogous strategy for preventing a pernicious deflationary spiral when the Federal Reserve's monetary policy stimulus is constrained by the zero lower bound on overnight interest rates.

Yet, the economy was not at risk of deflation when President Biden took office. The recession had long ended, and the U.S. economy was rapidly recovering.⁶⁰ As Veronique de Rugy notes, the Biden Administration's fiscal stimulus was two or three times more than the output gap.⁶¹ Even top economists from prior Democratic administrations sounded the alarm about fiscal stimulus (see Box 1-2). Sophisticated models also point to the role of fiscal policy in driving U.S. inflation. Oscar Jorda et al. estimate that fiscal policy may have raised U.S. inflation in 2021 by about 3.5 percentage points.⁶² Using a general equilibrium model,

Bianchi, Renato Faccini, and Melosi “conclude that unfunded spending has played an important role for accounting for inflation dynamics, both historically and in the post-pandemic period.”⁶³

Box 1-1: Applying a Simple Model of Fiscal Theory

Consider a one-period model with perfectly flexible prices, constant interest rates, short-term government debt, and no risk premia.⁶⁴ The public owns B dollars of outstanding one-period, zero-coupon government bonds, which the government pays by printing new money. The government also taxes the public the quantity Ps , where P is the price level (dollars needed to buy a basket of goods) and s is the amount of real tax payments (quantity of baskets of goods that are taxed). In equilibrium, the price level adjusts so that the total amount of tax revenue equals the total amount of bond payments. Re-arranging terms, the equilibrium price level is given by:

$$P = \frac{B}{s}$$

As a comparative statics exercise, instead consider the equilibrium price level P^* given B^* of outstanding bonds, all else equal. The predicted inflation (percentage increase in the price level) equals the percent increase in the outstanding bonds.

$$100 \left(\frac{P^*}{P} - 1 \right) = 100 \left(\frac{B^*s}{Bs} - 1 \right) = 100 \left(\frac{B^*}{B} - 1 \right)$$

Between January 2021 and May 2023, CBO’s projection for Federal debt held by the public in FY2030 rose by 17.1 percent. Gross Federal debt rose by a similar percentage. This simple fiscal theory model predicts that (assuming no change in the expected path of primary surpluses) the Biden Administration’s deficit spending would create a 17.1 percent cumulative inflation.

Although titled as the Inflation Reduction Act, Democrats' green energy and healthcare subsidies will expand the deficit and further fuel inflation. The Penn Wharton budget model projects the package adds \$750 billion to the deficit over 10 years.⁶⁵

Box 1-2: Left-Leaning Economists Warned About Inflation

Larry Summers (previously Treasury Secretary for the Clinton Administration and Director of the National Economic Council for the Obama Administration) warned in 2021 that the \$1.9 trillion ARP (American Rescue Plan) was “the least responsible macroeconomic policy we’ve had in the last 40 years.”⁶⁶ In 2022, Summers described the ARP as “a serious error” that “set the stage for the inflation.”⁶⁷

Janet Yellen (current Treasury Secretary, previously appointed Chairwoman of the Federal Reserve by President Obama and served as CEA Chairwoman for President Clinton) privately “worried about accumulating too much federal debt and risking higher inflation” and preferred a much smaller ARP package.⁶⁸

Both Jason Furman (previously Chairman of the CEA for President Obama) and Steven Rattner (economic adviser to the Obama Administration) described the oversized ARP as the “original sin” of surging inflation.⁶⁹

Fiscal Theory Makes Sense of Alternative Explanations

The ability for a simple fiscal theory model to predict U.S. inflation (at least within reasonable magnitudes) undercuts the motivation to introduce other *ad hoc* causes. Rather, insofar as these other factors matter quantitatively, they matter *vis-à-vis* their impact on government debt and expected future surpluses.

For example, consider the Federal Reserve’s LSAPs (large-scale asset purchases, also known as quantitative easing, or QE) during the pandemic. LSAPs are financed by expansions of the money

base, such as reserves and physical currency. Drawing on the quantity theory of money, Joshua Hendrickson and others have hypothesized that the recent spike in inflation was caused by large increases in the money supply.⁷⁰

However, quantity theory incorrectly predicted double-digit inflation during the Federal Reserve's initial LSAP programs in the 2010s following the Great Recession.⁷¹ The failure of quantity theory in this episode may owe to a breakdown of a stable money demand function in an economy with interest paying money and liquid government bonds. In such an economy, the public views money and bonds as perfect substitutes, and any increase to the money stock is offset by a decrease in money velocity.⁷² The public may have interpreted the Federal Reserve's asset purchases during the pandemic as a fiscal commitment to not raise primary surpluses (i.e., permanently increasing the stock of U.S. debt).

Similarly, public deficits mechanically create private surpluses.⁷³ Under Ricardian equivalence, the resulting "excess savings" will not be spent if the public anticipates that they will be taxed this amount in the future.⁷⁴ However, absent a credible commitment of future surpluses, these "excess savings" will be spent, driving up aggregate demand and raising the price level.⁷⁵

Moreover, "transitory" supply-side shocks (e.g., Russia's invasion of Ukraine and resulting disruptions to global trade) can result in permanent increases in the price level (not just temporary changes to relative prices) insofar as those shocks temporarily lower economic activity, and the correspondingly higher government deficits are not offset by increases to future primary surpluses. JEC economists anticipate exploring these relationships in future work.

"Corporate Greed" Ignores Basic Economics

President Biden and others have attempted to shift the blame for inflation away from their fiscal policy to so-called "corporate

greed.”⁷⁶ The *Report* suggests that inflation could have been exacerbated by firms exercising “market power” to increase their prices more than their increase in costs. Citing research from the Federal Reserve Bank of Boston, the *Report* argues, “More U.S. industries have become dominated by a few, large firms over the last 20 years. There is some evidence that these firms increase prices in response to cost increases more than firms without market power would have done in the past.”⁷⁷

However, the corporate-greed hypothesis is particularly ill-suited for explaining the surge of inflation. To begin, consider the Bertrand model, the standard model of imperfect competition among price-setting firms. For illustration, assume that each firm produces homogenous products at constant marginal costs and faces a downward sloping market demand curve (Figure 1-6).⁷⁸

All firms attempt to maximize profit by selling their product for a price above their marginal cost. Each firm’s profit is the number

Figure 1-6: Bertrand Competition

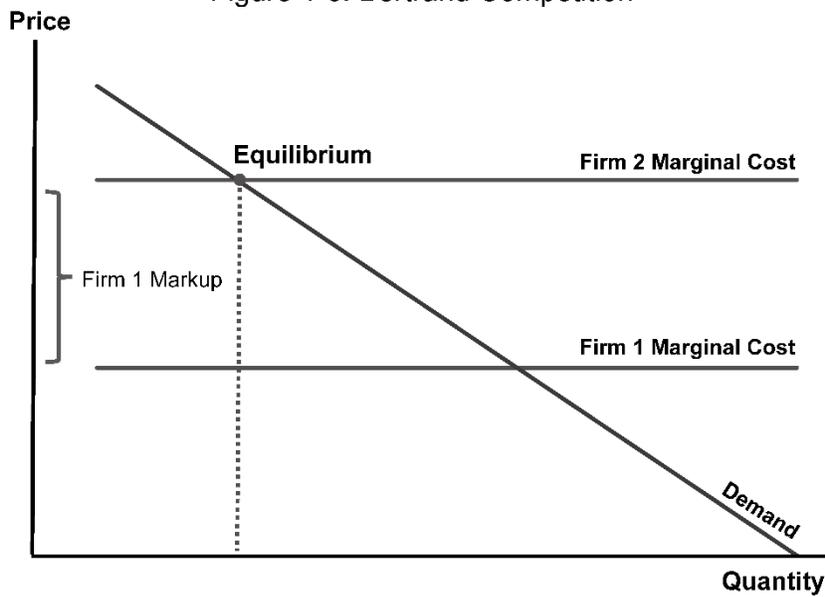
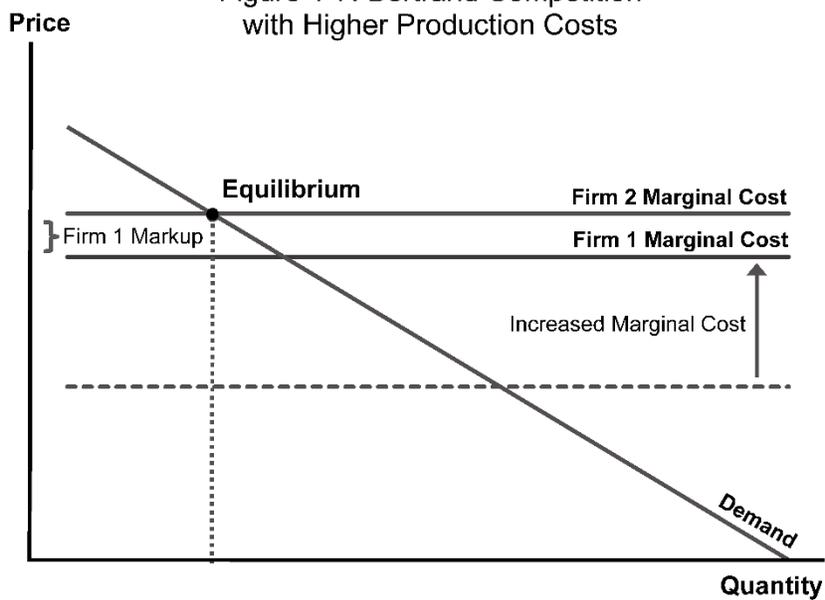


Figure 1-7: Bertrand Competition with Higher Production Costs



of units sold times its markup (i.e., difference between its sale price and its own marginal cost). Consumers will purchase from the lowest-price firm.⁷⁹ The unique Nash equilibrium of this game suggests that the least-cost firm will be able to sell its products for a price equal to the marginal cost of the next-best competitor, thereby earning positive profits and serving the entire market.

Importantly, the potential for competition from other firms imposes market discipline on the incumbent, even though the firm serves the entire market demand. For example, this price-setting firm cannot arbitrarily raise its prices without harming its own profits—even a marginal increase in price would reduce its profits to zero. In this way, the competition driven by “corporate greed” (i.e., firms attempting to maximize profits) prevents the very abuse that the Biden Administration and others blame for inflation.

Moreover, even small amounts of competition are sufficient to approximate the perfectly competitive benchmark. In the Bertrand model, if the difference in marginal costs of production between firms is sufficiently small, then prices can be arbitrarily close to their perfectly competitive level (see Figure 1-7). Insofar as the incumbent firm’s cost advantage comes from non-excludable resources (e.g., employing a workforce with better human capital) competition over those factors will compress firm markups.

This means that a firm also has an incentive to create excludable technology through R&D (research and development) to reduce its marginal cost.⁸⁰ Doing so will raise its profits without raising the price that consumers pay. Conversely, all else equal, even an increase in the marginal cost of the lowest-cost firm will not increase prices. The firm-specific increase in marginal cost will reduce the firm’s profits until the point that it is no longer the

lowest-cost firm. At that point, the next-best competitor will service all consumers at only a marginally higher price.

In practice, market competition will never be “perfect” in the sense of the perfectly competitive benchmark.⁸¹ Neither does this market “imperfection” imply the superiority of Federal control over private competitive enterprise. Rather, Congress should be skeptical of the Biden Administration’s appeals to “competition” to justify greater regulation of specific markets.⁸² Greater government control is often the means by which politically-favored firms exclude competitors at the expense of the American people—exactly what the regulations are ostensibly intended to avoid.⁸³ F. A. Hayek summarizes the fundamental question about competition policy as being “that we should worry much less about whether competition in a given case is perfect and worry much more about whether there is competition at all.”⁸⁴

Market Concentration Is Not Market Power

The Bertrand model underscores one of the serious methodological problems of the Federal Reserve Bank of Boston paper.⁸⁵ Fundamentally, the paper attempts to estimate the relationship between market concentration (as a proxy for market power) and the pass-through of input costs into output prices (see Box 1-3 for a discussion of the contribution of price markups to inflation). However, economists widely recognize that “market concentration” is not informative about market power.⁸⁶

Perhaps the deepest conceptual problem with concentration as a measure of market power is that it is an outcome, not an immutable core determinant of how competitive an industry or market is [...] As a result, concentration is worse than just a noisy barometer of market power.

Instead, we cannot even generally know which way the barometer is oriented.⁸⁷

For this reason, the industrial organization literature has long abandoned using regressions of price on market concentration.⁸⁸

As an illustration, consider a Bertrand model with the lowest-cost firm having a marginal cost only just below the marginal cost of the second-lowest cost firm (like Figure 1-6). In equilibrium, the industry's Herfindahl-Hirschman Index would be 1 (indicating maximum concentration) but potential competition would reduce markups to nearly zero (the perfectly competitive benchmark).⁸⁹

There are also several important data issues with the Federal Reserve Bank of Boston paper. Notably, the authors use data from Compustat. However, one study explains that:

Industry concentration measures calculated using Compustat data, which only cover the public firms in an industry, are poor proxies for actual industry concentration. These measures have correlations of only 13 percent with the corresponding U.S. Census measures, which are based on all public and private firms in an industry.⁹⁰

Subsequent research supports this conclusion.⁹¹ The Federal Reserve Bank of Boston authors also drop many industries from their analysis, including all retail sectors.⁹² In other words, their measure of prices excludes one of the most important sectors for American households.

Box 1-3: Be Skeptical of Estimates of Markup Shocks

Within the NK (New Keynesian) literature, it is common to attempt to explain inflation via exogenous, time-varying “price markup shocks” by monopolistically competitive firms in the intermediate goods sector.⁹³ These theorized shocks serve two key

purposes: providing an additional degree of freedom for fitting the historical data and imposing on the log-linearized model a tradeoff between stabilizing inflation and the output gap.⁹⁴

To analyze the relative contribution of different causes of inflation, Jai Kedia, re-estimated the model of Frank Smets and Rafael Wouters with recent U.S. macroeconomic data.⁹⁵ (The SW2007 model is a standard workhorse in the NK literature). Like the accounting exercises discussed previously, this model can decompose overall inflation into the constituent contributions from different economic sectors. Unlike the accounting exercises, however, the model incorporates economic assumptions that purport to identify the causal roles of the various contributions.

Kedia's shock decomposition suggests that both price markups and monetary policy were economically significant causes of surging PCE inflation in 2021 and 2022. Conversely, his analysis purports to show that fiscal policy reduced inflation in this period.

However, the markup shocks in the SW2007 model do not correspond to "markups" in the industrial organization literature. Rather, the "markup shocks" in SW2007 are merely the residual of the model's Phillips curve. The size of SW2007's estimated "markup shocks" suggest that the Phillips curve is unable to rationalize the recent surge in inflation following decades of muted inflation since the mid-1980s.

Finally, the SW2007 model has many *ad hoc* features (e.g., investment adjustment costs, habit persistence, and autocorrelated errors) that make its results vulnerable to the Lucas critique under a policy regime change.⁹⁶ Notably, the model is super-Ricardian, essentially assuming away the possibility of a permanently unbacked fiscal expansion. As a result, it assumes away the possibility of the U.S. returning to the fiscally led policy regime of the 1960s.⁹⁷ It is this precisely possibility that one wants to test.

To be clear: This discussion is not a criticism of Kedia. He sensibly applied a workhorse model to provide policymakers insight on an important and time-sensitive policy problem. This approach is a better than inventing a new, untested model.⁹⁸ His result also underscores the importance of understanding and questioning the assumptions underlying macroeconomic models. It also suggests caution when interpreting the results of large-scale macroeconomic models, especially those whose causal inferences are not robust to misspecification or changes in policy regimes.

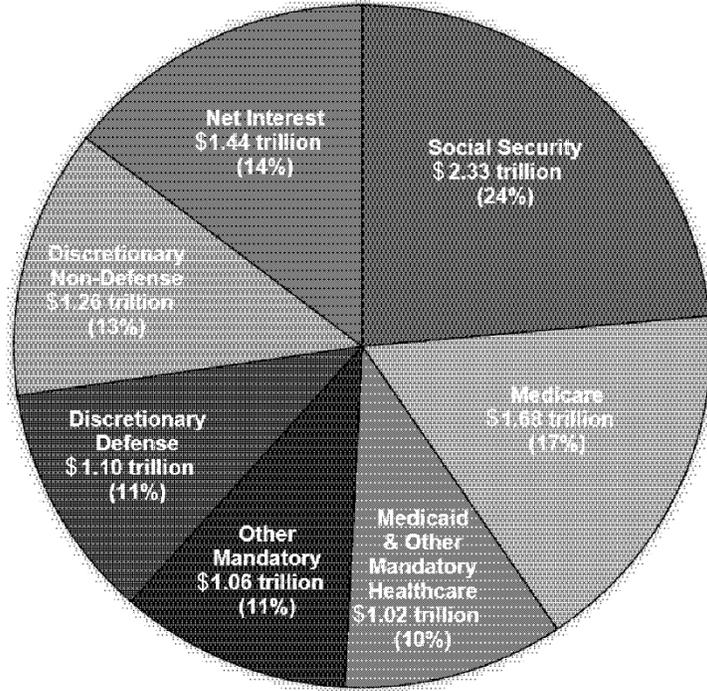
CHAPTER 2: A FRAMEWORK FOR U.S. DEBT STABILIZATION

The growth of U.S. Federal debt is on an unsustainable and potentially ruinous path. The par value of Federal debt held by the public reached \$24 trillion in FY2022, which is a greater than sevenfold increase since 2001.⁹⁹ The debt burden is nearly 100 percent of GDP (gross domestic product).¹⁰⁰ The dollar lost over 70 percent of its consumer purchasing power since 2001, and inflation recently hit a four-decade high.¹⁰¹ Unless Congress changes course, the publicly-held debt-to-GDP ratio will continue to dramatically rise, risking even greater reductions in the dollar's value. To avert the looming risk of high inflation, Congress should stabilize the publicly-held debt-to-GDP ratio. This can be done by (1) reducing the primary deficit as a percent of GDP, (2) increasing the growth rate of real GDP, and (3) reducing the real interest rate paid on Federal debt.

The U.S. Fiscal Outlook is Dire

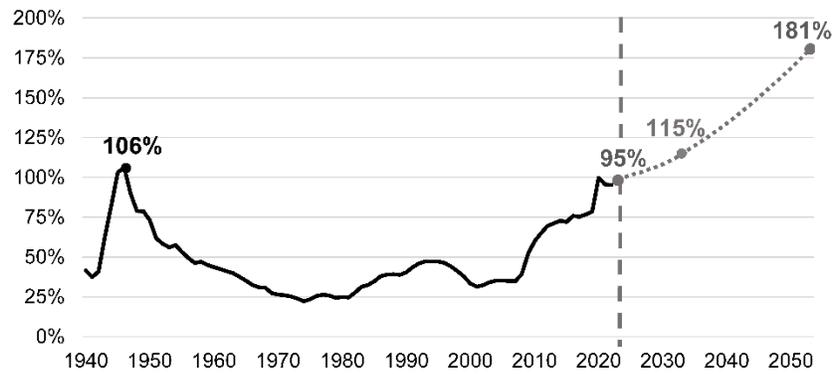
The CBO (Congressional Budget Office) projects that the Federal budget deficit will exceed \$1.5 trillion in FY2023.¹⁰² It will be the third largest in U.S. history, exceeding the \$1.4 trillion deficit in FY2009 after the financial crisis.¹⁰³ CBO projects that the deficit will only worsen over the coming decades, rising above its FY2020 all-time high (\$3.1 trillion) by FY2037.¹⁰⁴ Unless Congress changes course, a typical year's deficit will soon be greater than when substantial portions of the economy were shut down during the COVID-19 pandemic.¹⁰⁵ CBO projects that the main driver of deficit increase will be “increasing net interest costs and the growth of spending on major healthcare programs and Social Security.”¹⁰⁶ (See Figure 2-1 for projected spending.)

Figure 2-1: FY2033 Projected Outlays, Excluding the Effects of Offsetting Receipts



Source: CBO (May 2023 Update to the Budget Outlook).

Figure 2-2: Federal Debt Held by the Public as a Percent of GDP



Source: OMB (FY2024 President's Budget Table 7.1), CBO (June 2023 Long-Term Budget Outlook).

As a result of rising deficits, CBO projects that publicly held U.S. Federal debt will rapidly increase. CBO projects that Federal debt held by the public will grow to 115 percent of GDP by FY2033 (see Figure 2-2).¹⁰⁷ This debt-to-GDP ratio would be the highest in U.S. history, even surpassing the burden undertaken to fight World War II (106 percent of GDP in FY1946).¹⁰⁸ However, unlike the World War I and World War II deficits, which were followed by subsequent surpluses and falling debt-to-GDP ratios, CBO projects that the debt-to-GDP ratio will continue rising to 181 percent by FY2053.¹⁰⁹ Even these dire projections may be too rosy (see Box 2-1).

Despite rising debt-to-GDP ratios, a decline in U.S. real interest rates over the past several decades has (so far) slowed the growth of net interest costs.¹¹⁰ As detailed by President Obama's CEA (Council of Economic Advisers), several trends may have contributed to this decline in interest rates. Commonly cited examples include slowing productivity growth, shifting demographics, a global "glut" of savings, and a global "shortage" of safe assets.¹¹¹ Moreover, Kenneth Rogoff, Barbara Rossi, and Paul Schmelzing have documented a multi-century decline in real interest rates across many countries, with a sharp drop during the twentieth century.¹¹²

Although some have argued that the downward trend of interest rates will continue, Congress should question that assumption and consider the balance of risks.¹¹³ While the historical decline in real interest rates is suggestive of a continued decline, a large literature warns against putting too much faith in statistical estimates of long-term trends.¹¹⁴ Even if the long-run trend continues, Congress should evaluate the risk of a short-run deviation. As John Maynard Keynes famously cautioned:

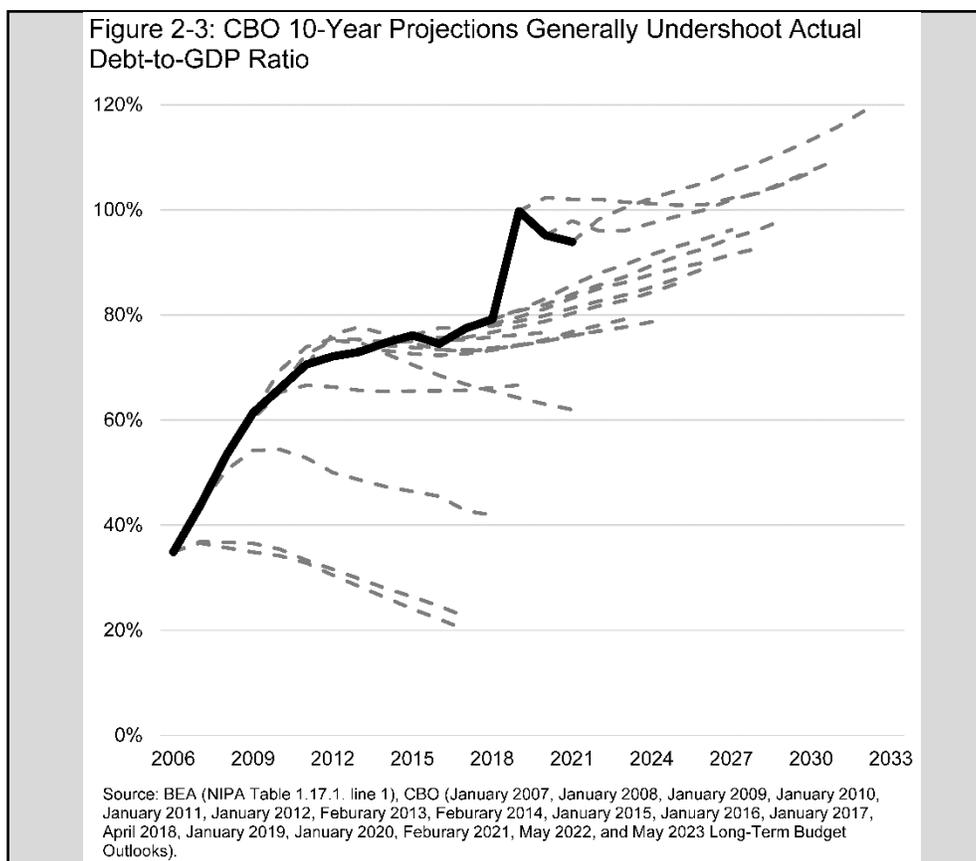
The *long run* is a misleading guide to current affairs. *In the long run* we are all dead. Economists

set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again.¹¹⁵

For example, Rogoff, Rossi, and Schemlzing identify four historical eras of low real interest rates.¹¹⁶ Each era abruptly ended. Today, even a small interest rate increase could dramatically increase net interest costs. For example, consider a three-decade deviation that raises interest rates by one percentage point more than projected by the CBO. Brian Riedl estimates that would increase net interest costs by \$30 trillion over thirty years.¹¹⁷ In the context of sovereign debt, the “short run” could constitute decades.

Box 2-1: Are CBO’s Projections Overly Optimistic?

CBO’s baseline projections for the debt and deficit have consistently been too optimistic since 2000 (see Figure 2-3).¹¹⁸ In part, CBO’s overly optimistic projections reflect its assumption “that current laws generally remain unchanged.”¹¹⁹ A statutory requirement under the Balanced Budget and Emergency Deficit Control Act of 1985, this assumption is reasonable insofar as the baseline is a benchmark used to score new legislation.¹²⁰ However, Congress has an incentive to further increase deficit spending because future generations will bear the financial burden but do not get a vote.¹²¹ Hence, if treated as an unconditional forecast, then CBO’s projections may be downwardly biased.



Box 2-2: Higher Debt Lowers Growth, Raises Interest Rates

An array of recent academic research has found that economic growth slows once debt-to-GDP ratios exceed roughly 80 percent.¹²² A majority of these studies find that the relationship between debt-to-GDP and growth is convex, meaning that higher debt-to-GDP ratios appear to be increasingly harmful to economic growth—and therefore the ability to pay down Federal debt.¹²³ In response to a question on the matter, CBO experts responded that their projections account for the tendency of higher sovereign debt to reduce economic growth by increasing interest rates and crowding out private investment.¹²⁴

CBO also notes that costs to service publicly-held debt will rise if rising debt-to-GDP ratios raise interest rates.¹²⁵ While estimates vary, several economists have found that a one percentage point increase in the debt-to-GDP ratio raises interest rates by several basis points.¹²⁶ Research by Ernie Tedeschi (Chief Economist for President Biden’s Council of Economic Advisers) estimates that interest rates rise by about 4 basis points for each percentage point increase in the debt-to-GDP ratio.¹²⁷

Price Stability Requires Fiscal Responsibility

If government attempts to indefinitely increase its debt as a share of GDP, then it will necessarily produce high inflation that devalues its fiat currency and its fiat-currency denominated debt. As Adam Smith explained, the value of fiat money ultimately depends on fiscal policy:

A prince who should enact that a certain proportion of his taxes should be paid in a paper money of a certain kind might thereby give a certain value to this paper money, even though the term of its final discharge and redemption should depend altogether upon the will of the prince.¹²⁸

As discussed in Chapter 1, absent a credible commitment of repaying today’s deficits with future primary surpluses, deficit spending will raise aggregate demand, pushing up prices across the entire economy. Ultimately, *price stability requires fiscal responsibility*.

Michael Woodford demonstrates that the relationship between price stability and long-run debt sustainability holds in a wide class of macroeconomic models used by professional economists.¹²⁹ If the government does not commit to stabilizing its long-term debt as a share of GDP, then even “tight” monetary policy cannot avert high and volatile inflation. As Thomas Sargent

and Neil Wallace famously pointed out with their “unpleasant monetarist arithmetic,” tight monetary policy can even worsen inflation when government does not commit to offsetting its higher interest costs by raising primary surpluses.¹³⁰ Moreover, as the debt burden rises, the government’s incentive for opportunistic inflation (or “state-contingent default”) also rises.¹³¹ In turn, that increases the risk of a run by rational, forward-looking creditors. John Cochrane warns:

As with all runs, once a run on the dollar began, it would be too late to stop it. Confidence lost is hard to regain. It is not enough to convince this year’s borrowers that the long-term budget problem is solved; they have to be convinced that next year’s borrowers will believe the same thing. It would be far better to find ways to avert such a crisis than to be left searching for ways to recover from it.¹³²

In other words, once the alarm bells of a crisis start ringing, it will be too late for Congress to act. Rising inflation and interest rates would devalue U.S. Treasuries held by retirement accounts, pension funds, banks, and derivatives exchanges. As has happened throughout history, a sovereign debt crisis could precipitate a domestic banking crisis or a foreign exchange crisis. The next time would not be different (see Box 2-3).¹³³

Box 2-3: Foreshadowing the Consequences of a Run on the Dollar

The U.S. received a warning shot across the bow of the Federal budget in September 2019 when stress in dollar funding markets caused overnight interest rates to spike. The Secured Overnight Financing Rate (a key reference rate) exceeded 5 percent, more than doubling in a single day.¹³⁴ This interest rate spike devalued bank capital and derivatives collateral, which prompted an emergency intervention by the Federal Reserve. More recently,

amid rising inflation and interest rates, the U.S. experienced the second- and third-largest bank failures in its history.¹³⁵

The United Kingdom experienced similar tremors in September 2022 when the Chancellor of the Exchequer announced a “mini budget” that would dramatically raise the U.K. deficit.¹³⁶ While the government argued that the package would enhance long-run economic growth, markets swiftly repriced the sterling’s risk. In turn, U.K. pension funds suffered substantial losses. Like the Federal Reserve’s actions during September 2019, the Bank of England intervened with an emergency program of bond purchases.¹³⁷

There is Still Time to Act

There is still time for Congress to restore long-run price stability. The fiscal roots of inflation imply that Congress should focus on stabilizing the debt-to-GDP ratio. This chapter proposes a framework for U.S. debt stabilization, drawing on Olivier Blanchard’s 2019 presidential address to the American Economic Association and subsequent research.¹³⁸ The framework depends on the relationship between three key macroeconomic variables:

1. the inflation-adjusted growth rate of the U.S. economy (“g”);
2. the inflation-adjusted interest rate on U.S. Federal debt (“r”);
3. and the primary deficit the U.S. Federal government (“p”).¹³⁹

As a simplifying assumption, assume that r and g are constants equal to their long-run averages. Where t denotes time, the growth of the debt-to-GDP ratio is given as follows.¹⁴⁰

$$\frac{d}{dt} \left(\frac{\text{Debt}_t}{\text{GDP}_t} \right) = (r - g) \times \frac{\text{Debt}_t}{\text{GDP}_t} + \frac{p_t}{\text{GDP}_t}$$

As an example, assume that the real interest rate on Federal debt (r) is less than the growth rate of the economy (g). In this scenario, by balancing receipts and outlays such that the primary deficit is

zero, Congress can reduce the debt-to-GDP ratio without paying down any debt. In practical terms, Congress would simply roll over the entire stock of Federal debt forever and issue new debt to make net interest payments. Although the Federal debt will grow at rate r , the economy will grow faster at rate g , and so the debt-to-GDP ratio will gradually decrease. Alternatively, Congress could stabilize the debt-to-GDP ratio at its current level by running a primary deficit no greater than $g - r$ percent of GDP.

Current CBO projections suggest that $g = 1.7$ percent and $r = 1.2$ percent.¹⁴¹ If Congress adopted policies to reduce the primary deficit to zero, then the debt-to-GDP ratio would decline by 0.5 percent per year. Accounting for compounding, the debt-to-GDP ratio would halve every 138 years.¹⁴² Alternatively, Congress could run a 0.5 percent of GDP primary deficit each year without raising the debt-to-GDP ratio.

Owing to the political difficulties of consistently achieving a long-term primary deficit of zero, JEC economists instead propose stabilizing the debt-to-GDP ratio at current levels through actions that achieve three key objectives.

1. Reduce the primary deficit by addressing discretionary spending and entitlement programs.
2. Raise real GDP growth by enacting pro-competition, pro-innovation, and pro-labor force participation reform.
3. Reduce real interest rates by committing to credible fiscal rules and improving Treasury debt management.

Like the legs of a stool, all three objectives play a critical role in setting the United States down the path of fiscal responsibility and price stability.

Box 2-4: Debt-to-Consumption as an Alternative to the Debt-to-GDP Ratio

From an econometric perspective, one of the reasons to favor the use of the debt-to-GDP ratio, as opposed to the Federal debt by the public by itself, is to remove the stochastic trend in latter variable. This detrending helps to make debt burdens more comparable across time. In principle, the debt-to-consumption ratio may be a superior metric because consumption is less volatile than other components of national income. In fact, the relative stability of personal consumption expenditures to income is a key prediction of the permanent income hypothesis.¹⁴³

Box 2-5: r vs. g

Importantly, the condition of $r < g$ is not a blank check for unlimited government spending on free childcare, free healthcare, free housing, free pre-K, free college, student debt cancellation, national high-speed rail, expanded Social Security, or any other particular programmatic preference.¹⁴⁴ Although r and g are assumed to be constant in this analysis, they are endogenous to current *and expected* debt-to-GDP ratios. High current and expected ratios will tend reduce g and raise r , reinforcing the tendency for growing debt-to-GDP levels to further accelerate.

While there is not an *ex ante* “maximum” limit to the debt-to-GDP ratio and modern states may be able to sustain higher debt burdens than in centuries past, these values are also highly uncertain. Keep in mind that r and g are estimated with considerable uncertainty. This inherent uncertainty about r and g should motivate Congress to leave a sufficient buffer between the actual deficit and the potentially sustainable deficit ($g - r$ percent of GDP).

Furthermore, when both r and g are close, small changes in either parameter can produce outsized effects on the long-run path of debt-to-GDP. A debt-to-GDP ratio that falls towards zero when $g > r$ may become explosive when $r > g$. In fact, Thomas Piketty

famously argued that $r > g$ in the long-run.¹⁴⁵ If correct, this would imply that the U.S. would need to run primary surpluses (not merely a sufficiently low deficit) to prevent debt-to-GDP from spiraling higher and higher. JEC economists anticipate further exploring these issues in future research.

Congress Should Seek Practical, Bipartisan Solutions

Reducing the Primary Deficit Will Require Entitlement Reform

Reducing the primary deficit will require Congress to tackle entitlement reform. Budget expert Charles Blahous estimates that “almost three-fifths of the Federal government’s long-term fiscal imbalance derives from policy decisions made in 1965–1972.”¹⁴⁶ He attributes almost the entire fiscal imbalance to ongoing spending growth in three categories: Medicare (47 percent), Medicaid and the 2010 Affordable Care Act (22 percent); and Social Security (15 percent).¹⁴⁷ Successful deficit reduction must include these programs, which amount to 84 percent of the fiscal imbalance.

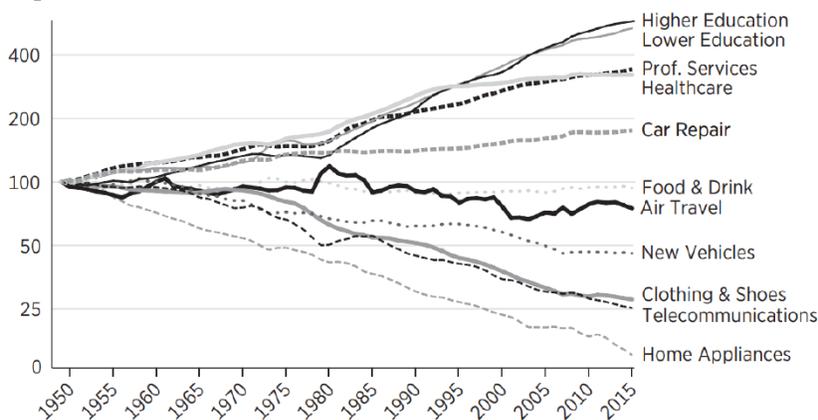
Social Security and Medicare Part A (hospital insurance) are in especially precarious positions. CBO projects that (on a consolidated basis) the Social Security trust funds will be exhausted in FY2033, at which point Social Security benefits would automatically be cut by an estimated 25 percent.¹⁴⁸ Similarly, CBO projects that the Medicare trust fund will be exhausted in 2033, also triggering automatic benefit cuts.¹⁴⁹

Facing the prospect of automatic benefit cuts or deficit-financed entitlements, Congress has long debated the financing of these programs, often bogging down on the question of “Who pays?”¹⁵⁰ Yet Congress must also focus on reducing the long-run costs of these programs. Certain diseases, such as diabetes, disproportionately contribute to rising Medicare and Medicare costs.¹⁵¹ Chapter 3 estimates that obesity-caused illnesses will cost

government healthcare programs about \$4.1 trillion over the next 10 years, or about 42 percent of the Federal primary deficit incurred over the same period.

The rising costs of healthcare are also driven in part by the Baumol effect, which is the tendency for costs to increase in industries with slower labor productivity growth and barriers to employment, relative to industries with faster productivity growth (see Figure 2-4).¹⁵² To reduce healthcare costs, Congress could remove regulatory red tape inhibiting productivity in the healthcare sector. This would include encouraging the development of new consumer medical devices and new drugs.

Figure 2-4: The Baumol Effect



Source: Figure taken from Helland and Tabarrok (2019). Prices are normalized to 100 in 1950, ratio scale.

For example, COVID-19 presented a useful case study of how burdensome FDA regulations restrict the adoption of beneficial technology.¹⁵³ Congress may consider policies to eliminate government-imposed employment barriers to entering medical professions, such as easing restrictions on the immigration of high-skilled doctors and nurses.¹⁵⁴ Reforms to reduce barriers to telehealth provision would similarly be helpful (see Chapter 5). Congress could also explore incentives to find a cure for diabetes by launching an effort like Project Warp Speed.¹⁵⁵

Unfortunately, the President's price controls (implemented in the Inflation Reduction Act) will dramatically slow the growth of research and development spending on new, beneficial drugs. As University of Chicago economists Tomas Philipson and Troy Durie explain:

A large academic literature estimates the effect of future drug revenues on R&D spending and finds that on average that a 1 percent reduction in revenue leads to a 1.5 percent reduction in R&D activity. We find that H.R. 5376 [Inflation Reduction Act of 2022] will reduce revenues by 12.0 percent through 2039 and therefore that the evidence base predicts that R&D spending will fall about 18.5 percent, amounting to \$663 billion. We find that this cut in R&D activity leads to 135 fewer new drugs. This drop in new drugs is predicted to generate a loss of 331.5 million life years in the U.S., 31 times as large as the 10.7 million life years lost from COVID-19 in the U.S. to date.¹⁵⁶

Congress could also consider raising additional revenue. *However*, Congress should be skeptical of proposals to enact new taxes, raise marginal tax rates, or increase the complexity of the tax code. These efforts will be counterproductive insofar as they create additional drags on long-run economic growth. For example, a tax hike that increases revenue by 0.1 percent of GDP but slows real GDP growth by 0.2 percent per year will *accelerate* the growth of debt-to-GDP. Moreover, even if it were possible to close the deficit with additional revenue alone, it would require dramatically expanding the tax burden of most Americans.¹⁵⁷ In practice, a review of fiscal adjustments from 1995 to 2019 finds that successful fiscal consolidations tend to be primarily the result of reductions in spending, not increases in tax revenues.¹⁵⁸

Conversely, while Congress may be able to raise additional revenue with targeted tax reform that simplifies the code and broadens the base, it must weigh the estimated increase in economic growth against the decrease in revenue. In this respect, not all tax cuts are equal. These considerations underscore the need for CBO and the JCT (Joint Committee on Taxation) to dynamically score budget legislation.¹⁵⁹ It also underscores the need for OIRA (Office of Information and Regulatory Affairs) and Federal agencies to conduct cautious cost-benefit analyses of new rulemakings (see Chapter 5 for a discussion of the Department of Labor's proposed revision to the test of independent contractor status).¹⁶⁰

Raising Long-Run Growth Will Require Reform

Congress should also consider proposals for raising the long-run growth rate of the U.S. economy, which has dramatically slowed from its post-World War II norm. Higher economic growth has a double benefit for reducing the debt-to-GDP ratio: the GDP denominator grows faster, while the larger tax base raises revenue to reduce the primary deficit. Unfortunately, the President's taxation and regulatory proposals would significantly reduce U.S. long-run growth by lowering the capital stock and limiting productivity growth. Chapter 4 estimates those effects.

Congress should also consider proposals for bringing prime-age men back into the workforce. Since the Bureau of Labor Statistics began tracking participation in the 1940s, the rate of labor force participation by prime-age males has fallen from around 97 percent to just 89 percent today. Today, about 1 in 9 men between the ages of 25 and 54 (those in the "prime" of their working years) are not in the workforce. Twenty-five percent of them have an atypical reason (or perhaps no reason) for their inactivity.¹⁶¹ Chapter 5 considers ways of bringing these men back into the

workforce, which would increase their income as well as improve economic growth and expand tax receipts.

Improved Debt Management May Lower Interest Rates

Finally, it is important that Congress credibly commit to the fiscal and economic reforms that it undertakes. Past attempts at lasting reform have proved fleeting. For example, in 2011, Congress passed the Budget Control Act (BCA), which provided for across-the-board budget cuts (“sequestration”) if a bipartisan fiscal committee failed to agree on budget reform. While the committee did fail, Congress regularly undermined the resulting sequestration by renegotiating the BCA.¹⁶²

This suggests that Congress should structure any budget rules with the future political environment and its consequent pressures in mind. For example, one approach put forth by Jerry Brito uses the BRAC (Base Realignment and Closure) Commissions in the 1980s and 1990s as a model of fiscal reform.¹⁶³ Others have suggested that Congress adopt “fiscal rules” to improve the budget process, perhaps like the successful “Swiss debt brake” policy.¹⁶⁴ Whatever the details, a credible plan to stabilize U.S. debt may itself help lower interest rates by improving the perceived creditworthiness of the United States.

Congress may also consider steps to improve Treasury market liquidity, which has deteriorated in recent years.¹⁶⁵ The Treasury market has historically been among the deepest and most liquid financial markets in the world, reducing Treasury yields and lowering net interest costs.¹⁶⁶ Conversely, rising illiquidity raises the cost of financing the national debt. Along these lines, Congress could also consider reforms to U.S. debt management that would improve liquidity, such as refinancing long-term bonds into perpetuities.¹⁶⁷ These highly liquid securities would also allow Treasury to lock-in its long-term financing costs.

Finally, Congress should also be cautious of the use of quantitative easing (QE) by the Federal Reserve. The Department of Treasury seeks to finance the debt “at least cost over time,” but QE can undermine U.S. debt management by reducing the average duration of U.S. government liabilities.¹⁶⁸ QE also undercuts U.S. fiscal discipline by allowing the option of “backdoor spending.”¹⁶⁹ In turn, this option also compromises the Federal Reserve’s operational independence necessary for conducting monetary policy to achieve its dual mandate (maximum employment and price stability).¹⁷⁰ Congress should be attentive to the deliberations and decisions of the Federal Reserve’s upcoming review of its monetary policy strategy, tools, and communications.¹⁷¹

CHAPTER 3: THE SOCIAL COSTS OF OBESITY

A critical element of stabilizing the debt-to-GDP ratio is reducing the primary deficit (see Chapter 2). This in turn requires decreasing mandatory spending, which accounts for almost two-thirds of annual Federal expenditures.¹⁷²

Medicare presents an opportunity for substantial savings without drastically changing the nature of the program. Federal healthcare spending totaled \$1.7 trillion in FY2022 and is expected to cost more than \$22 trillion over the next 10 years according to CBO's projections. Medicare and Medicaid account for most of these outlays, with Medicare spending alone projected to exceed \$1 trillion dollars in FY2023.¹⁷³ By FY2033, CBO projects that Medicare spending will nearly double, and annual Federal expenditures on healthcare are expected to approach \$3 trillion.¹⁷⁴

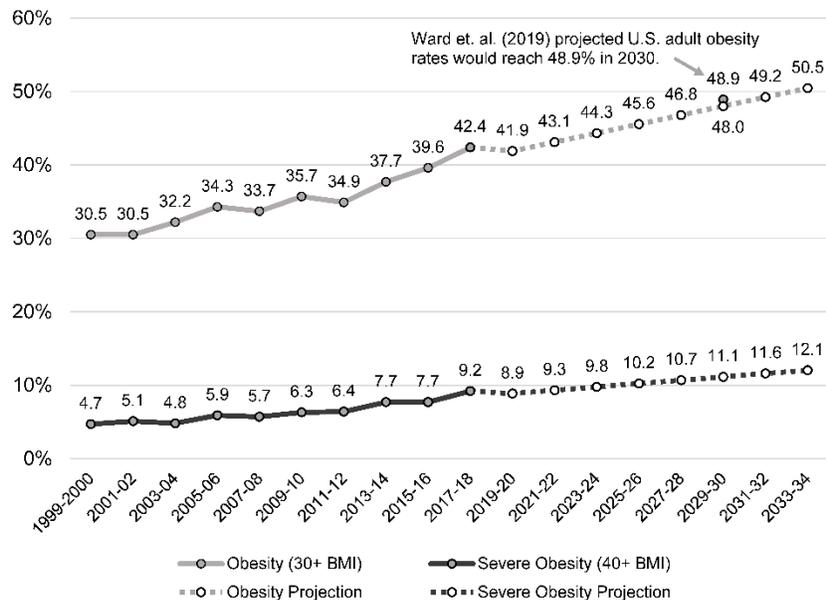
Obesity is a Major Driver of Federal Healthcare Spending

Addressing the acceleration in mandatory spending requires identifying those diseases that impose the largest financial burden, or which offer the most practical means of cost reduction. Obesity and obesity-related diseases fit both categories. Obesity is one of the largest contributors to Medicare and Medicaid spending, and recent medical innovations seem effective at reducing obesity.

Obesity is a causal risk factor for many other diseases, including (but not limited to) diabetes, cardiovascular disease (e.g., heart attack and stroke), sleep apnea, and cancer.¹⁷⁵ One out of every three heart attack or stroke deaths and one in twelve cancer deaths are associated with being overweight or obese.¹⁷⁶ It has also been linked to impaired mental health.¹⁷⁷ Obesity has been found to substantially reduce lifespan, with life expectancy decreasing as BMI (Body Mass Index) increases (see Box 3-1 for a discussion of BMI).¹⁷⁸ The share of American adults who qualify as being

Class 1 obese (BMI ranging from 30–35), Class 2 obese (BMI ranging from 35–40), and Class 3 obese (BMI above 40) has been rising steadily over the past two decades (see Figure 3-1).¹⁷⁹

Figure 3-1: Increasing Obesity Among Adults in the United States



Source: NCHS (*National Health and Nutrition Examination Survey: 1999-2018*), Ward et al. (2019). JEC calculations, see Box 3-2 for methodology.

These trends are particularly concerning given that spending on obesity and obesity-related diseases is concentrated the most among individuals with Class 2 and 3 obesity.¹⁸⁰ Research suggests there is a dramatic increase in healthcare costs among those with BMIs above 35, even compared to those who qualify as overweight or Class 1 obese.¹⁸¹ A 10 percent reduction in BMI for a person with a starting BMI of 44 was associated with a \$10,992 annual reduction in medical care costs, while the same proportional reduction in BMI reduced medical costs by only \$629 for someone with a starting BMI of 34.¹⁸²

Based on recent research, JEC economists estimate that in 2023 obesity will cause \$5,155 in average excess medical costs per

person suffering from the condition.¹⁸³ This corresponds to \$520 billion in total additional healthcare costs in 2023 alone.¹⁸⁴ Over the 2024–2033 period, JEC economists project that the combined Medicare and Medicaid spending on obesity and obesity-related diseases will total \$4.1 trillion.

Box 3-1: Background on the Body Mass Index (BMI)

In 2023, an estimated 44.3 percent of American adults were classified as obese, defined as having a body mass index (BMI) greater than or equal to 30.¹⁸⁵ Within this definition there are further classifications that represent the degree of obesity. Class 1 is defined as having a BMI between 30 and 34.9, Class 2 is between 35 and 39.9, and Class 3 is 40 or higher.¹⁸⁶ These classes, while somewhat arbitrarily defined, are relevant because increasing BMI is causally linked to morbidity, mortality, and the associated healthcare costs.¹⁸⁷ The BMI categories are shown in Table 3-1.

Table 3-1: Body Mass Index (BMI) Categorical Information

Medical Classification	BMI Range
Underweight	Under 18.5
Normal Weight	18.5 – 24.9
Overweight	25 – 29.9
Obesity (Class 1)	30 – 34.9
Obesity (Class 2)	35 – 39.9
Obesity (Class 3) (also referred to as severe obesity)	Above 40

BMI provides a rough standardization of individual weight, but the crudeness of the metric (see Equation 3-1) does not account for individual variations in body composition, such as muscle mass. It was developed in the mid-1800s by Adolphe Quetelet, a Belgian statistician, as a population-level tool to assess obesity and

its associated health risks.¹⁸⁸ BMI rose to prominence in the 1990s when the World Health Organization adopted the metric as the official screening index for obesity.¹⁸⁹

$$BMI = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m)}}$$

$$\text{Imperial System: } BMI = \frac{\text{weight(lb)} \times 703}{\text{height}^2 \text{ (in)}}$$

Equation 3-1: Body Mass Index (BMI) Calculation

While BMI is insufficient as a sole measure of individual health, in the aggregate it serves as a valuable tool for analyzing public health. The CDC (Centers for Disease Control and Prevention) notes that while BMI “should not be used as a diagnostic tool” the “longstanding application of BMI contributes to its utility at the population level” and that “BMI should be used as a measure to track weight status in populations.”¹⁹⁰

The Elderly Suffer from Rising Obesity Rates

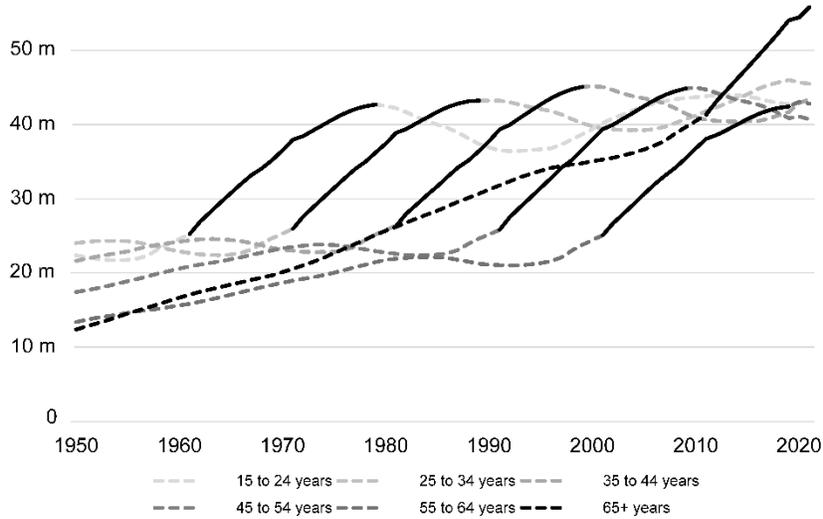
The rising rate of obesity among the elderly is another concerning trend that will likely have a substantial impact on mandatory spending. Approximately 35 percent of adults over the age of 65 were classified as obese in 2010.¹⁹¹ Similarly, the prevalence of moderate (Class 2) and severe obesity (Class 3) in nursing homes grew from 14.7 percent in 2000 to 23.9 percent in 2010.¹⁹² This increase may simply imply an increase in the existing population of obese persons over the age of 65 seeking care in nursing homes. However, it may also reflect a general demographic trend of rising rates of obesity among the elderly. That development would be concerning given the population bulge of the baby boom generation, which for most of the last 70 years has represented the largest age-identified subset of population (see Figure 3-2) and who started entering retirement age around 2010.

In 2019, 16 percent of the adult population were aged 65 or older, but that share is projected to rapidly increase, reaching almost 25 percent by 2060.¹⁹³ If both the share of the population that is over 65 and the rate of obesity continues to rise, Medicare and Medicaid expenditures will likely exceed CBO projections. Halting and reversing these trends is critical to reducing the primary deficit.

Obesity Reduces Life Expectancy

Obesity also imposes significant costs on the individual, most notably a shorter life lifespan. Medical research suggests that Class 1 and Class 2 obesity may reduce life expectancy by about 2–4 years, while Class 3 obesity can reduce it by up to 14 years.¹⁹⁴ It has been theorized that increases in obesity rates in the U.S. have been a major contributor to slowing improvements in the mortality rate in the U.S. over the past 20 years.¹⁹⁵ Increases in BMI from 1988 to 2011 are estimated to have reduced the average person's life expectancy at age 40 by almost a full year.¹⁹⁶ Since 2011, the prevalence of obesity among Americans has risen further, from 34.9 percent to 44.3 percent.¹⁹⁷

Figure 3-2: Illustrating the Baby Boom

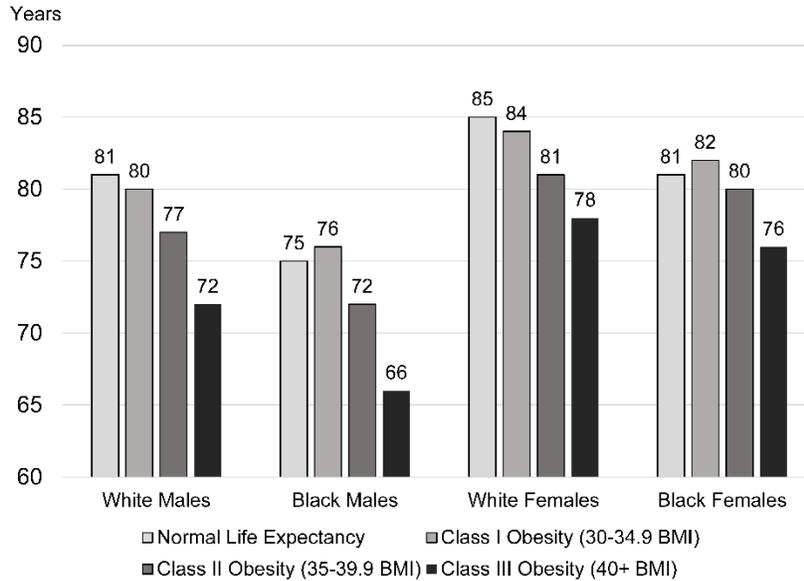


Source: Census Bureau (*National Intercensal Datasets 1900-2020*). Solid black lines indicate period when Baby Boomers (1946-1965) are comprising the age group.

Furthermore, the substantial increases in Class 3 obesity since 2011 has likely exacerbated the disease's reduction in life expectancy. Figure 3-3 illustrates the increased harm caused by increasing obesity.¹⁹⁸ Using recent research, JEC economists estimate that obesity is responsible for 4.7 YLL (years of life lost) for the average person suffering from the disease (see Box 3-2).¹⁹⁹

Much of the direct benefit of increased lifespan would go to women, as well as Black and low-income adults. Research by Ward et al. suggests that Class 3 obesity will be the most common BMI category for these three demographic groups by 2030.²⁰⁰ Because reducing obesity carries with it employment, productivity, and income benefits (see the following section), it might also contribute to reducing income inequality.

Figure 3-3: Life Expectancy for 18-Year Olds Given Their BMI Class



Source: Finkelstein et. al., (2012) *Individual and Aggregate Years-of-life-lost Associated With Overweight and Obesity*. The study only observed individuals who have never smoked.

While the prospect of eliminating or substantially curtailing obesity may seem unrealistic right now, so did the idea of moving U.S. culture away from smoking in the 1960s. Rates of adult smokers in the mid-1960s parallel current rates of obesity.²⁰¹ Moving away from that unhealthy paradigm took decades of concerted effort but was worth it for the number of lives saved.²⁰²

The comparison between obesity and smoking is even more apt because the harm caused by obesity is like the harm caused by smoking. A recent long panel study suggests that the Years of Life Lost (YLL) due to smoking corresponds to a 4.3-year decrease in life expectancy for the smoker.²⁰³ If there were a way to eliminate obesity, it would add the equivalent of 515 million person-years of additional life for those with the disease. Expressed another way, the additional life expectancy gained from eliminating obesity is equivalent to the entire expected lifetimes of the population of Indiana (about 6.75 million people).²⁰⁴

Box 3-2: Ending Obesity Would Raise Life Expectancy

Several high-quality studies have evaluated the effect of obesity on YLL. A 2009 collaborative analysis of 57 studies covering nearly 900,000 participants published in *The Lancet* found that moderate obesity (which they characterize as BMI between 30 and 35—Class 1 obesity) is associated with 2–4 YLL, while severe obesity (which they characterize as BMI between 40 and 45) is associated with 8–10 median YLL.²⁰⁵ The authors suggest that the mortality effect of severe obesity is comparable with that of smoking, and that the progressively higher mortality for overweight and obese individuals (BMI greater than 25) is “mainly due to vascular disease and is probably largely causal.”²⁰⁶

A 2014 *PLOS-Medicine* (Public Library of Science) journal article by Kitahara et al. examined severe obesity more closely, finding that mortality continues to increase as BMI increases.²⁰⁷ They find that a BMI falling in the range from 40–45 is associated with 6.5 YLL, while a BMI falling between 45–50, 50–55, and 55–60 is associated with 8.9 YLL, 9.8 YLL, and 13.7 YLL, respectively. They calculate the weighted average decrease in life expectancy for severe obesity as 7.2 YLL for BMI greater than 40.

JEC economists elected to use the upper estimate of 4 YLL from the *Lancet* research for persons qualifying as Class 1 and Class 2 obese, and 7.2 YLL for Class 3 obesity, owing to Kitahara et al.’s more nuanced approach. Given the proportion of people projected to qualify as Class 1 and 2 obese (34.6 percent) and Class 3 obese (9.7 percent) in 2023, they estimate that obesity in the U.S. is currently responsible for 4.7 YLL for obese persons specifically and 2.1 YLL across the entire population, similar to previous estimates.²⁰⁸ Combining these estimates with the relevant projected populations of Class 1, 2, and 3 obesity suggests that obesity is currently responsible for 515 million years of life lost. Dividing this aggregate estimate by the CDC’s current estimate of

life expectancy (76.4 years) transforms this estimate into the number of person-lives to provide a relevant comparison: 6.75 million, equivalent to the entire population of Indiana.²⁰⁹

Obesity Carries High Economic Costs

The public health research on obesity generally separates the costs associated with obesity into the healthcare costs directly associated with treatment of obesity-related illnesses, and the indirect costs that obesity imposes on labor supply, labor productivity, and human capital. The following discussion of the costs imposed by obesity should be regarded as a starting point, because it is likely that there are other costs created by obesity than those listed here.

Direct Costs: Healthcare Expenditures

There is a large public health literature that addresses government spending on healthcare attributable to obesity. Box 3-3 briefly reviews the literature and provide projections of the future rates of adult obesity and the likely future government share of per-person obesity-related medical expenditures. JEC economists project that the share of U.S. adults who qualify as obese will rise from around 44 percent in 2023 to 50.5 percent in 2033. Similarly, JEC economists also project that the excess annual healthcare cost (expressed in current dollars) attributable to obesity will rise from \$3,919 for non-severe obesity and \$9,591 for severe obesity in 2023 to \$5,790 for non-severe obesity and \$14,168 for severe obesity in 2033. In turn, projected government expenditures attributable to obesity will sum to \$4.1 trillion over 2024–2033.

Indirect Costs: Labor Supply, Productivity, and Human Capital

Using their projections of future obesity rates (see Box 3-3) and their estimation of obesity's reduction of life expectancy, JEC economists also estimated the decrease in labor supply attributable

to obesity (see Box 3-4). This occurs as workers afflicted with obesity and obesity-related illnesses drop out of the labor market, retire, or die earlier than they would have otherwise.

JEC economists estimate that current obesity rates are responsible for a 2.5 percent reduction in aggregate labor supply, which corresponds to a 2.0 percent reduction in the level of real GDP. From 2024–2033, this labor supply reduction represents a potential GDP loss of \$5.6 trillion, which corresponds to a \$1.0 trillion reduction in Federal tax receipts over the same period.

For workers suffering from obesity, public health research has frequently documented obesity-caused reductions to their labor productivity. The effects are separated into “absenteeism” (missing work due to obesity-attributed illness) and “presenteeism” (reduced output on the job attributable to obesity).

JEC economists assume that each is responsible for approximately a 1 percent decrease in labor productivity for obese workers on average, leading to a loss of \$2.6 trillion in potential GDP over the 2024–2033 budget window (see Box 3-5). This corresponds to a \$470 billion reduction in Federal tax receipts over the same period.

In future work, JEC economists anticipate investigating the effect of obesity on the accumulation of physical and human capital. However, such a long-run effect would generally be outside the typical 10-year budget period. Nevertheless, over decades, even “small” increases in the growth rate of the economy can dramatically increase real GDP. For example, a longer life expectancy would incent workers to save more for retirement, increasing the supply of savings available for investment in the size and quality of the capital stock. Also, a longer life expectancy would also incent workers to develop more human capital because the returns would accumulate over a longer career. The improvements to the labor supply and capital stock would tend to

raise the level of real GDP. Moreover, insofar as some of the improvements to the labor supply and capital stock were dedicated to R&D, they would tend to raise the growth rate of real GDP.

Box 3-3: Government to Spend \$4.1T on Obesity from 2024–2033

JEC economists use a variety of academic research and government data sources to construct a projection of current and future obesity-related government spending (such as by Medicare and Medicaid). According to these estimates, the government will spend approximately \$283 billion on obesity-related direct health costs in 2023, rising to \$526.5 billion by 2033. As a result, the total projected government expenditure on obesity-related direct health costs over the 2024–2033 10-year budget window is \$4.1 trillion.

These estimates suggest that obesity-related direct health care costs will constitute 12.3 percent of the \$33.0 trillion in total spending on major health programs projected CBO over 2024–2033.²¹⁰ In other words, obesity is responsible for about 1 out of every 8 government healthcare dollars.

This amount is comparable to previous estimates of the proportion of obesity-related Medicare and Medicaid expenditures, and to the increase of those costs as the rate of obesity has risen. Finkelstein et al. and Wolf and Colditz estimate that in the late 1990s aggregate obesity-attributed medical expenditures accounted for around 5.5 percent of total national health expenditures.²¹¹ Finkelstein et al. estimate that in 2008 obesity-related healthcare costs accounted for almost 10 percent of all medical spending, and for 8.5 percent and 11.8 percent of Medicare and Medicaid spending, respectively.²¹² That was slightly higher than data analyzed by Biener et al., which found that from 2010–2015 an average of 6.86 percent of national Medicare expenditures and 8.48 percent of Medicaid expenditures were attributable to obesity-related illness.²¹³ Using Biener et al.’s 2001–2015 data to

forecast future expenditures suggests that obesity-related healthcare costs should account for 9 percent of all medical spending in 2023 and almost 11 percent in 2034.²¹⁴

A review of the body of research estimated that obesity-related direct healthcare costs had already reached \$98 billion by 2008. However, another research paper by Biener et al. (which uses different data) suggests that as of 2013 28.2 percent (\$342 billion) of total health care spending was already devoted to treating obesity-related illnesses.²¹⁵ It is fair to say that there does not yet seem to be a consensus—even within research teams—regarding the share of total medical costs that are attributable to obesity.

Prescription drugs have been found make up the largest portion of obesity-related direct health costs. Biener et al. estimated that from 2010–2015 13 percent of all prescription drug costs were attributable to obesity-related illness.²¹⁶ Finkelstein et al. similarly estimate that in 2008 15 percent of all prescription drug costs were obesity-related.²¹⁷

Forecasting Future Prevalence of Obesity

JEC economists project the prevalence of obesity in the adult population using data from the National Health and Nutrition Examination Survey (see Figure 3-1).²¹⁸ Although it is difficult to know what exactly the future prevalence of obesity will be, recent research from the National Health Statistics Reports evaluating obesity data obtained just before the COVID-19 pandemic (which added 2019–March 2020 data to the 2017–2018 data) closely matched the JEC projection’s first data point for 2019–2020 (41.9 percent of adults qualified as obese and 9.2 percent qualified as severely obese, while the projections were 41.9 percent and 8.9 percent).²¹⁹

The current distribution of obesity by age group suggests that population dynamics over the next 10 years do not appear likely

to deviate from the prior 20-year trend. The NHSR identifies the rates of obesity by age group. The data collected over the 2017–March 2020 time period indicates that 39.8 percent of adults aged 20–39, 44.3 percent of adults aged 40–59, and 41.5 percent of adults older than 59 qualified as obese.²²⁰ Similarly, 9.7 percent of adults aged 20–39, 10.7 percent of adults aged 40–59, and 6.1 percent of adults older than 59 qualified as severely obese.²²¹ More than 20 percent of children ages 6–19 qualified as obese, with nearly a third of obese children qualifying as severely obese.²²² Moreover, almost 60 percent of current children are projected to qualify as obese by the age of 35.²²³

The projection suggests that by 2033 a majority (50.5 percent) of the U.S. adult population will qualify as obese. The likelihood of this outcome is supported by previous research published in the *New England Journal of Medicine*, which uses more nuanced and sophisticated statistical techniques to project that a near-majority (48.9 percent) of the U.S. adult population will qualify as obese by 2030 (JEC economists' projection for 2030 is 48.0 percent).²²⁴

Obesity-Related Health Expenditures Issues

There has been no shortage of research on the costs associated with obesity-related healthcare. JEC economists use estimates from several high-quality studies and their projections of future obesity rates to estimate the annual total direct healthcare costs of obesity and the portion of that amount covered by government funding.

A 2021 study by Cawley et al. examined obesity-related direct healthcare costs from 2001 through 2016. JEC economists selected Cawley et al.'s estimates of the average annual excess medical costs due to obesity (\$2,782, aggregated over all obesity classes during the 2011–2016 time period, 2017 dollars) due to the breadth of data they considered and because the value represented a mid-range estimate compared with similar options (\$1,861 per Ward et al., \$3,429 per Biener et al., and \$3,920 per Lopez et al.

for direct excess healthcare costs derived from similar time periods; 2011–2016 for Cawley et al. and Ward et al., 2013 for Biener et al., and 2018 for Lopez et al.).²²⁵

Cawley et al. found that the average annual excess cost attributable to obesity-related healthcare effectively doubled a normal weight patient's average annual medical expenses.²²⁶ Similar to other research, they found that the cost of medical care rose in conjunction with BMI: Persons qualifying as Class 1 obese experienced 68 percent higher annual healthcare costs, and persons qualifying as Class 2 and Class 3 experienced 120 percent and 234 percent increases, respectively.²²⁷ Using their data JEC economists estimate that non-severe obesity (Class 1 and 2) accounted for an average \$2,580 in excess annual medical costs per obese person during the later period of their data (2011–2016), and severe obesity (Class 3) accounted for \$6,312 in excess annual medical costs over the same time period.²²⁸

An analysis of Cawley et al.'s inflation-adjusted data indicates that per patient obesity healthcare costs grew at an annual rate of around 2 percent over the 16-year period that their data covers.²²⁹ This mirrors what other research has found—that obesity-related healthcare costs have increased so rapidly over the last three decades primarily because the numbers of people qualifying as obese has risen, rather than the cost of care.²³⁰ Nonetheless, a 2 percent annual rate of change can compound to substantial increase over longer periods of time. This rate of increase is included along with inflation-adjustments in forecasting the future cost of obesity-related healthcare.

JEC economists combine their projections of excess per person obesity-related healthcare costs (\$3,919 for Class 1 and Class 2 obesity in 2023, and \$9,591 for Class 3) with the projections for the U.S. population which they project qualify as Class 1 or Class 2 obese (85.6 million in 2023) and Class 3 obese (24.1 million in

2023) over the period from 2024 through 2033 to estimate the 10-year aggregate national direct cost of obesity-related healthcare. They multiply these amounts by the estimated government share of these costs (50 percent) to produce the final estimate, \$4.1 trillion in obesity-related government expenditures from 2024–2033.²³¹

Box 3-4: Obesity’s Effect on Labor Supply

The analysis in Box 3-2 suggests that obesity is responsible for an average of 2.1 Years of Life Lost (YLL) across the entire U.S. population. Based on CDC life expectancy estimates, this corresponds to a 2.5 percent decrease in life expectancy. JEC economists estimate that, in effect, obesity currently reduces labor supply by 2.0 percentage points (this assumes the ratio of the average number of working years before retirement and the average length of life following entering the workforce is approximately 0.80).

They apply this increase to labor supply in equal increments over 5 years to account for the estimate representing a long-run effect. Information from the Congressional Budget Office has indicated that labor income accounts for an 80 percent share of potential (i.e., long-run) GDP. JEC economists apply the estimate of increased labor supply to the estimates of the labor portion of GDP projected from 2024–2033 to estimate the total cost imposed on potential GDP by obesity (which is equivalent to the cost to GDP of current obesity rates). They then multiply this amount by 18.2 percent, the CBO’s estimate of the share of Federal tax receipts from aggregate economic activity.²³²

JEC economists estimate that obesity-related decreases in labor supply will cost the U.S. economy \$5.6 trillion from 2024–2033. Approximately \$1.0 trillion of this amount would have accrued to the Federal government as tax receipts.

Box 3-5: Obesity's Effect on Labor Productivity

The effect of obesity on labor productivity can be separated into “absenteeism” and “presenteeism” effects (being absent from work and being present, but less productive than otherwise possible). Research by Kudel et al. illustrates that obese workers are absent from their job approximately twice as often as normal weight workers. This corresponds to 2–2.5 extra days of absence each year, which is approximately 1 percent of working days.

JEC economists estimate the labor productivity lost to presenteeism with the simple assumption that the average obese worker, if they were a healthier weight, would perform an extra 5 minutes of work over the typical 8-hour workday. This corresponds to a 1 percent increase in output.²³³

By applying this 2 percent increase in labor productivity to potential GDP (see Box 3-4) and adjusting by the proportion of the U.S. adult population projected to qualify as obese during the 2024–2033 window, JEC economists estimate that obesity will be responsible for \$2.6 trillion in lost economic activity, and \$470 billion fewer Federal tax receipts.

Another way to estimate the effect of obesity on labor productivity is through wage comparisons, assuming that wages are a reasonable indicator of productivity. Biener et al. reports that a 10 percent increase in BMI reduced the earnings of women by 1.86 percent and of men by 3.27 percent.²³⁴ However, it can be difficult to determine the extent to which discrimination against persons with obesity may confound the productivity signal in wages.

JEC economists believe that a 2 percent estimate of the reduced labor productivity of workers suffering from obesity represents a substantially cautious estimate—the true effect is likely substantially larger.

Based on 1994 data, Wolf and Colditz found evidence suggesting that lost productivity due to obesity was nearly equivalent to the direct medical costs.²³⁵ This perhaps provides a useful upper bound for considering what the non-medical, indirect economic cost of obesity might be. Based on their analysis, the labor productivity cost of obesity would be worth \$565 billion in 2023, equivalent to a 6 percent reduction in productivity.

Addressing Obesity is Difficult but Important

Addressing obesity is no easy task for policymakers. One must inevitably balance between preserving individual liberty while reducing the severe costs imposed on others. At a minimum, government policies should not encourage poor health decisions by worsening moral hazard. Moral hazard occurs when someone does not bear the full consequences of their risky decisions, inciting them to take greater risks than they would otherwise.

Automobile seatbelts and airbags are a typical example of how episodes of moral hazard can occur. As the riskiness of harm due to driving has fallen, researchers have documented that automobile drivers (likely unconsciously) have increased the aggressiveness of their driving habits. In the era before safety devices were widespread, drivers experienced a larger penalty for riskier driving, which would have motivated corresponding risk-reducing behavior. Research following the widespread adoption of automobile air bags finds evidence of offsetting driver behavior (increased aggressive driving) in response to the decreased riskiness of driving.²³⁶ Unfortunately, these costs also appear to have been borne by higher rates of injuries and fatalities among pedestrians and bicyclists.

Similarly, academic research has found that when individuals bear less of their medical costs, they are more likely to consume more

healthcare.²³⁷ Finding policy solutions to obesity requires foresight to ensure that the potential for unintended consequences, such as those caused by moral hazard, are minimized.

Reforming Nutrition Assistance Programs

In weighing these interests, government should thus find ways to incentivize behavior that either lowers risk or promotes positive behavior. At a minimum, the government also must ensure that it is not incentivizing unhealthy behavior. Government nutrition programs like SNAP (Supplemental Nutrition Assistance Program), are likely contributing to unhealthy behaviors and certain aspects should therefore be reevaluated.

SNAP was created in 1964 to assist low-income families with food purchases to avoid malnutrition. Since its creation, economic conditions and public nutrition in the U.S. have substantially changed. When the program began, the primary problem to be solved was that of caloric deficiency—thankfully, that has been achieved. Perhaps, however, it was overachieved. Today, the largest nutrition-related problems facing low-income Americans are unhealthy diets and obesity rates rising much faster than average.²³⁸

There is concern among academic researchers that SNAP may be contributing to poor nutritional food choices and, therefore, obesity.²³⁹ As the program currently stands, SNAP benefits can be used on a wide variety of foods, including unhealthy foods. While this approach respects individual autonomy, it may be empowering self-destructive behaviors. Research estimates that 23 percent of the value of SNAP benefits are used on objectively unhealthy foods such as sodas, desserts, chips, and candy, meaning that the U.S. government funds approximately \$25 billion dollars in junk food purchases every year.²⁴⁰

USDA research has found that “lower nutritional quality of household food acquisitions was associated with SNAP participation status.”²⁴¹ This finding coincides with academic research that found that SNAP participants had a poorer diet than income-eligible non-participants.²⁴² While there may not be a causal effect of SNAP participation exacerbating unhealthy diets, these studies indicate that there is room for government food assistance programs to improve to encourage better health outcomes for the participants.

Economics of SNAP

The U.S. spent over \$110 billion on SNAP in FY2021, but this figure fails to capture the full cost that the U.S. is paying due to the adverse health outcomes it is likely creating.²⁴³ SNAP subsidies have increased caloric intake at a time when obesity is arguably the largest health issue in the U.S. This means that Medicaid and Medicare healthcare provisions, combined with SNAP benefits that facilitate unhealthy diets, create a government externality. A government externality is like a market externality, with the difference being that the connection by which others bear the external costs is artificially created by government policy, rather than arising due to market imperfection.²⁴⁴

In this case, a large part of the social cost imposed by obesity is due to government funding of healthcare (34 percent of all healthcare costs are covered by government programs).²⁴⁵ This is not necessarily an argument against government healthcare programs, but rather a rigorous identification of the structure of the problem at hand. To the extent that government externalities are exacerbated by other government policies, like SNAP, which could be mitigated with sensible reforms, all parties should engage in such inquiry with an open mind.

There is a clear argument to pursue SNAP reforms that would encourage healthy diets. This might include limiting junk food

purchases with SNAP benefits or rewarding making changes that lead to positive health outcomes. At a minimum, the Federal government should consider banning soda purchases using SNAP benefits. Soda accounts for the largest expenditure of SNAP benefits, and it (as well as other sugary drinks) has been clearly linked to adverse health outcomes.²⁴⁶ Insofar as the Federal government continues to fund nutrition programs, it should at least ensure that the programs deliver better health for low-income Americans. SNAP presents a clear lever to address obesity, but fixing its flaws is only a small step toward solving the problem.

Medical Innovations and Obesity Care

To address obesity, the Federal government must also create an environment in which medical innovation can thrive. This requires a regulatory system in which entrepreneurs are rewarded for innovations without undue regulatory or bureaucratic burdens. Full success of this goal would result in the rapid creation of new medicines, therapies, and technologies as well as swift reduction of the cost and price of existing healthcare products.

Recent and ongoing research has identified that a category of existing drugs can effectively reduce the BMI of individuals, which in turn should help prevent the associated conditions of obesity (heart disease, cancer, diabetes, etc.)²⁴⁷ For example, GLP-1s (Glucagon-like Peptid-1 Receptor Agonists) have been approved for diabetes care for almost two decades, but were only recently approved for use as a weight loss therapy.²⁴⁸ They have been observed to reduce the weight of non-diabetic patients suffering from obesity by between 6.1 and 17.4 percent.²⁴⁹ This area of medical science is moving exceptionally fast, though, and recent trials have shown results suggesting that body weight losses of 24 percent in under a year are possible.²⁵⁰

The ongoing innovations in GLP-1 drugs have tremendous potential to address the obesity crisis. However, their cost is likely

to inhibit their widespread use. Without insurance, these drugs can be expected to cost around \$900 a month.²⁵¹ Finding ways to reduce these costs, whether it be through greater competition in prescription drug markets or by easing barriers to production, would likely result in greater access to these drugs and their benefits.

Additionally, weight loss drugs such as GLP-1s are explicitly prohibited from being covered by Medicare Part D as their use for weight loss is classified as a “cosmetic treatment.”²⁵² Given the substantial savings to Medicare that could be achieved by reductions in obesity, this should be reconsidered. Recent research suggests that if this were to change, Medicare could save \$175 billion over the first 10 years.²⁵³ Furthermore, the fact that GLP-1 drugs use for weight loss is covered by Federal health insurance for government workers suggests that simple fairness be applied in making them available for Federal healthcare program recipients.²⁵⁴

Given the estimates of average expenditures due to excess annual healthcare costs attributable to obesity, as the costs of these drugs fall, the benefit to government healthcare programs could become quite large. JEC economists estimate that the 2023 excess healthcare cost for each severely obese person is \$9,591. Public healthcare costs tend to be higher, resulting in an estimated 2023 excess healthcare cost for each severely obese person of \$10,634.

These drugs may provide the potential to achieve a net decrease in government expenditures while at the same time achieving better health outcomes—such two-for-one deals in public policy are rare. Given public health research that finds that a large proportion of healthcare spending on obese persons is concentrated on those who are severely obese, it may be most effective to initially concentrate GLP-1 spending on that population.

Healthcare Patent Policy

The U.S. is the world's leading innovator in pharmaceutical development, but domestic healthcare consumers pay higher prices than healthcare consumers abroad. This is partially due to free riding by other countries, who refuse to provide patent protection for U.S.-developed drugs. They demand instead that the drugs be priced at the marginal production cost, which does not cover the cost of research and development.²⁵⁵ It is estimated that patented drugs are priced five times higher in the U.S. as their unpatented equivalents in foreign markets.²⁵⁶ Addressing this is not easy but there are several policies that can be pursued to reduce prices.

Price competition in the U.S. could be facilitated by expedited review for generic drugs, allowing them to get to market more quickly.²⁵⁷ In particular, there's a case for expedited review for biosimilar drugs already in widespread use. It would be valuable most when only one drug of that type is available to the public.

Policies that increase drug price transparency and empower consumers to make educated decisions regarding medicine choices would also help. Allowing and encouraging patients to shop around and pursue drugs at cheaper costs would incentivize greater competition among producers and retailers. To facilitate this, instead of patients' prescriptions being managed entirely by third parties, patients could instead have the power to seek out lower costs for their prescriptions and choose which brands best suit their needs.

CHAPTER 4: HOW (NOT) TO INCREASE ECONOMIC GROWTH

The first two and a half years of the Biden Administration focused on bolstering the COVID-19 economic recovery with unprecedented levels of government spending. The *Report*, and the president's own public statements, make it clear that the Biden Administration believes that the economy requires the Federal government to act as a director and co-investor to achieve long-run economic growth.²⁵⁸ This soft nationalization has taken the form of investing in infrastructure (defined so broadly as to include consumption) and subsidizing favored industries.²⁵⁹

The result has been unsustainably high levels of deficit spending. In turn, the White House has proposed numerous tax increases for 2024 (see Table 4-1 and Table 4-2).²⁶⁰ Their justification for the increases suggests the new funding would be used to partially reduce the deficit and to also fund programs on other issues, such as income inequality and the depletion of the Medicare trust fund. The OMB (Office of Management and Budget) estimates the White House's proposed policies would increase taxes by \$4.7 trillion dollars over the next 10 years, almost \$3 trillion of which would come from increased corporate taxes, and the balance would be collected from high-income and high-net worth households.²⁶¹ This chapter focuses on two topics:

First, the chapter examines the economic growth effects of the mostly unmentioned requirement of "Bidenomics"—that massive spending increases require commensurate tax increases, predominantly to be imposed on corporations.²⁶² While the Biden Administration's overarching goal—to enhance economic growth—is laudable, the chapter illustrates how the president's preferred policies would backfire.

Second, the chapter addresses a core premise of Bidenomics: that the tax system of the United States is intrinsically unfair. The chapter illustrates how the U.S. tax code, understood holistically, is one of most “progressive” among advanced economies. Those who insist that the U.S. is lagging other, ostensibly more civilized, countries and who argue for greater redistribution because of “fairness” are incorrect.

The Biden Administration has been clear about its objective: to increase tax revenue by taking a larger part of the income of those who earn the most (and who already pay the largest proportion of taxes). But these changes will reduce savings, wages, and income. In turn, these changes will indirectly harm the same families that the President articulates a desire to help. In short, the policies behind catchphrases like “investing in the economy” and “ensuring the wealthy and big corporations pay their fair share” will not have the effect that the Administration says it desires.²⁶³

While hiking taxes on high-income households and corporations to subsidize favored industries may seem like a simple way to increase economic growth, it will backfire. In that way, using the large literature on the determinants of economic growth, this chapter argues that “government greed” will not pay off.

Table 4-1: Selected Individual Tax Increases in President Biden's Proposed Budget

- Increase the top tax rate on individual income from 37 percent to 39.6 percent
- Impose a 25 percent minimum tax on unrealized gains for taxpayers with net wealth over \$100 million
- Tax unrealized capital gains over \$5 million at death
- Raise tax rate on capital gains and qualified dividends over \$1 million to 39.6 percent
- Expand the tax base of the Net Investment Income Tax (NIIT) to include non-passive business income
- Increase the NIIT tax rate from 3.8 percent to 5 percent
- Increase the additional Medicare tax rate from 0.9 percent to 2.1 percent
- Treat carried interest as ordinary income
- Create new limitations on high-income taxpayers with large retirement account balances and increase minimum required distributions

Table 4-2: Selected Corporate Tax Increases in President Biden’s Proposed Budget

- Increase the corporate tax rate from 21 percent to 28 percent
- Increase the Global Intangible Low-Taxed Income (GILTI) minimum tax rate from 10.5 percent to 21 percent, as well as and other changes
- Adopt the undertaxed profits rule on large multinational firms
- Repeal several deductions on foreign gross income (Section 265 and 904(b))
- Increase the excise tax on stock buybacks from 1 percent to 4 percent
- Changes to the limit of deductibility of excessive employee remuneration
- Repeal the deduction for foreign-derived intangible income (FDII)
- Make permanent the limitation on excess business losses

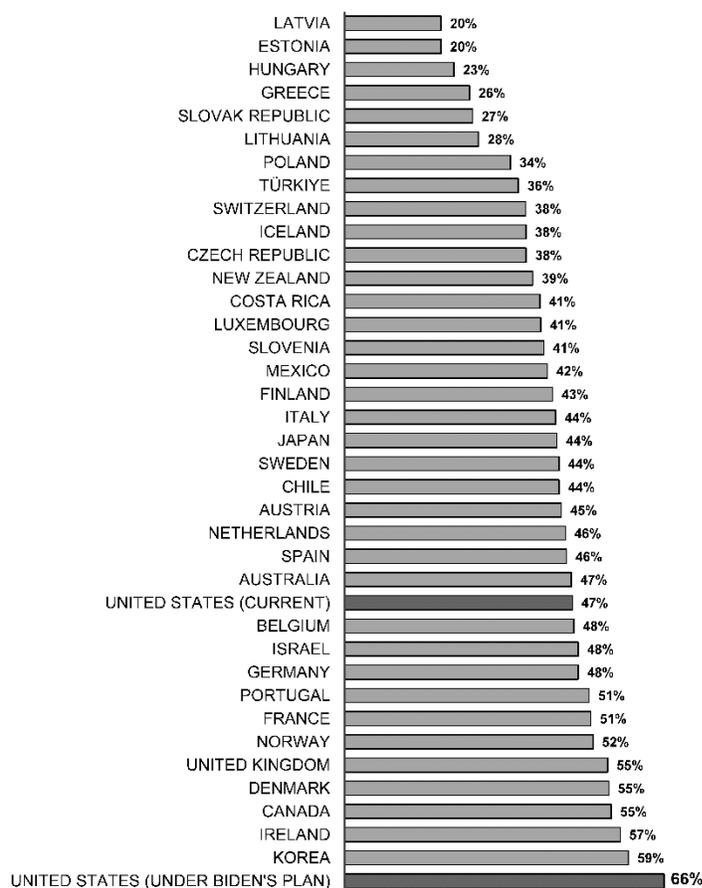
Tax Hikes Would Kill the Post-Pandemic Recovery

Understanding the Biden Administration’s Tax Proposals

The Biden Administration has proposed both vertical and horizontal corporate tax changes to reduce the Federal deficit and finance new programs. Vertical changes are those that increase the *statutory* tax rate on corporate profits or distribution of those profits to corporate owners (e.g., investors, see Box 4-1). Horizontal changes are tax reforms that serve to increase the *effective* corporate income tax rate without affecting statutory tax rates. Figure 4-1 shows the effect of the Biden Administration’s tax proposals, which would make the United States the only country in the OECD (Organization for Economic Cooperation

and Development) where the combined statutory tax rate on corporate income and its distribution would exceed 60 percent.

Figure 4-1: OECD Comparison of Statutory Tax Rates on Dividend Income

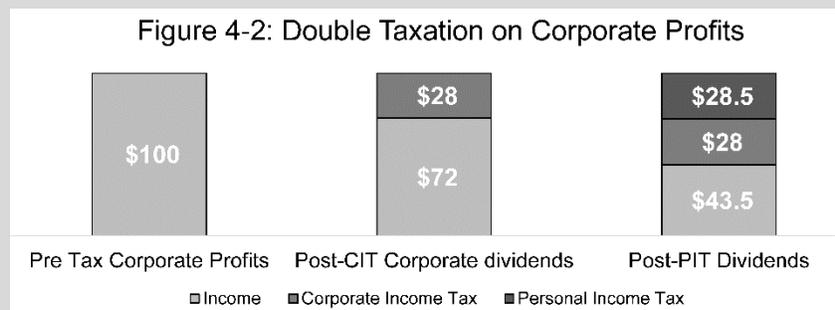


Source: OECD (*Tax Database Table II.4., Overall Statutory Tax Rates on Dividend Income*), Tax Foundation (*Biden's FY 2024 Budget Would Result in More Than \$4.5 Trillion in Gross Tax Increases*)

It is worth reemphasizing that statutory tax rates alone are insufficient to understand the incidence and effects of corporate taxation. Identical statutory rates may have substantively different economic effects once deductions, regulations on capital investment, targeted tax credits and other subsidies, etc., are considered.

Box 4-1: Investors are Double Taxed

The existence of corporate taxes combined with individual taxes on capital gains or dividends means that each corporation's profit is taxed twice: First at corporate level and later at the individual level when the shareholder receives income from stock dividends or realizes capital gains.²⁶⁴ For example, under the Biden Administration's proposed changes, corporate profits of \$100 would be taxed at a rate of 28 percent, leaving \$72 available to distribute as dividends. Individual investors taxed at the highest marginal rate (39.6 percent) would then receive only \$43.50.²⁶⁵ This application of both corporate and individual tax rates would result in an effective tax rate of 56.5 percent for some investors (see Figure 4-2). Nor does this happen in a vacuum. In an environment where other countries are lowering taxes on investment and capital is increasingly internationally mobile, decreased returns on investments in the U.S. may well motivate domestic and foreign investors to look for greener, and more profitable, pastures.



Corporate Tax Changes Motivate New Tax Avoidance Strategies

The importance of effective tax rates (and their interactions) is seen in the difficulty that governments have in taxing corporate profits. While behavioral economics has challenged the idea that individuals solely practice rational analysis, economically rational behavior is readily observable in corporate decision making. Tax increases motivate increased lobbying by special interest groups

to either defend against the threat of increased costs or to position themselves for a bigger portion of subsequent government handouts. Business leaders' motivation to maximize profits leads to innovative tax minimization strategies, such as moving operations to lower-tax environments or by changing production methods.

This tendency to quickly respond to tax changes (and often to preemptively begin adapting to anticipated changes) helps explain why economic research finds that corporate income taxes are one of the most economically harmful forms of taxation. Not only do business leaders swiftly develop strategies to minimize their effective tax rate, but the actions they take in doing so often lead to lower relative rates of aggregate economic growth.

In short, higher corporate tax rates mean higher costs and therefore lower returns to investment. Decreased incentive to invest in businesses that operate in the higher-tax country leads to a decline in GDP growth, reducing total future tax revenues.²⁶⁶

Raising Corporate Taxes Will Likely Harm Economic Growth

Economic growth is sensitive not only to the overall level of taxation but also to which kinds of taxes are used and how the tax burden is distributed. Contrary to their stated desire for economic growth, the Biden Administration's proposals to increase taxation of corporations and higher income households will have an adverse impact on the economy. This is especially likely when such taxes target the types of income (e.g., investment) that are the font of new job creation, and which are highly mobile and sensitive to variations in rates of return.

Taxation—like any change in payoffs—intrinsically distorts incentives and changes behavior. Taxation of corporations and capital reduce the incentive to invest. Taxes on income reduce the incentive to work. And the progressivity of tax systems reduces

the entrepreneurial incentive to take greater risks in pursuit of higher returns. The extent to which any tax policy inhibits the corresponding economic activity is an empirical issue, but the direction of the effect is well-established.

For example, a study by Jens Arnold and Cyrille Schwellnus reports that a shift of one percent of tax collections from corporate and income taxes to property or consumption taxes would increase GDP per capita by between 0.25 percent and 1 percent over the long-run.²⁶⁷ Compared to the current economy, their estimates suggest there may be up to \$265 billion more economic activity, \$1,600 increased income per household, and a \$48 billion increase in Federal tax receipts—meaning that a simple shift of the target of taxes could increase tax collections by 1.5 percent. The authors also find that this boost in growth is partially determined by the level of tax progressivity.

Prior to the passage of the 2017 Tax Cuts and Jobs Act, the Council of Economic Advisers produced a survey of the academic research that illustrated the negative relationship between the corporate income tax rate and companies' decisions to invest or expand.²⁶⁸ While there is not a consensus on the specific degree to which corporate income taxes affect businesses' decision on where to locate their operations, there is ample evidence showing that lower rates are associated with higher probabilities of opening new manufacturing plants. The results of those studies showed a wide range of estimated effects of corporate taxation on business investment, with the average results suggesting that a one percent increase in the effective corporate income tax was associated with a three to four percent decrease in the rate of plant openings.²⁶⁹

Box 4-2: High Corporate Tax Rates Reduce Growth

Most academic studies have found strong negative correlations between economic growth and income and corporate tax rates. Young Lee and Robert Gordon found that a reduction in the

corporate tax rate by 10 percentage points would raise the annual economic growth rate by one to two percentage points.²⁷⁰ Similarly, Karel Mertens and Morten Ravn find that a reduction of just one percent in the average corporate income tax rate would raise real GDP per capita by 0.6 percent after a full year, with the effect persisting over time.²⁷¹ They also find changes in corporate tax rates are approximately revenue neutral, meaning that higher rates of taxation do not bring in meaningful additional tax receipts. This suggests that adjusting corporate tax rates is a poor tool to achieve deficit reduction goals.²⁷² Robert Barro and Charles Redlick use almost a hundred years of data to show that not only does taxing corporate income reduce economic growth, but that the net effect on economic growth is negative even when paired with public spending enabled by the tax.²⁷³ In other words, the Biden Administration's intent to increase corporate taxes and use the resulting revenue for government-led investments in particular industries is likely to lead to slower economic growth.²⁷⁴

The impact of changes in corporate income taxes vary from industry to industry and from firm to firm. For example, evidence shows that corporate income taxes reduce total factor productivity, and that this effect is more pronounced in industries that are characterized by high corporate profitability.²⁷⁵ Similarly, increases to the marginal personal income tax rates for higher-earning households are found to impede long-run productivity. This effect works by inhibiting entrepreneurial activity and is estimated to increase in strength in conjunction with the level of entrepreneurial activity in an industry. For example, Jens Arnold and Cyrille Schwellnus find that a change in corporate taxes from 35 percent to 30 percent would yield a substantial increase (0.4 percentage points higher) in the annual total factor productivity growth rate over 10 years for firms in industries with median profitability relative to firms in industries with the lowest level of profitability.²⁷⁶

Raising Corporate Tax Rates Hurts Wages, Investment Returns, and Savings

President Biden and the White House have repeatedly declared that no person earning less than \$400,000 would experience a tax increase under their proposed policies.²⁷⁷ This amounts to an unrealistic attempt to finance a vast expansion of government spending through only 2 percent of the population. Meanwhile, due to the surge of inflation since President Biden took office, that \$400,000 income today has lost \$64,000 worth of value.

While it is true that households earning less than \$400,000 would not see any *direct, statutory* increase in their tax rates, the proposed reforms will indeed affect their wages and their investments/savings. The latter (pensions, Individual Retirement Accounts, etc.) will be reduced by the higher corporate income tax rate. In part, this is because if the government takes a larger cut of corporate profits, there is necessarily less to be disbursed as dividends.

As widely recognized in economics, the incidence of a particular tax—those who bear the burden of the tax because of pass-through effects—is dependent on the market structure; it is rare for any tax to be borne fully by the entity responsible for paying the tax. The specific impacts of raising corporate income taxes depends on many factors, with the asymmetry in mobility between capital and labor being particularly important. As the mobility of investment capital to move to higher-return opportunities increases, the share of corporate income tax increases that is borne by workers also increases. Employees at companies that can make organizational changes to avoid part of the tax increase may be relatively less affected (see Boxes 4-3 and 4-4).

Box 4-3: Recent Research on Corporate Tax Incidence

Research on the effect of corporate tax increases on wages is less straightforward than the research on corporate and economy-wide

growth rates. Consequently, there is less consensus among economists on the degree to which wages or employment decrease because of corporate income tax increases. For example, separate meta-analyses by Stephen Entin and James Nunns estimate the pass-through effect of corporate taxation on labor to be 40–70 percent and 20 percent, respectively.²⁷⁸

In addition, not all employees of a company are necessarily affected in the same way. Recent research by William G. Gale and Samuel Thorpe suggests that when rent sharing is concentrated among high-income workers, the corporate tax can remain quite progressive in most plausible models of rent sharing, meaning that low-wage workers are relatively unaffected by changes to the corporate income tax.²⁷⁹ As before though, other recent research suggests the opposite, showing that lower-skilled, young, and female employees bear a larger share of the tax burden.²⁸⁰

Box 4-4: The Administration’s Agenda Will Harm the Recovery

The Biden Administration’s corporate and high-earner income tax proposals are not new. Most of the proposed tax code changes have been circulating since 2020, meaning that research on the likely effects of these policies is already available.

Kevin Hassett and his coauthors estimated that full economic agenda proposed by President Biden while he was campaigning for office would reduce full-time equivalent employment per person by about 3 percent, the capital stock per person by about 15 percent, real GDP per capita by more than 8 percent, and real consumption per household by about 7 percent.²⁸¹ However, not all of the proposals they analyzed match the tax code changes proposed for the FY2024 Federal budget. Some regulatory provisions (those regarding the energy and electric vehicle industries) have already been passed as part of the Infrastructure Investment and Jobs Act of 2022. Similarly, bonus depreciation

began phasing out in 2022, while the expensing of research and development has already phased out.

On the other hand, Hassett and his coauthors did not analyze for the more recent proposals of a 4 percent tax on stock buybacks or the 25 percent minimum income tax on households with over \$100 million of wealth. This means that their research likely underestimates the harmful effects on employment, capital, household consumption, and economic growth.²⁸²

Casey Mulligan conducts a similar analysis to Hassett et al., finding that the real GDP per capita would decrease by 4 to 5 percent over the long run (equivalent to a permanent decrease of \$8,000 per household). He concludes that policies contained in President Biden's economic agenda would reduce productive capital by 7 to 12 percent over the long-run and cause the loss of about 3 million jobs.²⁸³

Kyle Pomerleau also provided an analysis and included a comparison of the marginal effective total tax rate included in President Biden's campaign proposal with the projected tax provisions in 2030 (that is, based on the law as it was in 2020, allowing temporary provisions to expire).²⁸⁴ He finds that by 2030 the marginal effective tax rate for overall business investment under the president's campaign proposal would have increased by more than 7 percent, while that for corporate investment would increase by more than 12 percent. His analysis also showed that when looking at the source of financing investment, Biden's campaign proposal would raise taxes by 8.8 percent for equity-financed investment but only 0.6 percent for that financed with debt.

Researchers at the Tax Foundation have analyzed the effect of many of the tax changes proposed in the FY2024 Budget using a general equilibrium model.²⁸⁵ They estimate that, because of these

proposed changes, GDP would decrease by 1.3 percent over the long run, caused in part by a one percent decline in wages and a loss of 335,000 full-time equivalent jobs. Most of the negative economic impact they project is attributable to the increase of the corporate income tax rate from 21 percent to 28 percent. While the Tax Foundation's estimates are somewhat more modest than the prior analyses, their estimates are focused on the higher probability tax code changes, leaving out of the modelling some provisions whose implementation is more uncertain.²⁸⁶

There Will Be No Relief Valve from the Biden Administration's Business Tax Proposals

Projecting the specific effects of corporate income tax changes is often difficult because there are multiple factors affecting causality, multiple paths through which the effects can flow, and often simultaneous implementation of other taxes that can either exacerbate or reduce the effects. For example, Thornton Matheson and his coauthors find that the surge in foreign direct investment in the U.S. following the 2017 Tax Cuts and Jobs Act (TCJA) appears to have been driven largely by contemporaneous macroeconomic factors rather than the reduction in corporate tax rates.²⁸⁷ They also found that the increased retention of profits was attributable to the reduction of tax rates. However, the authors also highlight that their research cannot be generalized as an argument against the use of lower corporate taxes to enhance economic growth, since by 2018 the U.S. economy had been expanding consistently for eight years, so corporate investment may already have peaked.

Box 4-5: Without Profit Shifting, U.S. Capital Investment Will Fall

Changes in corporate taxation can lead to "profit shifting" within multinational companies. This is the practice of transferring intangible assets (such as patents) between subsidiaries so that the

assets accrue most of their profits in low-tax countries. According to the CEA, by 2016 U.S. multinationals reinvested 70 percent of foreign profits overseas, rather than repatriate it to the U.S.²⁸⁸ Gabriel Zucman et. al. calculated that the share of foreign profits booked in tax havens remained stable at around 50 percent between 2015 and 2020.²⁸⁹ They further estimated that the percentage of profits booked abroad by multinational companies only fell 3–5 percent after the 2017 Tax Cuts and Jobs Act was passed.²⁹⁰ They primarily attributed the decrease to substantial changes by six large corporations, most likely due to repatriation of intellectual property to the United States.

Josh Heckemeyer and Michael Overesch synthesize the findings of 27 studies, predicting that the tax semi-elasticity for pre-tax profit is about 0.8. This means that a given 1 percent arbitrage opportunity between two different countries, the profit realized in the higher-tax country will decrease by 0.8 percent.²⁹¹

According to Tim Dowd and his coauthors, this elasticity depends on whether the country is a high-tax or low-tax country.²⁹² They found that a 1 percent reduction in the statutory corporate income tax rate has a much bigger impact when the country is considered a low-tax country than when its tax rate is high. Applying this to the 2017 corporate tax rate reductions from 35 percent to 21 percent, which can be modeled as 14 one percent cuts applied simultaneously, means that most of the positive effects on profits occurred on the last steps when the country became an average-tax country. This implies that raising the rate to the halfway point of 28 percent would be almost as bad for businesses as going back to the pre-TCJA corporate income tax rate of 35 percent.²⁹³

The effect of profit shifting is also important when measuring the effect of taxes on capital accumulation. Fatih Guvenen et al. estimate that 38 percent of the income attributed to U.S. direct investment abroad is re-attributable to the United States, resulting

in an understatement of U.S. GDP and productivity growth rates in the late 1990's and early 2000's, as well as overestimation of labor's share of income.²⁹⁴

Guvenen et al.'s research findings are important when analyzing the changes proposed by the Biden Administration as it attempts to maximize the tax receipts from corporations by raising taxes on their foreign income and closing the possibility of using low tax countries to shift profits abroad. Their research suggests that the Biden Administration's approach could cause a much deeper drop in capital intensity and productivity than previous estimates. Supporting this concern, Suarez Serrato finds that firms with limited access to tax havens could see an increase in the cost of domestic investment, leading to a decrease in both in capital accumulation and domestic employment.²⁹⁵

Box 4-6: Long-Run Estimates for the Corporate Sector

A comprehensive estimate of the effect of the president's tax proposals is a complex task that would require an analysis as long as the *Response* itself. Each sector is affected in different ways, investors can substitute ways to raise capital, and changes in regulations can have an impact in the cost of doing business. Moreover, there are also future external factors to include when simulating the output of the economy in the short and medium term. Nevertheless, while simple, the Neoclassical Growth Model is a good tool to predict the impact of changes in tax policy in the long term.²⁹⁶

The model in equilibrium is derived from the basic firm problem where output is defined as:

$$Y = TFP * F(K, L)$$

where, Y is the total output, TFP is the total factor productivity, K is a measurement of capital employed, and L is the amount of labor

used in production. The function F represents the transformation of inputs into final production.

The model predicts that changes in the total output can be explained from either a change in the use of the factors, or by technological change.

$$\Delta Y = \Delta TFP + (S_L \Delta L + S_K \Delta K)$$

Where Δ represents a percent change of a variable ($\Delta X = \partial X/X$), and S_K, S_L represent the share of revenue attributable to the cost of each input factor. Another way to represent this is as a marginal change of the costs which, in the case of constant returns to scale can be rewritten as:

$$\Delta TFP = S_L \Delta \frac{W}{P} + S_K \Delta \frac{R}{P} = S_L \Delta w + S_K \Delta r$$

where W represents nominal wages (w , real), R represents the nominal return to capital (r , real), and P is the price of the final product. Now, suppose that capital-based income is taxed by a fraction, τ .²⁹⁷ Since the Neoclassical Growth Model assumes that capital is perfectly elastic in the long-run, any change in the after-tax income has to be counteracted by a similar change in the return to capital.²⁹⁸ This means that, $\Delta r = -\Delta(1 - \tau)$, where $(1 - \tau)$ is the after-tax portion of the returns to capital.

If the total factor productivity remains constant ($\Delta TFP = 0$), then one can rewrite the equations above into three equations summarizing the effects of tax change:

- Changes in real wages: $\Delta w = \frac{S_K}{S_L} \Delta(1 - \tau)$
- Capital intensity: $\Delta K - \Delta L = \frac{1}{S_L} \sigma \Delta(1 - \tau)$
- Average labor productivity: $\Delta Y - \Delta L = \frac{S_K}{S_L} \sigma \Delta(1 - \tau)$

See this chapter's appendix for additional details on the derivation.

Under the current legislation, an investor's average post-tax dividend $(1 - \tau_{corp})(1 - \tau_{divd})$ would be 67.4 cents for every dollar in C-type corporate profits. Under the new legislation, it would be 59.4 cents, which implies a drop of 8 cents or 12 percent of the original income. Replacing the equations defined above:

- Changes in real wages:

$$\Delta w = \frac{S_K}{S_L} \Delta(1 - \tau) = \frac{2}{3} (-0.1196) = -0.0797$$

- Changes in capital intensity:

$$\Delta K - \Delta L = \frac{1}{S_L} \sigma \Delta(1 - \tau) = \frac{5}{3} (-0.1196) = -0.199$$

- Changes in average labor productivity:

$$\Delta Y - \Delta L = \frac{S_K}{S_L} \sigma \Delta(1 - \tau) = \frac{2}{3} (-0.1196) = -0.0797$$

That is, JEC economists estimate that the Biden Administration's proposed tax increases would decrease wages and labor productivity by 8 percent, in combination with nearly a 20 percent reduction in capital intensity.

The relationships presented above are not a perfect model of the of Budget for FY2024. A more accurate predictive model would need a more complex set of equations, including more variables like depreciation rates and inflation, and taxes directly affecting employment. Also, the model limits the analysis to the case of C-corporations that finance through selling corporate equity. Changes in taxes imply changes in relative costs, provoking a migration of entrepreneurial activity towards pass-through entities, and C-corporations using debt instead of equity to raise capital. Moreover, the results do not include unanticipated future shocks, in the same way that TCJA could not anticipate the effects of the global pandemic of 2020, nor future changes in tax policy.

However, the high elasticity of capital, in combination with the closure of legal provisions of alleviating the corporate tax burden, makes it plausible that the impact to the economy of the Biden Administration's tax proposals would be larger than the sum of individual changes.

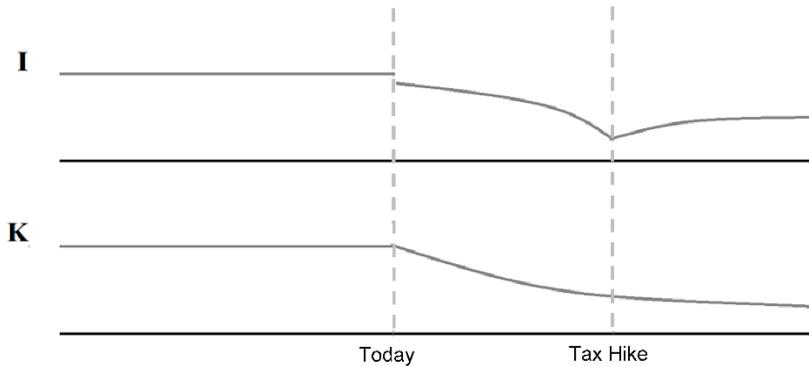
Anticipated Tax Hikes Have Negative Effects Today

The price theory model in Box 4-6 estimates the long-run outcome of the Biden Administration's tax hike, modeling the taxes as an unexpected economic shock. But when a change in tax policy can be anticipated, rational economic agents will often start adjusting before that new policy is implemented.

For example, if businesses anticipate a tax increase next year, they will start reducing investment today, which means that the availability of investment capital will begin to decline as it will depreciate faster than the new capital created. Once the new corporate tax policies are implemented, the system will continue evolving towards the new steady state.²⁹⁹

If the tax policy legislation fails, economic agents will incorporate this revised expectation of the future and the economy will gradually return to its previous state. However, if these investors (or some portion of them) believe that the tax policy will be approved at some point in the future, the original equilibrium will not be reattained, as shown in Figure 4-3.

Figure 4-3: The Dynamic Effect of Anticipated Taxes



The public has seen the Biden Administration advocate for its preferred tax changes over the last three years. These are not small changes, and if investors believe their implementation to be somewhat probable, long-term corporate investments would be lower than in a scenario absent such a threat. In other words, it is possible that the incomplete post-pandemic recovery is partially attributable to reduced levels of investment due to these tax policies that have been proposed, but not implemented.

This scenario would also imply that if the Biden Administration's preferred tax reform is passed, the reduction in wages and productivity would be somewhat smaller than projected in Box 4-6, because rational investors are already hedging their bets about the potentially reduced stock of investment capital in the future.

The scenario also serves as a lesson of how political rhetoric about taxes can affect economic growth. Even if the tax increase never materializes, the mere potential of its passage can be enough to reduce economic growth.

Moreover, the stock of capital available to invest would change not only quantitatively but also qualitatively, disfavoring the long-term tangible investments that help stimulate structural growth. This is one of the reasons that countries in Latin America, where

changes in governments have led to abruptly different tax policies, find it hard to attract long-term foreign investment. The possibility that the next election could render the investments worthless decreases the expected payoff for investing.

The U.S. Tax System is not “Unfair”

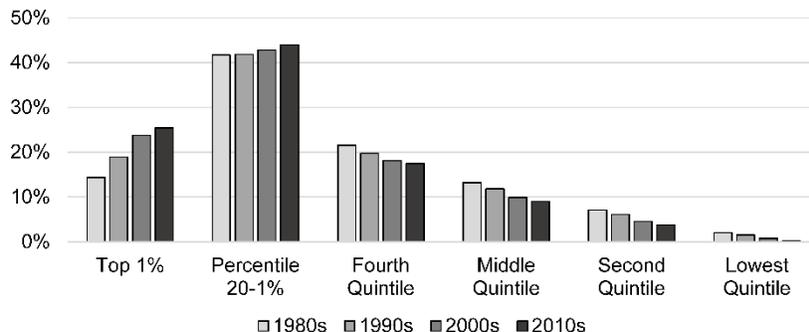
The U.S. Tax System is Highly Progressive

As it describes the Biden Administration’s proposed tax reforms, the President’s Budget for FY2024 repeats the term “fair share” nineteen times. The rhetoric that the U.S. tax system is unfair has been taken up by many political figures, arguing that the wealthy do not contribute a sufficient portion of taxes. The argument implies that the working class is burdened with paying more taxes than is appropriate to make up the difference.

The data do not support this view. While exceptions to the rule exist, higher income households account for an increasingly disproportionate amount of total tax collections. When net taxes are considered (accounting for government redistribution of income), the situation becomes even more lopsided.

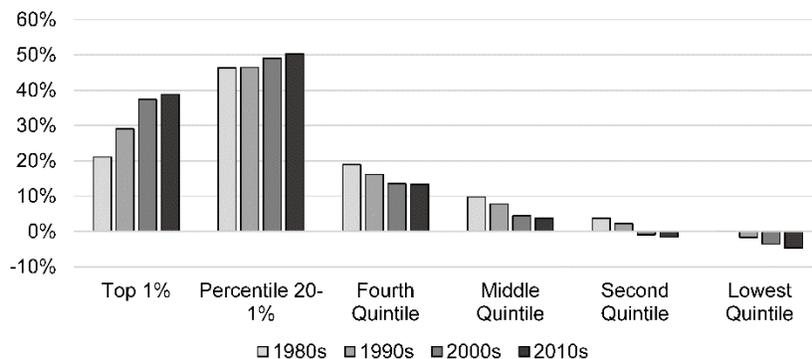
Figure 4-4 shows the proportion of total Federal taxes paid by each income quintile of households from 1979 through 2019. The taxes collected from the top 20 percent of households went from 55 percent of all Federal tax receipts in 1979 to almost 70 percent by 2019. This share is even higher when focusing on income tax liability (see Figure 4-5). The top quintile accounts for 90 percent of all income tax receipts, while the lowest two quintiles experience a net negative tax liability due to government transfers.

Figure 4-4: Shares of Household Federal Tax Liabilities



Source: CBO (November 2022 report *The Distribution of Household Income, 2019*)

Figure 4-5: Shares of Personal Income Tax Liabilities, Accounting for Transfers



Source: CBO (November 2022 report *The Distribution of Household Income, 2019*)

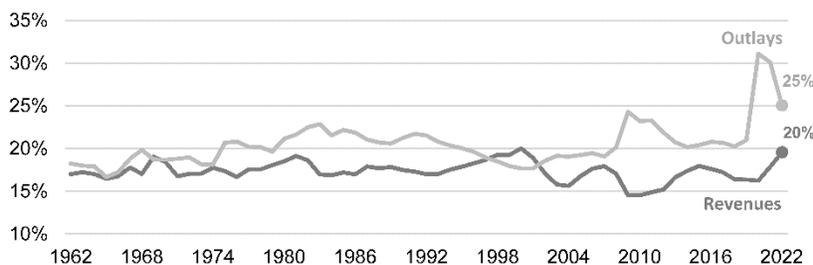
While a large part of the U.S. population appears to believe that the top 1 percent of households find ways to avoid paying any taxes, the reality is that these households have consistently contributed a disproportionate and increasing share of tax collections. Notably, this steady increase in the share of total government revenues contributed by the top quintile has occurred *despite* multiple large-scale tax reforms in recent years.

- Tax Reform Act of 1986
- Taxpayer Relief Act of 1997
- Economic Growth and Tax Relief Reconciliation Act of 2001

- Jobs and Growth Tax Relief Act of 2003 plus extensions
- Tax Cuts and Jobs Act of 2017

Another oft-repeated accusation against the modern U.S. tax system is that modern Federal deficits are caused by improperly low marginal income tax rates, especially on the highest income households. This argument may seem superficially accurate because *statutory* personal income tax rates were indeed higher in the past. The highest marginal tax rate exceeded 90 percent in the 1940s and 1950s before being lowered to 70 percent from 1964 until 1982.³⁰⁰ The top marginal income tax rate was decreased to 50 percent in 1982 and to 28 percent in 1986, before being increased to between 35–39.6 percent from the early 1990s until today.³⁰¹ Throughout this period, however, the *effective* tax rate on the highest earners has been fairly consistent, suggesting that arguments premised on prior statutory tax rates are irrelevant (see Figure 4-6).³⁰² This is another indication that Federal deficits are a spending problem, not a revenue problem.

Figure 4-6: Revenue and Outlays as a Percent of GDP

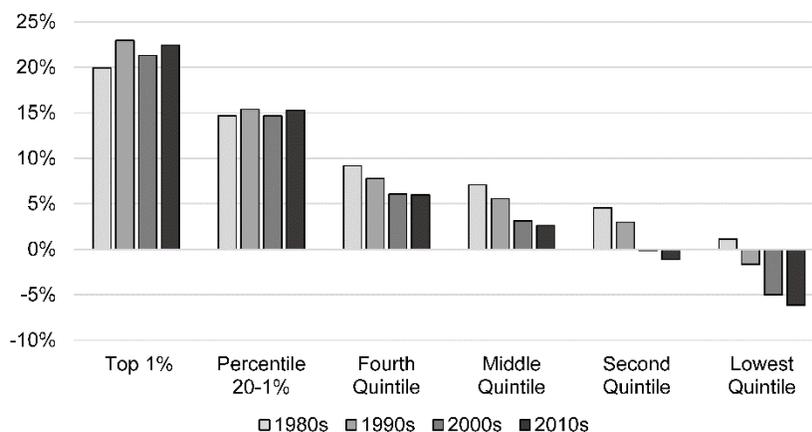


Source: CBO (February 2023 report *The Budget and Economic Outlook: 2023 to 2033*)

Figure 4-7 illustrates that the average individual income tax rates (15 percent for the top quintile and 20–25 percent for the top 1 percent of earners) have been consistent since at least 1979, despite the multiple substantial changes in tax brackets that have

occurred since then. In comparison, the average individual income tax rates for the lower four quintiles have trended lower, with the second-highest quintile currently paying about 5 percent of their income in taxes while the lowest two quintiles effectively experience negative income tax rates (see Figure 4-7).

Figure 4-7: Average Federal Individual Income Tax Rate, Including Tax Credits and Deductions



Source: CBO (November 2022 report *The Distribution of Household Income, 2019*)

The U.S. Tax System Is More Progressive Than Most Other Advanced Economies

Another common argument in favor of raising taxes is that the United States does not tax wealthy households as much as some other OECD countries. While it is true that the top marginal personal income tax rates are higher, especially in Europe, there are several additional factors to consider.

First, most comparisons only consider taxes levied by the central government, meaning they omit sub-national (e.g., state) tax collections which have a larger role in U.S. government finances.³⁰³ For example, under President Biden's FY2024 budget proposal, the combined Federal and state top marginal personal income tax would exceed 54 percent and 52 percent in New York and California respectively.³⁰⁴ Nor is this the whole story, since

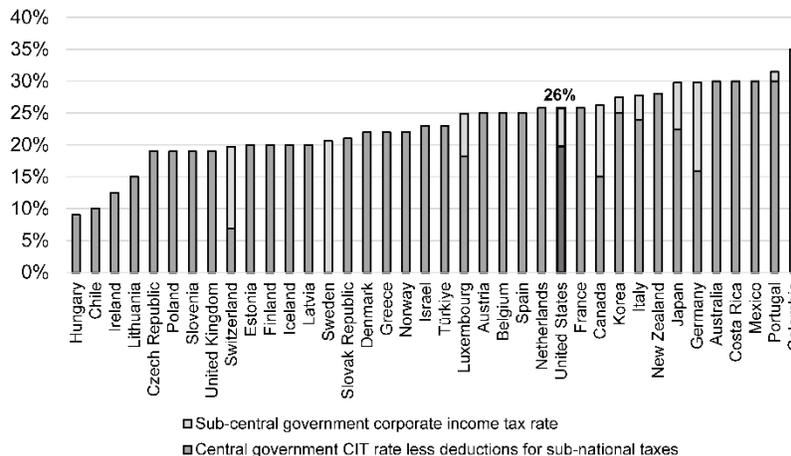
multiple states omit income taxes entirely, preferring to primarily fund government operations on sales, property, or severance taxes.

Moreover, this class of argument completely ignores that the same countries often have a less progressive tax structure than the United States. As shown, the lower income quintiles in the U.S. effectively receive a negative income tax—their counterparts in the OECD generally face positive tax rates, especially in countries that use VAT (Value-Added Taxes).³⁰⁵

Furthermore, despite having low top marginal income tax rates, the United States is in the top half of countries in terms of revenue collected from distributionally-progressive taxes (like personal and corporate income) while near the bottom in tax collection from distributionally-neutral taxes (like VAT and sales taxes).³⁰⁶

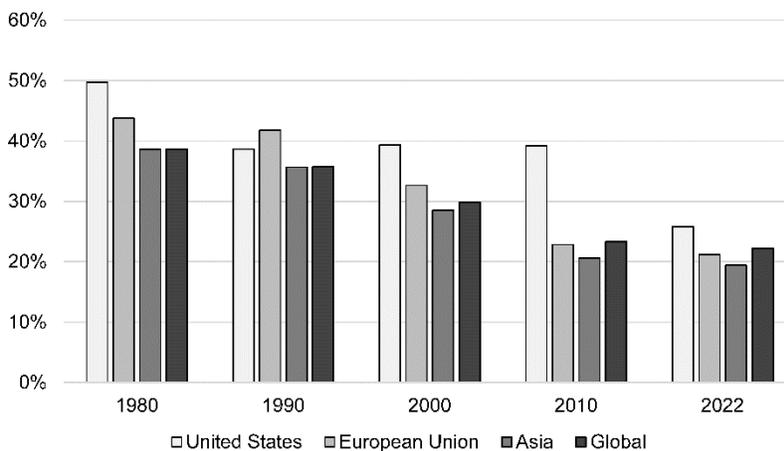
Finally, U.S. corporate tax policy is not an outlier compared to other advanced economies. The reduction in corporate tax rates in the 2017 Tax Cuts and Jobs Act is best understood as the U.S. catching up to a worldwide trend originating in the 1980s (see Figure 4-8). Its corporate income tax remains above the median of similar taxes across the world (see Figure 4-9). If progressive tax outcomes are the metric that determines fair tax policy, then the U.S. is a world leader in fair taxes.

Figure 4-8: Net Corporate income tax rate in OECD Countries



Source: OECD (2022 National and Subnational Corporate Income Tax Rates).

Figure 4-9: Comparison of Net Corporate Tax Rates



Source: OECD (Table II.1. Statutory corporate income tax rate)

Appendix: Deriving the Neoclassical Growth Model

Model

The basic output function is defined as:

$$Y = TFP * F(K, L)$$

where, Y is the total output, TFP is the total factor productivity, K is a measurement of capital employed, and L is the amount of labor used in production. The function F represents the transformation of inputs into final production.

When constant returns to scale are assumed, there are two ways to measure changes in the system. First, changes in the factors:

$$\Delta Y = \Delta TFP + (S_L \Delta L + S_K \Delta K)$$

Where Δ represents a percent change of a variable ($\Delta X = \partial X/X$), and S_K, S_L represent the share of revenue attributable to the cost of each input factor. Second, changes in the prices:

$$\Delta TFP = S_L \Delta \frac{W}{P} + S_K \Delta \frac{R}{P} = S_L \Delta w + S_K \Delta r$$

where W represents nominal wages (w , real), R represents the nominal return to capital (r , real), and P is the price of the final product.

Assume that capital is perfectly elastic in the long-run, therefore, $\Delta R = -\Delta(1 - \tau)$.

If the total factor productivity remains constant ($\Delta TFP = 0$), the one can derive the equations for changes in the business sector:

Real Wages:

$$S_L \Delta w + S_K \Delta r = 0$$

$$\Delta w = -\frac{S_K}{S_L} \Delta r$$

$$\Delta w = \frac{S_K}{S_L} \Delta(1 - \tau)$$

Capital Intensity:

First, define elasticity as $\sigma = \frac{(\Delta K - \Delta L)}{(\Delta W - \Delta R)}$

$$\Delta K - \Delta L = \sigma(\Delta W - \Delta R)$$

Replacing ΔW with $\frac{S_K}{S_L} \Delta(1 - \tau)$ and ΔR with $-\Delta(1 - \tau)$

$$\Delta K - \Delta L = \sigma \left(\frac{S_K}{S_L} \Delta(1 - \tau) - (-\Delta(1 - \tau)) \right)$$

$$\Delta K - \Delta L = \sigma \left(\frac{S_K}{S_L} + 1 \right) \Delta(1 - \tau)$$

$$\Delta K - \Delta L = \sigma \frac{S_K + S_L}{S_L} \Delta(1 - \tau)$$

Given the assumption of constant returns to scale, $S_K + S_L = 1$

$$\Delta K - \Delta L = \frac{1}{S_L} \sigma \Delta(1 - \tau)$$

Average Labor Productivity:

Taking the equation representing percentual change in total output and taking $\Delta TFP = 0$,

$$\Delta Y = S_L \Delta L + S_K \Delta K$$

Subtracting ΔL on both sides and replacing $S_L = 1 - S_K$

$$\Delta Y - \Delta L = (1 - S_K) \Delta L + S_K \Delta K - \Delta L$$

$$\Delta Y - \Delta L = S_K \Delta K - S_K \Delta L$$

$$\Delta Y - \Delta L = S_K (\Delta K - \Delta L)$$

Using the form of capital intensity, $\Delta K - \Delta L = \frac{1}{S_L} \sigma \Delta(1 - \tau)$

$$\Delta Y - \Delta L = S_K \left(\frac{1}{S_L} \sigma \Delta (1 - \tau) \right)$$

$$\Delta Y - \Delta L = \frac{S_K}{S_L} \sigma \Delta (1 - \tau)$$

Calibration

We follow the standard literature for the first two components, assuming $S_K=0.4$, and $\sigma=1$.³⁰⁷

The last component to estimate is the changes in taxes. This is a little bit more complex because the income received from investing in C-corporations has two layers of taxation (see Box 4-1).³⁰⁸ Moreover, not all investors will be affected in the same way. Therefore, $\Delta(1 - \tau)$ cannot be taken as the simple addition of tax rates. Table 4-3 shows the effective tax rates on capital before and after credits using the latest Internal Revenue Service data.³⁰⁹ To estimate the change in the after-tax returns, use the second set of columns in the table. The table shows that the overall after-credit tax rate closely follows the rate paid by the largest companies.

Table 4-3: Average Corporate Income Tax Rates³¹⁰

RETURNS OF ACTIVE CORPORATIONS, OTHER THAN FORMS 1120S, 1120-REIT, AND 1120-RIC								
Size of business receipts	Percentage income tax over income subject to tax before credits				Percentage income tax over income subject to tax after credits			
	2016	2017	2018	2019	2016	2017	2018	2019
Total	35.1	35.8	20.6	21.5	24.9	26.4	12.5	14.8
< \$25K	33.3	33.0	21.3	21.8	30.1	31.1	16.4	16.6
\$25–100K	20.3	23.8	20.6	–	19.6	23.7	20.1	20.2
\$100–250K	19.9	20.2	20.9	21.4	19.5	19.7	19.6	20.2
\$250–500K	22.8	22.5	21.1	21.1	21.7	22.0	20.4	19.0
\$500–1M	24.5	24.6	21.4	21.3	23.9	23.7	19.3	20.7
\$1–5M	29.1	29.9	21.3	21.4	27.8	28.4	20.3	20.4
\$5–10M	33.7	32.7	21.7	21.3	31.9	31.1	19.9	20.0
\$10–50M	34.6	34.0	21.7	21.5	32.4	31.7	19.7	19.5
\$50–100M	34.8	34.3	21.6	21.3	31.3	32.3	18.9	18.0
\$100–250M	35.3	35.2	21.5	21.3	32.0	30.1	18.4	18.5
\$250–500M	35.2	35.2	21.4	21.4	30.0	31.5	16.8	17.7
\$500–1B	35.3	35.5	21.7	21.7	28.0	30.3	15.9	17.2
> \$1B	35.2	36.3	20.5	22.2	23.8	25.4	11.6	14.2

Note that this data is prior to Inflation Reduction Act's Corporate Alternative Minimum Tax (CAMT), which imposed a 15 percent minimum tax on the net income reported in large corporations' financial statements.

Use the 2019 data from Table 4-3 if corporations in the highest bracket (greater than \$1 billion) pay 15 percent on profits (after credits) while the rest pay their listed tax rate in the rightmost column. Given that companies with receipts over \$1 billion represent around 80 percent of total tax receipts, the corporate income tax rate on taxable income would be 15.5 percent. That is, $(1 - \tau_c^{pre}) = 0.845$.³¹¹

The Biden Administration's proposed tax reform applies a generalized tax increase to domestic and foreign profits, trying to close every provision that companies might use to avoid the tax increase. Therefore, the estimate relies on a simplifying assumption that business see their taxes on profit rise by 7 percent higher across the board, that is $(1 - \tau_c^{post}) = 0.775$.

Next, calculate the changes in taxes on dividends. The Biden Administrations tax proposal would restore the top marginal individual income tax rate to 39.6 percent and would also tax qualified dividends as ordinary income for those earning over \$1 million in a year. Using Internal Revenue Service data for personal income tax, JEC economists estimate the rates for ordinary dividends using the amounts reported for each bracket and the average income tax paid over taxable income.³¹² Since qualified dividends are currently taxed at a different rate, JEC applied those preferential rates to each corresponding bracket. Using this methodology, the value of the overall pre-reform tax rate on dividends as τ_d^{pre} is 0.202.

The post-reform rate is calculated in a similar way but changes the rates of the higher earners to the average rates of 2016, which is the last year before there were discussions about possible tax cuts.³¹³ JEC estimates τ_d^{post} as 0.234.

If the investor pays income tax for each dollar of profit that was also subject to the corporate tax, then the average investor that invests in the average C-type corporation, would see their post-tax share of the corporate profit reduced by more than eight cents for every dollar:

$$\left. \begin{aligned} (1 - \tau^{post}) &= (1 - \tau_c^{post})(1 - \tau_d^{post}) = 0.775 * 0.766 = 0.594 \\ (1 - \tau^{pre}) &= (1 - \tau_c^{pre})(1 - \tau_d^{pre}) = 0.845 * 0.798 = 0.674 \end{aligned} \right\}$$

This represents almost a 12 percent decrease in income received.
Replacing the equations defined above:

- Changes in Real Wages:

$$\Delta w = \frac{S_K}{S_L} \Delta(1 - \tau) = \frac{2}{3} (-0.1196) = -0.0797$$

- Changes in Capital Intensity:

$$\Delta K - \Delta L = \frac{1}{S_L} \sigma \Delta(1 - \tau) = \frac{5}{3} (-0.1196) = -0.199$$

- Changes in Average Labor Productivity:

$$\Delta Y - \Delta L = \frac{S_K}{S_L} \sigma \Delta(1 - \tau) = \frac{2}{3} (-0.1196) = -0.0797$$

That is, project that the Biden Administration's proposed tax increases will decrease wages and labor productivity by 8 percent, in combination with nearly a 20 percent reduction in capital intensity.

CHAPTER 5: GETTING PRIME-AGE MEN BACK TO WORK

Prime-age men's labor force participation has trended consistently downward for 60 years. One in nine men between the ages of 25 to 54 is now a non-participant in the workforce—more than triple the rate recorded during the 1950s.³¹⁴

This reduction in labor supply has had profound socioeconomic and fiscal effects. If 25 percent of inactive prime-age men could be re-integrated into the workforce, JEC economists' projections show that:

- the economy (measured as GDP) would be \$215 billion larger,
- the Federal government would collect an additional \$400 billion from 2024–2033,
- average household income would increase by \$1,325.

There are a variety of explanations for the increase in prime-age men's inactivity, but perhaps the most credible answer is that each factor increasing prime-age men's inactivity tends to reinforce the others.

- Rising participation in state and Federal disability programs, as well as other income support programs and the support of family members, allows inactive prime-age men to avoid destitution.
- The social pressures and self-esteem that kept men in the workforce, such as the potential for marriage and the prospects for a satisfactory job, have decreased.
- Institutional barriers to work, such as occupational licenses, have reduced employment opportunities.

The Bureau of Labor Statistics forecasts that the decline in prime-age men's labor force participation will continue over the next

decade, constraining economic growth.³¹⁵ Two policy proposals that could help reverse this trend are:

- expand employers' ability to invest in worker education and training, and
- protect the supply of independent work opportunities that allow workers to easily reconnect with the workforce.

Growth of the U.S. Labor Supply Faces Headwinds

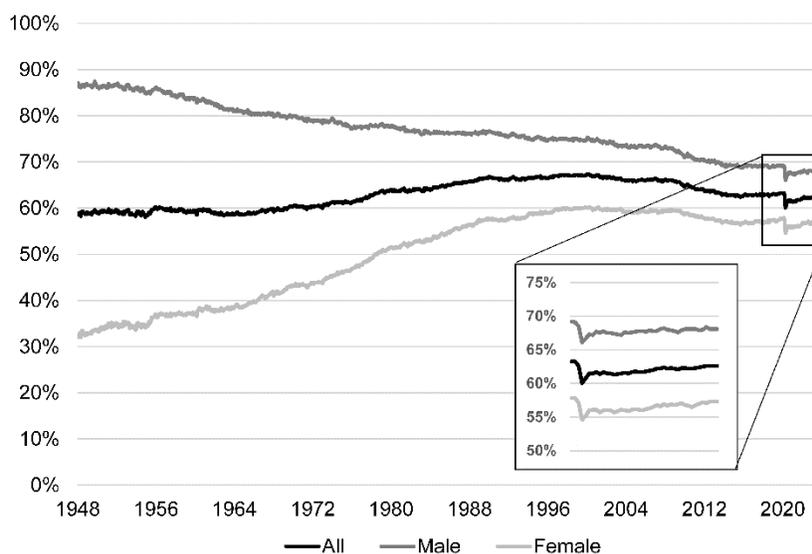
The U.S. labor market has seen substantial changes in the post-WW2 era. Men's overall labor force participation has trended steadily downward from a peak of 86.6 percent in 1948, while women's overall labor force participation rose to a peak of 60 percent in 1999 (see Figure 5-1). Combined overall labor force participation peaked in the same year. More specifically, men's *prime-age* (ages 25–54) labor force participation peaked at almost 98 percent in the 1950s but has since gradually decreased. Women's prime-age labor force participation rose along with the general trend, and recently exceeded its previous 1999 peak. As of mid-2023, men's labor force participation is roughly 11 percentage points higher than that of women across most age brackets—but the gap is noticeably smaller than the 16-percentage point difference that existed in 2008.

The growth of U.S. labor supply faces headwinds over the next decade, most notably due to the ongoing shift of the baby boom generation from the workforce to retirement (see Figure 5-2), but also from the long-run decreased participation of prime-age men in the labor market (see Figure 5-3). The overall workforce growth rate has gradually slowed due to these demographic trends, which has contributed to recent slower economic growth, reduced tax receipts, increased government spending, and greater social and socioeconomic dysfunction. Importantly, as Congress considers policies to address our ailing workforce, it is important to ensure

that those policies do not inadvertently push out productive older workers who would otherwise remain in the labor force.

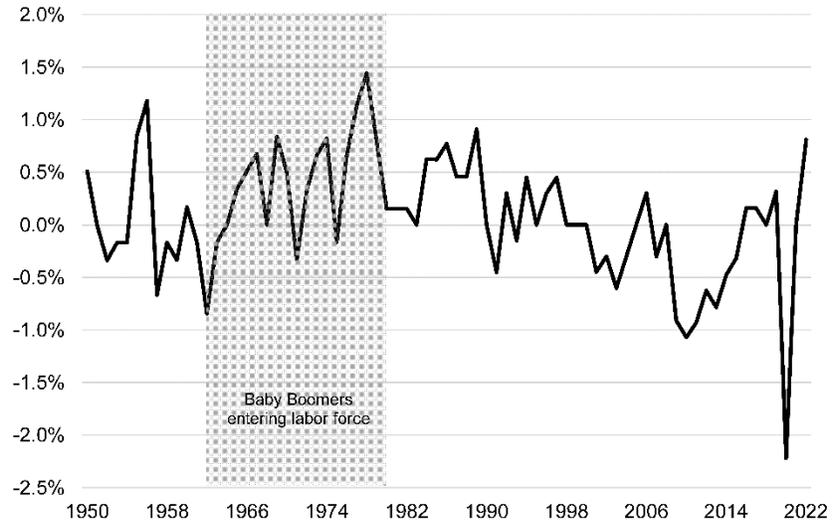
The retirement of baby boomers was anticipated, but the exit of prime-age men from the workforce has been a surprise. Prime-age men's labor force participation rate (LFPR) is 8 percentage points lower than its 1950s peak—if the same participation rate applied today there would be 5.5 million more participants in the labor market and the economy would be approximately 6 percent (\$1.6 trillion) larger.³¹⁶ The phenomenon has motivated much discussion and analysis, including previous research by the CEA (Council of Economic Advisers) and JEC (Joint Economic Committee), but it is difficult to determine the primary cause driving the trend.³¹⁷

Figure 5-1: U.S. Labor Force Participation Rates



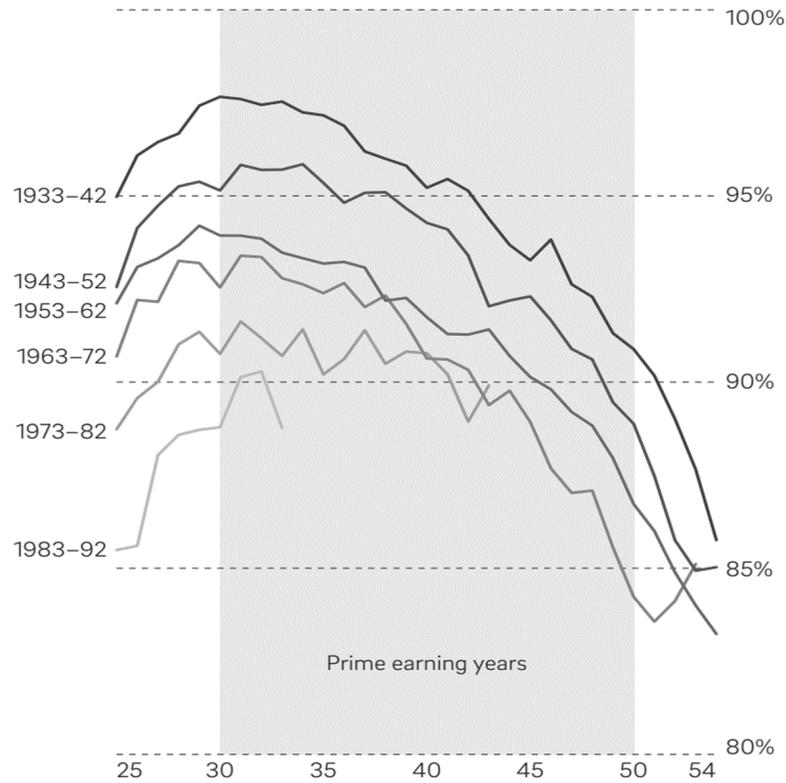
Source: BLS (Series IDs: LNS11300000, LNS11300001, LNS11300002). Magnified section observes January 2020 to June 2023.

Figure 5-2: Growth Rate of U.S. Labor Force



Source: BLS (Series ID: LNS11300000).

Figure 5-3: Generational Decline of Male Labor Force Participation



Source: Figure taken from the Federal Reserve Bank of Philadelphia, (Fourth Quarter 2017).

Inactive Prime-Age Men are Heterogenous

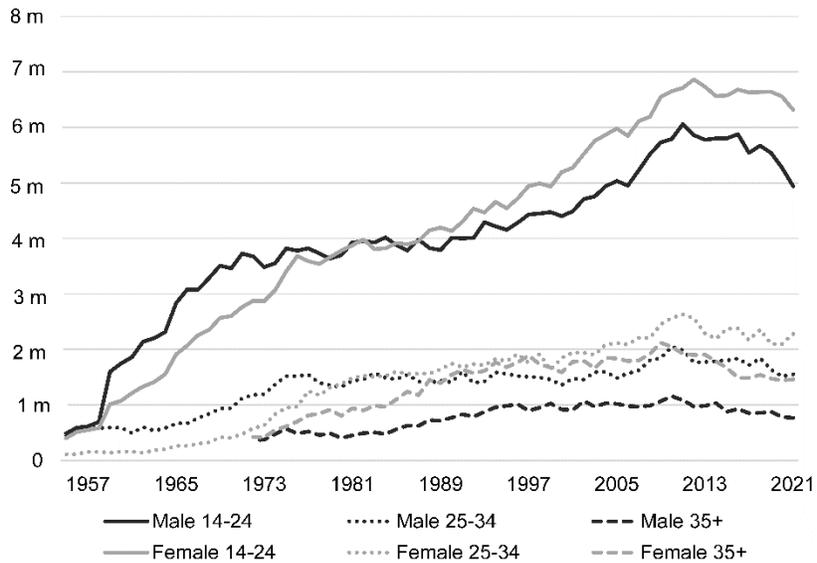
Nonparticipation in the workforce (abbreviated as “inactive” or “NILF” for “not in the labor force”) describes the third potential workforce status, alongside workers who are employed and those who are counted as officially unemployed.³¹⁸ These statistics are estimated for the “non-institutional population,” meaning the large majority of the population which are not part of the military, incarcerated, or living under supervised medical care.³¹⁹ Prior to 1970, less than 4 percent of prime-age men were inactive but as of 2023 this figure is now 11 percent.

The same Bureau of Labor Statistics survey that provides information on labor force participation also asks the respondents the reason for their inactivity. Based on this self-report, the prime-age men who are inactive can be categorized into 5 groups:

- Students
- Early retirees
- Family care providers
- Those for whom disability prevents work
- Some other reason (or no reason) for inactivity

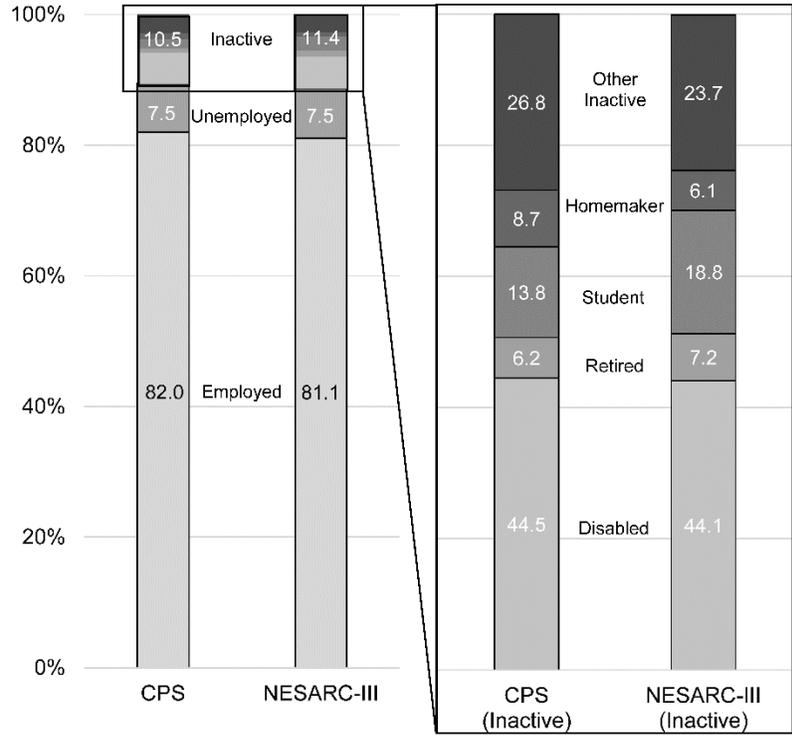
Students, early retirees, and family care providers make up the smallest categories of inactive prime-age men. Each group has increased in size over previous decades, as higher-education enrollment has expanded (see Figure 5-4), workers have exercised early-retirement options (mostly attributable to government workers and military service members) and men have taken greater roles as family caregivers.³²⁰ Despite the growth of each, these three groups in combination account for less than a third of prime-age inactive men (see Figure 5-5).

Figure 5-4: College Enrollment by Age and Sex



Source: U.S. Census Bureau (CPS, *Historical Time Series Tables on School Enrollment, Table A-6*). Data for students aged 35 and over not available before 1972.

Figure 5-5: Reason for Male Labor Force Inactivity



Source: Data reproduced from JEC Social Capital Report (SCP) No. 2-18 (*Inactive, Disconnected and Ailing: A Portrait of Prime-Age Men Out of the Labor Force; Figure 1*).

Those reporting that a permanent disability renders them unable to work make up the largest group (approximately 44 percent) of prime-age inactive men.³²¹ They account for a smaller share of all inactive prime-age men than in prior decades, but still represent almost half of the increase in prime-age inactive men.³²² The sizeable increase of this group is somewhat surprising, given the substantial improvements in workplace safety, physical therapy, and decline in physically-demanding jobs.³²³ Growth in the number of men receiving Federal and state disability benefits accounts for most of this increase in inactivity.³²⁴ Interestingly, though perhaps not entirely unexpected, even non-disabled prime-age inactive men are more likely to report being in poor physical

and mental health (see Box 5-1 for a discussion of how telehealth reforms could improve prime-age men's access to healthcare).³²⁵

Box 5-1: Improving Access to Telehealth

State regulations severely inhibit the provision of telehealth services. This is because most state medical licensing regulations stipulate that the provision of medical service occurs wherever the patient is located, not the medical provider. As a result, any telehealth provider who even provides a modicum of service to a patient in another state must be licensed in that state, or else risk legal action for practicing without a license.

This approach to licensing has balkanized the U.S. medical system. In the 1990s, as long-distance phone call rates fell and inexpensive telehealth became a feasible option, it was the threat of action by the Federal government that motivated states to create the Nurse Licensure Compact to allow for mutual recognition of nursing licenses. However, the movement faltered after less than half of states joined the compact.³²⁶ Following expansions in broadband internet availability and the development of Wi-Fi and smartphones that would have enabled telehealth to reach many more patients, the Federal government again began to move toward solving the restrictions on telehealth.³²⁷ This motivated states to replace the NLC with the enhanced Nurse Licensure Compact (eNLC), which as of July 2023 has 41 members (39 states and 2 territories).³²⁸ Multiple other medical licensure compacts have been created to expand the potential of telehealth, as well as facilitate the movement of healthcare providers throughout the country.

While this progress is laudable, it is not sufficient. Many states remain holdouts to the medical licensure compacts. In addition, most states have rolled back their temporary authorizations for out-of-state mental health providers practice under their existing license during the COVID-19 pandemic.³²⁹ Research suggests that

a substantial portion of prime-age men's disengagement from the workforce is attributable to mental health difficulties and other health issues including substance abuse.³³⁰ Such services are easily provided via telehealth, which would substantially reduce the monetary and logistical cost of the counseling sessions that could help inactive prime-age men turn their lives around.

Regulation of interstate commerce is the domain of the Federal government, and the creation of Federal licenses for telehealth providers would vastly expand the availability of such services. These Federal licenses should be limited in application to the specific situations where healthcare workers provide services across states lines—within-state provision of medical services would remain the domain of the state government. The Federal licenses could be patterned after the already-successful compact licenses, and a Federal licensing regime should not overrule states which have signed a compact governing the cross-border provision of medical services with each other. In such cases, the compact should govern such cross-border services rather than the Federal license. In short, the Federal license would only apply to situations where either the telehealth practitioner or the patient is in a non-compact state.

The Value of Increasing Prime-Age Men's Activity

Each of the first four groups of inactive prime-age men arguably has a reasonable rationale for their inactivity, but the fifth group does not fit into any of the previous explanations. Around 25 percent of inactive men belong to this other group, corresponding to approximately 1.8 million potential workers—equivalent to 1 percent of the current workforce.³³¹ The economic, fiscal, and social value achieved from these individuals' return to the workforce could be considerable (see Box 5-2).

This goal is not impossible. Although many inactive prime-age men seem fully disconnected from the workforce—having neither worked or looked for employment in over a year—this point-in-time snapshot approach misses that there is substantial churn in and out of the workforce for the rest.³³² This means that a typical data analysis would effectively undercount the number of “in-and-outs” and overcount the number of “dropouts” (because each dropout would be counted multiple times across ongoing surveys).³³³ The in-and-outs are a prime group to target for policies that would help reconnect them with the workforce.

Box 5-2: Benefits of Improving Men’s Labor Force Participation

There are several economic benefits that could be realized by reconnecting a quarter of inactive prime-age men to the workforce.

Economic Growth

JEC economists follow the Congressional Budget Office’s (CBO) methodology for estimating the long-run economic effect of an increase to labor supply.³³⁴ The data for the CBO’s “Budget and Economic Outlook: 2023 to 2033” show that their models estimate the projected labor share of income from the nonfarm/business sector is 0.671.³³⁵ This sector accounts for approximately 75 percent of the economy.³³⁶ The labor share of income for the other economic sectors (agriculture, government, non-profit, and household) is close to 1.0.³³⁷

Using this information, JEC constructed a weighted average that models the elasticity of potential output growth (which corresponds to the long-run growth in real Gross Domestic Product) with respect to increases in labor supply. A 1 percent increase in labor supply, effectively that which would result from reconnecting 25 percent of inactive prime-age men with the workforce, would expand the economy by 0.80 percent. This

corresponds to a permanent increase in annual economic activity worth \$215 billion (2023 dollars).

Fiscal Effects

JEC economists follow the CBO's methodology for estimating the effect of long-run economic growth on tax receipts. Federal revenues are projected to average 18.2 percent of GDP from 2023–2033.³³⁸ They use this, in conjunction with CBO's GDP projections and the previous estimate that reconnecting 25 percent of currently inactive prime-age men to the labor force would increase long-run economic activity by 0.80 percent, to estimate that Federal receipts would rise by around \$400 billion over 2024–2033.³³⁹

Household Income

Following the CBO's methodology, JEC economists use the anticipated long-run increase in GDP to estimate the associated increase in average household income. Multiplying the increase in long-run GDP by the derived labor income share of long-run GDP (0.80, see above), produces the long-run anticipated growth in worker incomes, estimate to be \$175 billion annually in 2023 dollars. This is equivalent to a \$1,325 permanent increase in average household income (however, the increase is likely to predominantly occur at the lower end of the income distribution because inactive prime-age men generally have lower education attainment than average).³⁴⁰

Why Are Prime-Age Men Increasingly Inactive?

There are two general categories of explanations for prime-age men's declining labor force participation: supply-side factors and demand-side factors (see Boxes 5-3, 5-4, and 5-5). To a limited extent, each avenue may influence the other. For example, if some workers reduce their supply of labor due to other sources of

income, employers may increase their investment in labor-saving capital in response to the upward pressure on wages that the labor shortfall causes.³⁴¹ This could lead to permanent changes in the demand for labor, as broad application of the new technology may diminish labor demand beyond the original reduction in labor supply.

Box 5-3: The Structure of Labor Supply

Looking at the situation from workers' point of view, the most basic model in labor economics evaluates the fundamental tradeoff that workers make between consumption and leisure. According to this model, workers maximize their wellbeing, or utility (U), by devoting a portion of their time to productive activities (Work) that enable consumption (C), and allocate their remaining time to leisure (L, a term that serves as a catch-all to denote non-productive activities, such as sleep, entertainment, socialization, etc.). The ability to maximize utility is constrained by the individual's budget for time and money.

Maximize $U(C, L)$, subject to:

Time Budget = Work + Leisure

Consumption \leq Work * Wage + Other Income

A given worker's response to a change in their wage or other income will depend on their utility function (and where they are on their utility function). In this simplistic scenario, a (rational) worker will allocate their time budget such that the marginal benefit of an additional unit of consumption and leisure are equivalent. At such an equilibrium, and holding all other things constant, a wage increase would likely motivate them to devote more time to work, until the tradeoff between marginal changes in work and leisure again equalizes. Alternately, if their income from other sources increases, they will likely decrease the time they

devote to work until the marginal benefit of consumption and leisure equalizes.³⁴²

A small but important expansion to this simplistic model would include accounting for the worker's reservation wage. A worker's reservation wage is effectively their opportunity cost of working—the minimum compensation they require to enter the workforce. An individual's reservation wage depends on their other sources of income, such as whether their household contains other workers or receives social welfare benefits, and the value of the time they devote to household production activities.

$$\text{Reservation Wage} = f(\text{Household Production}, \text{Other Income})$$

Adding household production transforms the model:

Maximize $U(C, L)$, subject to:

$$\text{Time Budget} = \text{Work} + \text{Leisure} + \text{Household Production}$$

$$\text{Consumption} \leq \text{Work} * \text{Wage} + \text{Other Income} + \text{Household Production}$$

Again, a rational individual will tend to allocate their time such that the marginal effect on their utility from consumption and leisure are equal. Like before, an increase to the value of household production would tend to decrease the time allocated to work and leisure. A common example of this is seen when parents make the decision to reduce the amount of time devoted to outside work (and leisure) to provide care for a newborn baby.

Another relevant expansion to the model would be to include the non-pecuniary value of work and household production. This is the utility that an individual derives from a productive activity, or from the indirect benefits it provides, separate from the utility of the consumption it allows. It can be positive if the individual is employed in a job they enjoy, perhaps because of friendly

coworkers that form a supportive community, or because they find meaning in what they produce, or due to the social status the job provides. It can also be negative if the worker feels their skills are improperly matched to their job, or if they lack a sense of autonomy or control over their efforts, or if the job interferes with a healthy work-life balance.

Adding the non-pecuniary value of work and household production transforms the model:

Maximize $U(C, L, NPV)$, subject to:

Time Budget = Work + Leisure + Household Production

Consumption \leq Work*Wage + Other Income + Household Production

The inclusion of the non-pecuniary value of work adds substantial complexity, because different jobs and different forms of household production will provide different amounts of non-pecuniary value to each person. However, it could be relevant to the issue of prime-age men's inactivity if those who are inactive perceive that the non-pecuniary value of available jobs have changed over time.

Box 5-4: Supply-Side Explanations for Men's Inactivity

There are several supply-side explanations as to why prime-age men's inactivity has increased. The first suggests that expansions to government income assistance—predominantly Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI)—have increased the other income category, leading to reductions in the supply of labor by those workers (See Box 5-3 for a discussion of how workers make labor supply decisions). For example, reforms to the SSDI program in the 1980s expanded eligibility for mental health conditions, as well as other qualifying criteria, increasing the payoff for workers to exit the labor market

completely to substantiate their request for approval.³⁴³ Furthermore, because income is fungible, a prime-age man's labor force participation can be affected by others in his household who work or have been approved for government income assistance. Inactive prime-age men are substantially more likely than employed prime-age men to live with a relative who heads the household and provides for expenses.³⁴⁴

Another supply-side explanation proposes that improvements to the quality of leisure activities have effectively increased prime-age men's reservation wage, leading the workers with the lowest expected income to exit the labor market or delay entering it. Indeed, the American Time Use Survey shows that inactive prime-age men on average spend about 7.5 hours each day on leisure activities.³⁴⁵

Third, if the type of jobs available have substantially changed (or if prime-age men's expectations of the benefits that work should provide has changed), then the implicit value provided by employment may have decreased. The gradual ascent of the service economy in the U.S. may have reduced the availability of blue-collar jobs while women overtaking men in college education may have caused the marriage market for lesser-educated men to become increasingly difficult.³⁴⁶

Research published by the Federal Reserve Bank of Richmond suggests that the decline in marriage rates is associated with a quarter of the 8.4 percent decline in average annual work hours by prime-age men from 1979 and 2018.³⁴⁷ If the implicit rewards gained from employment have decreased, it would help explain why, even in the current labor market where there are more than 1.5 jobs for each job seeker, inactive prime-age men are not returning to the labor market in larger numbers.³⁴⁸

Lastly, there has been an outsized increase in occupational licensing regulations, rising from covering 5 percent of jobs in the 1950s to 25 percent of current jobs.³⁴⁹ These changes, as well as the overall increase in higher-educated workers competing for jobs, may have closed off higher-pay and higher-value employment for some men, leading them to exit the labor force completely rather than accept a lackluster job. This phenomenon may also play a role in why so many men have delayed or abandoned attaining higher education.³⁵⁰

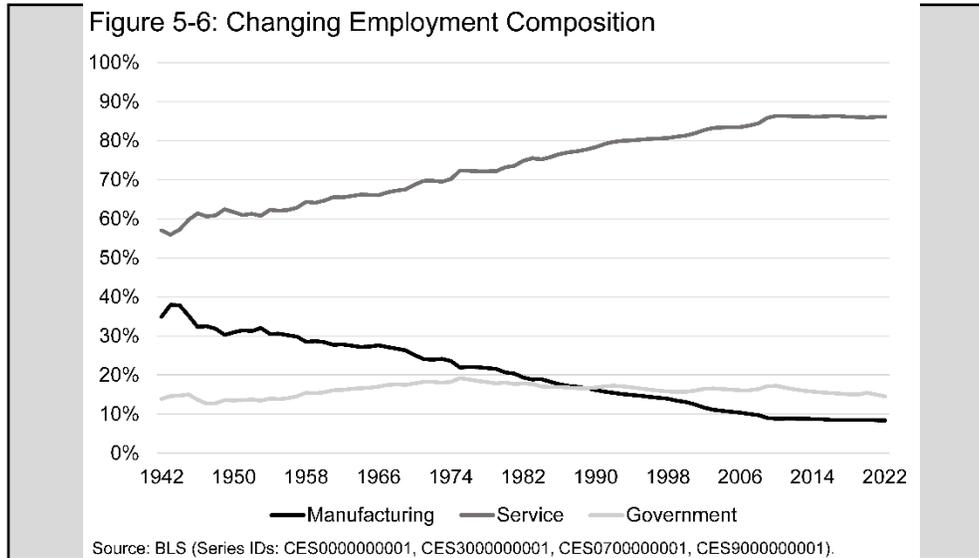
A combination of explanations seems to be the most likely answer to prime-age men's increasing inactivity. Increased access to other sources of income, including government assistance, opens the door to reduced labor force participation. This is exacerbated by higher value entertainment options, which increase a worker's reservation wage. In fact, many modern video games are explicitly structured to reward progress in ways designed to keep the player occupied for longer time periods. Interestingly, in many cases this progression mimics the gradual accumulation of mastery (and in some cases places demands on the players resembling the completion of work-like activities).³⁵¹ This perhaps addresses the intrinsic human need to feel productive that might otherwise lead a person to gravitate back toward employment. Furthermore, women have reversed the education gap that existed prior to 1982 and now receive almost 60 percent of bachelor's degrees.³⁵² To the extent that this dims the marriage prospects for lesser-educated men, they may make a rational (given their reduced expectations) choice to avoid the effort needed to pursue stable employment that would improve their opportunity for marriage.

Box 5-5: Demand-Side Explanations for Men's Inactivity

JEC economists take a somewhat simpler approach in looking at the situation from employers' point of view (accounting for shifts in labor demand). Employers use a combination of labor and

capital to produce products and services that customers desire. The specific types of labor and capital used, and the ways that they are combined, depends on which production technology is used, which in turn depends on the location of production (and thereby availability and cost of each potential input), the cost of transportation, access to consumer markets, and customer perception, among other factors. Explicitly modeling these elements is unnecessary to the discussion at hand, however.

The primary demand-side issue relevant to the issue of prime-age men's rising inactivity is the long-term decrease in manufacturing jobs due to increases in automation and international trade (see Figure 5-6). Furthermore, manufacturing today generally requires a more advanced skillset than in previous decades, meaning that lesser-educated workers may have had a harder time finding employment as the industry modernized.³⁵³ Some researchers have argued that these trends are predominantly responsible for prime-age men leaving the labor market—that the subset of prime-age men who previously would have worked in manufacturing-related employment either do not have the necessary skills (or else are unwilling) to work in the service sector, which has accounted for a large share of job growth over the past several decade.³⁵⁴



Reforms to Help Reconnect Inactive Prime-Age Men

Tax Regulations Inhibit Human Capital Investments

Higher education and trade-specific training are well-documented means for workers to increase their future earnings. In essence, the advanced education improves a worker's productivity (also known as their "human capital"), which then enables access to jobs with higher compensation. This is good for the worker, good for their employer, good for the customers thereby served, and good for the entire economy.

However, current tax regulations force most workers to make this investment themselves, before being hired at a job that would use their skills. This leads to a risky decision, wherein the worker must effectively guess which education option would be most valued by their future employers, and then often go into debt to pay for the education, with the hope that their future earnings will be sufficient to pay off the loan.

Although experience proves that this approach is feasible for many workers, it also showcases that many workers do not have sufficient information to make the right decision about which school or training center to attend, or even which career to select. Meanwhile, employers regularly complain that they face a skills gap, where the workers available for them to hire do not possess the combinations of skills that they desire.³⁵⁵

A relatively simple reform to tax law could improve this inefficient paradigm by allowing employers to claim as a business expense the cost of worker training which prepares the worker to practice a new trade.³⁵⁶ Doing so would put worker-based expenses on equal footing with physical capital-based expenses.

The Federal government currently expends approximately \$20 billion each year on employment and training (E&T) programs.³⁵⁷ These are intended to improve workers' employability and facilitate career shifts, especially in regions where economic changes have reduced employment in previously strong industries. However, research has shown that these programs generally provide a poor return on investment.³⁵⁸ A revenue-neutral reform could involve reducing spending on these existing programs and repurposing it to partially cover the cost of employer-directed training programs (via expensing) that would more directly provide workers with the specific skills needed for career success.

Maintaining Access to Independent and Flexible Jobs

The DOL (Department of Labor) has proposed a substantial change to its worker classification test which would make it meaningfully more difficult for companies to utilize independent contractors.³⁵⁹ The existing test prioritizes two job characteristics (opportunity for profit or loss depending on managerial skill and the nature and degree of control a worker exercises over their activities) to serve as core factors of whether a worker qualified as an independent contractor. It identified three other factors (the

degree of permanence of the work relationship, the worker's skill and initiative, and whether the work performed was an integral part of the employer's business) that could overrule the core factors in unusual circumstances. This version of the test provides clarity for employers and workers as to the appropriateness of their professional relationship. This clarity then facilitates economic activity and investment for future growth, increasing the number of independent work opportunities available.

The DOL's proposed change to the worker classification test would (among other things) weight the five factors equally and introduce a sixth (whether the worker is economically dependent on the employer). In subsequent legal suits, this framework would allow the presiding judge to declare any factor, or combination of factors, to be the most important, substantially increasing the risk that companies face for business models that utilize independent contractors. Furthermore, the proposed rule change allows additional, unspecified factors to be considered in post hoc worker classification determinations, elevating the risk of using such business models to unseen heights. The proposed DOL rule stifles the ability for businesses to employ a flexible workforce which in turn impedes their ability to expand.

This rule change is relevant to the labor force participation of prime-age men because gig-style and other temporary independent contracting jobs are often the last rung on the economic ladder, both for those on their way up and those on their way down. The ubiquitousness and flexibility of these jobs, especially the self-determined scheduling that many provide, is exactly what those workers need to accommodate whatever life's struggles they are experiencing. The DOL's proposed rule would restrict one of the important ways that prime-age men who are teetering on the brink of exit can maintain their connection to employment, as well as the easiest avenue through which non-participants can rejoin the

workforce. DOL should reevaluate their proposed rule to provide greater clarity for the worker classification test and to explicitly model the effects it would have on inactive prime-age men in their cost-benefit analysis.

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ENDNOTES

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- ¹ 15 U.S.C. 21 § 1021(a).
- ² 15 U.S.C. 21 § 1021(a).
- ³ 15 U.S.C. 21 § 1021(a), (e), (f).
- ⁴ 15 U.S.C. 21 § 1021(j).
- ⁵ 15 U.S.C. 21 § 1021(c).
- ⁶ CBO, *Fiscal Responsibility Act of 2023*, 2, Table 1.
- ⁷ CBO, *Projections for Social Security*, 9; CBO, *Outlook*, 18, footnote 17; SSA, *The Distributional Consequences of a "No Action" Scenario: Updated Results*, 2.
- ⁸ See (e.g.) Bartlett, "The Joint Economic Committee in the Early 1980s," 186; Bianchi and Melosi "Inflation as a Fiscal Limit," 2.
- ⁹ See (e.g.) Blanchard and Simon, "The Long and Large Decline in Output Volatility"; Stock and Watson, "Has the Business Cycle Changed? Evidence and Explanations."
- ¹⁰ 15 U.S.C. 21 § 1024(b)(3).
- ¹¹ 15 U.S.C. 21 § 1021(a).
- ¹² Freeman, "The Biden Era of Greed?"; Freeman, "Another Surge of Greed in the Biden Era?"
- ¹³ CEA, *Report*, p.482, Table B-38.
- ¹⁴ The Federal Reserve's preferred inflation gauge is the annual change in the personal consumption expenditures (PCE) price index, while the CPI-U is better known by the

public and policymakers. During the prior decades of low and stable inflation, CPI-U inflation tended to run only slightly higher than PCE inflation, although the difference widened during inflation's surge.

¹⁵ CEA, *Report*, p.482, Table B-38. JEC calculation.

¹⁶ BLS, CUURS48ASA0,CUUSS48ASA0; BLS, CUURS35BSA0,CUUSS35BSA0; BLS, CUURS35DSA0,CUUSS35DSA0; BLS, CUURS35CSA0,CUUSS35CSA0; JEC calculation.

¹⁷ See (e.g.) Bernstein and Tedeschi, "Pandemic Prices."

¹⁸ CEA, *Report*, p.482, Table B-38.

¹⁹ See (e.g.) Boskin, et al., "The CPI Commission."

²⁰ Unrath, Semega, and Kollar, "The Impact of Inflation Adjustments."

²¹ CEA, *Economic Report*, 482, Table B-38.

²² Board of Governors, "Statement on Longer-Run Goals and Monetary Policy Strategy."

²³ BEA, Table 1.1.4. line 2. JEC calculation.

²⁴ See (e.g.) Whelan, "A Guide to the Use of Chain Aggregated NIPA Data."

²⁵ BEA, Table 1.1.4. line 1. JEC calculation.

²⁶ BLS, CUSR0000SA0; JEC calculation (total growth, Jan 2021 to May 2023).

²⁷ See (e.g.) Biden, "Remarks by President Biden on the Economy."

²⁸ If welfare costs are convex, then apply Jensen's inequality. For a statement of Jensen's inequality, see Kreps "*Microeconomic Foundations I: Choice and Competitive Markets*," 125.

²⁹ CEA, *Report*, 74.

³⁰ Kaplan and Schulhofer-Wohl, "Inflation at the Household Level," 20.

³¹ Dynan, Skinner, and Zeldes, "Do the Rich Save More?" 434.

³² Cao et. al., "The Welfare Cost of Inflation Revisited."

³³ BLS, CES0500000003; BLS, CUSR0000SA0; JEC calculation.

³⁴ BLS, CES0500000003; BLS, CUSR0000SA0; JEC calculation.

³⁵ See (e.g.) Fischer, "Long-Term Contracts, Rational Expectations, and the Optimal Money Supply Rule."; Taylor, "Aggregate Dynamics and Staggered Contracts."; and Hall, "Employment Fluctuations with Equilibrium Wage Stickiness."

³⁶ See Friedman, "The Role of Monetary Policy"; and Phelps, "Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time."

³⁷ CEA, *Report*, 74.

³⁸ BLS, CES0500000008; BLS, CWSR0000SA0; JEC calculation.

³⁹ Hoffman et. al., "Real Inequality in Europe since 1500," 322.

⁴⁰ See (e.g.) Solon, Barsky, and Parker, "Measuring the Cyclical of Real Wages."

⁴¹ Crust, Daly, and Hobijn, "The Illusion of Real Wage Growth."

⁴² CEA, *Report*, 74.

⁴³ CEA, *Report*, p.475, Table B-31; p.482, Table B-38.

⁴⁴ BLS, CUSR0000SA0; BLS, CES0500000003; JEC calculation.

⁴⁵ CEA, *Report*, 66.

⁴⁶ Hansen, Toscani, and Zhou, "Euro Area Inflation after the Pandemic and Energy Shock."

⁴⁷ See the well-known equation of exchange, formalized by Fisher's *The Purchasing Power of Money*.

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- ⁴⁸ CEA, *Report*, 66.
- ⁴⁹ Lipsey, “The Foundations of the Theory of National Income.”
- ⁵⁰ Kant, *The Critique of Pure Reason*, B10.
- ⁵¹ Friedman, “Methodology of Positive Economics.”
- ⁵² CEA, *Report*, 68–71.
- ⁵³ CEA, *Report*, 71–2.
- ⁵⁴ Aristotle, “Posterior Analytics,” 150. See also (e.g.) Kant, “*The Critique of Pure Reason*,” B681.
- ⁵⁵ See (e.g.) Obstfeld and Rogoff, “The Six Major Puzzles in International Macroeconomics.”
- ⁵⁶ McAleer, “Simplicity.”
- ⁵⁷ Sargent, “Six Essays in Persuasion.”
- ⁵⁸ BLS, CUSR0000SA0; JEC calculation (growth from Jan 2021 to May 2023).
- ⁵⁹ Bianchi and Melosi, “The Dire Effects of the Lack of Monetary and Fiscal Coordination,” 34.
- ⁶⁰ The recession ended in April 2020. NBER, “Trough in U.S. Economic Activity.”
- ⁶¹ de Rugy, “Inflation is Largely a Demand-Side Problem,” 3–4.
- ⁶² Jorda, et al., “Why Is U.S. Inflation Higher than in Other Countries?”
- ⁶³ Bianchi, Faccini, Melosi, “A Fiscal Theory of Trend Inflation,” 4.
- ⁶⁴ See Cochrane, *Fiscal Theory of the Price Level*, 5–8.
- ⁶⁵ Renshaw, “Biden’s IRA Climate Bill Won’t Cut Deficit.”
- ⁶⁶ Pager and Stein, “Biden Privately Called Lawrence Summers.”
- ⁶⁷ Miller and Davison. “Biden’s Win on Covid Aid Hobbles Rest of Agenda.”
- ⁶⁸ Ullmann, *Empathy Economics*, 368.
- ⁶⁹ Tankersley, “Rising Prices, Once Seen as Temporary, Threaten Biden’s Agenda”; Rattner, “I Warned the Democrats About Inflation.”
- ⁷⁰ Hendrickson, “Is the Quantity Theory of Money Dead?”
- ⁷¹ See (e.g.) Cochrane, “Michelson-Morley, Fisher, and Occam.”
- ⁷² Hicks, “Mr. Keynes and the ‘Classics’”; Krugman, “It’s Baaack”; Svensson, “How Should Monetary Policy Be Conducted in an Era of Price Stability?”
- ⁷³ Savings identity for the world as a whole: private savings less investment equals gov spending less taxes.
- ⁷⁴ See Barro, “Are Government Bonds Net Wealth?”; Barro and Redlick, “On the Determination of the Public Debt”; Weil, “Is Money Net Wealth?”
- ⁷⁵ See Patinkin’s *Money Interest, and Prices*; Ireland, “The Real Balance Effect.”
- ⁷⁶ See (e.g.) Baker and Krauss, “Biden Accuses Oil Companies of ‘War Profiteering’ and Threatens Windfall Tax”; Smialek, “Democrats Blast Corporate Profits as Inflation Surges.”
- ⁷⁷ CEA, *Economic Report*, 75; Bräuning, Fillat, and Joaquim, “Cost-Price Relationships in a Concentrated Economy.”
- ⁷⁸ As an important auxiliary assumption, these facts are common knowledge to all firms.
- ⁷⁹ Assume that if the lowest price firm is not unique, then consumers randomize between the lowest price firms.
- ⁸⁰ Cf. Arrow, “Economic Welfare and the Allocation of Resources for Invention.”
- ⁸¹ Clark, “Toward a Concept of Workable Competition.”

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- ⁸² Cf. Boushey and Knudsen, “The Importance of Competition.”
- ⁸³ See (e.g.) Stigler, “The Theory of Economic Regulation”; Peltzman, “Toward a More General Theory of Regulation.”
- ⁸⁴ Hayek, “The Meaning of Competition.”
- ⁸⁵ Bräuning, Fillat, and Joaquim, “Cost-Price Relationships in a Concentrated Economy.”
- ⁸⁶ Demsetz, “Industry Structure, Market Rivalry, and Public Policy.”
- ⁸⁷ Syverson, “Macroeconomics and Market Power,” 4.
- ⁸⁸ Miller, et al., “On the Misuse of Regressions of Price on the HHI.”
- ⁸⁹ The HHI (Herfindahl-Hirschman Index) is a common measure of market concentration. See (e.g.) Hirschman, “The Paternity of an Index,” 761.
- ⁹⁰ Ali, Klasa, and Yeung, “Limitations of Industry Concentration Measures,” 3839.
- ⁹¹ Keil, “Trouble with Approximating Industry Concentration from Compustat.”
- ⁹² Bräuning, José, and Joaquim, “Cost-Price Relationships in a Concentrated Economy,” p.4, footnote 4.
- ⁹³ Formally, these shocks might be modeled as a stochastic elasticity of substitution among production inputs. See (e.g.) Galí, “Monopolistic Competition, Business Cycles, and the Composition of Aggregate Demand”; Steinsson, “Optimal Monetary Policy in an Economy with Inflation Persistence”; Ball, Mankiw, and Reis, “Monetary Policy for Inattentive Economies.”
- ⁹⁴ See Blanchard and Galí, “Real Wage Rigidities and the New Keynesian Model.” For a related analysis of the NK model’s nonlinear equilibrium conditions, see Alves, “Lack of divine coincidence in New Keynesian models.”
- ⁹⁵ Smets and Wouters, “Shocks and Frictions in U.S. Business Cycles”; Kedia, “Standard Econ Model Bridges the ‘Unfortunate Events’ and ‘Original Sin’ Explanations for Inflation.”
- ⁹⁶ Lucas, “Econometric Policy Evaluation: A Critique.”
- ⁹⁷ For discussion, see (e.g.) Barnichon, Oliveira, and Shapiro, “Is the American Rescue Plan Taking Us Back to the 60’s?”
- ⁹⁸ Cf. Blanchard and Bernanke, “What Caused the U.S. Pandemic-Era Inflation?”
- ⁹⁹ Calculated using CEA, *Report*, 490, Table B-45. “Federal debt held by the public” excludes Federal debt held by government accounts (e.g., the trust funds for Social Security, Medicare, Federal civilian retirement, military retirement, and unemployment insurance). “All else being equal, an increase in government borrowing reduces the amount of money available to other borrowers, putting upward pressure on interest rates and reducing private investment.” CBO, *Federal Debt: A Primer*, 1.
- ¹⁰⁰ Calculated using CEA, *Report*, 491, Table B-46.
- ¹⁰¹ Calculated as the percentage increase in the consumer price index (CPI-U) from 2001 to 2022 (using annual compounding) using CEA, *Report*, 482, Table B-38. The measurement of inflation using economists’ preferred index, the chained consumer price index (C-CPI-U) is similar (62.1 percent increase from 2001 through 2022 versus 70.1 percent using the CPI-U).
- ¹⁰² CBO, *How the Fiscal Responsibility Act of 2023 Affects CBO’s Projections of Federal Debt*, 2, Table 1.
- ¹⁰³ Historical deficits obtained from CEA, *Report*, 490, Table B-45.

¹⁰⁴ Calculated using CBO, *The 2023 Long-Term Budget Outlook*, Supplemental Table 1. Multiply “Revenues Minus Total Spending” with “GDP (Billions of dollars)” and divide by -100. N.b., CBO’s long-term projections are adjusted to remove the effects of “timing shifts” when the start of the fiscal year (October 1) falls on a weekend. For this reason, deficit projections obtained from Supplemental Table 1 may slightly differ from those in CBO, *An Update to Budget Outlook: 2023 to 2033*, 2, Table 1.

¹⁰⁵ By one estimate, the April “shutdown” reduced economic output by about 25% below its short-run potential. See Mulligan, “Economic Activity and the Value of Medical Innovation during a Pandemic,” 1–21, <https://doi.org/10.1017%2Fbca.2021.5>.

¹⁰⁶ CBO, *The Budget and Economic Outlook: 2023 to 2033*, 2.

¹⁰⁷ CBO, *How the Fiscal Responsibility Act of 2023 Affects CBO’s Projections of Federal Debt*, 3, Table 2.

¹⁰⁸ CBO, *An Update to the Budget Outlook: 2023 to 2033*, 8, Figure 2.

¹⁰⁹ CBO, *The 2023 Long-Term Budget Outlook*, 7, Table 1-1. For comparison of fiscal policy during the COVID-19 pandemic and the two world wars, see Hall and Sargent, “Three World Wars.”

¹¹⁰ Laubach and Williams, “Measuring the Natural Rate of Interest.”; Holston, Laubach, and Williams, “Measuring the Natural Rate of Interest: International Trends and Determinants.”

¹¹¹ CEA, *Long-Term Interest Rates: A Survey*. 34–39

¹¹² See Schmelzing, “Eight Centuries of Global Real Interest Rates.”; Rogoff, Rossi, and Schmelzing, “Long-Run Trends in Long-Maturity Real Rates.”; Zhang, “The Real Interest Rate Decline.”

¹¹³ C.f. Furman and Summers, “Who’s Afraid of Budget Deficits?”

¹¹⁴ There is a near observational equivalence between unit root processes and trend stationary processes. See (e.g.) Cochrane, “A Critique of the Application of Unit Root Tests.”; Faust, “Near Observational Equivalence.”

¹¹⁵ Keynes, *A Tract on Monetary Reform*.

¹¹⁶ Rogoff, Rossi, and Schmelzing, “Long-Run Trends in Long-Maturity Real Rates,” 25–26.

¹¹⁷ Riedl, “How Higher Interest Rates Could Push Washington Toward a Federal Debt Crisis,” 15.

¹¹⁸ Jiang, Lustig, Nieuwerburgh, and Xiaolan, “What Drives Variation in the U.S. Debt/Output Ratio?”

¹¹⁹ CBO, *An Update to the Budget Outlook: 2023 to 2033*, 1.

¹²⁰ 2 U.S.C. § 907(b)(1). For additional details, see CBO, *CBO Explains the Statutory Foundations of its Budget Baseline*, 3.

¹²¹ Buchanan and Wagner, *Democracy in Deficit*.

¹²² Salmon, “The Impact of Public Debt on Economic Growth,” *Cato Journal* 41, no. 3 (Fall 2021): 503; Salmon, “Personal Communication: Updated Table for Debt and Growth Literature Review,” May 24, 2023; Reinhart and Rogoff, “Growth in a Time of Debt.”; Reinhart, Reinhart, and Rogoff, “Public Debt Overhangs.”

¹²³ Jack Salmon, “The Impact of Public Debt on Economic Growth,” *Cato Journal* 41, no. 3 (Fall 2021): 503.

¹²⁴ Farren, Michael D. “Conversation on the Economic Growth Effect of the Debt-to-GDP Ratio and the Congressional Budget Office Methodology,”

¹²⁵ CBO, *Federal Net Interest Costs: A Primer*, 1.

¹²⁶ See (e.g.) Laubach, “New Evidence on the Interest Rate Effects of Budget Deficits and Debt.”; Engen and Hubbard, “Federal Government Debt and Interest Rates.”;

Gamber and Seliski, “The Effect of Government Debt on Interest Rates.”;

¹²⁷ Tedeschi, “Deficits are Raising Interest Rates.”

¹²⁸ Smith, *Wealth of Nations*, Book II, Chapter II (continuation).

¹²⁹ Woodford, “Fiscal Requirements for Price Stability.”

¹³⁰ Sargent and Wallace, “Some Unpleasant Monetarist Arithmetic,” 1–15.

¹³¹ Lucas and Stokey, “Optimal Fiscal and Monetary Policy in An Economy without Capital.”

¹³² Cochrane, “Inflation in the Shadow of Debt,” 74.

¹³³ Reinhart and Rogoff, *This Time is Different: Eight Centuries of Financial Folly*.

¹³⁴ Anbil, Anderson, and Senyuz, “What Happened in Money Markets in September 2019?”

¹³⁵ See (e.g.) Russo, “Tailoring Liquidity Rules Did Not Cause the Failure of Silicon Valley Bank.”

¹³⁶ His Majesty’s Treasury, “The Growth Plan 2022.”

¹³⁷ Patel and Sordo Palacios, “UK Pension Market Stress in 2022.”

¹³⁸ Blanchard, “Public Debt and Low Interest Rates.”

¹³⁹ The primary deficit excludes net outlays for interest. See CBO, *The Budget and Economic Outlook: 2023 to 2033*, 6, Table 1-1, footnote c.

¹⁴⁰ Proof: Apply the quotient rule, use the laws of motion $\frac{dDebt_t}{dt} = rDebt_t + p_t$ and $\frac{dGDP_t}{dt} = gGDP_t$, and simplify the expression.

¹⁴¹ The value $g = 1.7\%$ is CBO’s projected real GDP growth rate for 2033. The value $r = 1.2\%$ subtracts the Federal Reserve’s annual inflation target (2%) from CBO’s projected long-run average interest rate on U.S. debt (3.2%). See CBO, *The Budget and Economic Outlook*, 85, Table B-1; CBO, *The Budget and Economic Outlook*, 20.

¹⁴² The doubling (or halving) time is given by $\log(0.5)/\log(1-x)$ where x is the annual rate of growth (or decay). In particular, $\log(0.5)/\log(1-0.005)$ is about 138.283 years. Alternatively, the doubling (or halving) time can be approximated as $70/x$ years. See (e.g.) Thornton, “The Rule of 69 in Perspective.”

¹⁴³ See (e.g.) Friedman, *A Theory of the Consumption Function*.; Hall, “Stochastic Implications of the Life Cycle-Permanent Income Hypothesis.”; Hall and Mishkin, “The Sensitivity of Consumption to Transitory Income.”; Bernanke, “Permanent Income, Liquidity, and Expenditure on Automobiles.”

¹⁴⁴ These proposals (among others) are included in Kelton, *The Deficit Myth*. For reviews, see (e.g.) Mankiw, “A Skeptics Guide to Modern Monetary Theory.”; Bisin, review of *The Deficit Myth*, by Kelton.; Cochrane, “Years of Magical Thinking,” review of *The Deficit Myth*, by Kelton. For an academic analysis, see Françoise and Christian, “The Meaning of MMT.”

¹⁴⁵ Piketty, *Capital in the Twenty-First Century*.

¹⁴⁶ Blahous, “Why Federal Deficits are Skyrocketing and How to Fix Them,” 1–2.

¹⁴⁷ Blahous, “Why Federal Deficits are Skyrocketing and How to Fix Them,” 1–2.

¹⁴⁸ CBO, *CBO’s 2023 Long-Term Projections for Social Security*, 9.

¹⁴⁹ CBO, *The Budget and Economic Outlook*, 18, footnote 17.

¹⁵⁰ E.g., see CBO, *Options for Reducing the Deficit, 2023 to 2032*.

¹⁵¹ ADA, “The Economic Costs of Diabetes in the U.S. in 2017.”

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- ¹⁵² Helland and Tabarrok, *Why Are the Prices So Damn High?*
- ¹⁵³ March, “The FDA and COVID-19: A Political Economy Perspective.”
- ¹⁵⁴ Griswold and Salmon, “Lower Barriers to Immigrant Healthcare Workers to Help Combat the COVID-19 Pandemic.”
- ¹⁵⁵ Mulligan, “How Chicago Economics Helped End a Pandemic.”
- ¹⁵⁶ Philipson and Durie, “The Impact of HR 5376 on Biopharmaceutical Innovation.”
- ¹⁵⁷ President Biden has repeatedly pledged not to raise taxes on households earning less than \$400k of annual income. See (e.g.) CEA, *Report*, 4. Using IRS data, Adam Michel estimates that even confiscating every dollar over \$500k earned by households and businesses would be insufficient to close the projected budget deficit. (\$500k is the closest threshold available in the publicly available IRS data.) See Michel, “Biden’s Math of Just Taxing the Rich Doesn’t Add Up.” Moreover, even if the confiscation were perfectly unanticipated, such a tax would only generate a one-time revenue windfall while depressing long-run growth.
- ¹⁵⁸ de Rugy and Salmon, “Flattening the Debt Curve: Empirical Lessons for Fiscal Consolidation.”
- ¹⁵⁹ Lynch and Gravelle, “Dynamic Scoring in the Congressional Budget Process.”
- ¹⁶⁰ For an explanation of regulatory cost-benefit analysis, see Broughel, “A Primer on Regulatory Impact Analysis.”
- ¹⁶¹ JEC, “Inactive, Disconnected, and Ailing.”
- ¹⁶² For background, see Boccia and Bogie, “Reform the Budget Control Act Spending Caps,” 1–11; Boccia, “How a Better Budget Control Act Would Limit Spending and Control Debt.”
- ¹⁶³ Brito, “Running for Cover.”
- ¹⁶⁴ Gesley, “Switzerland: Implementation of Article 126 of the Swiss Constitution>”
- ¹⁶⁵ Board of Governors, *Financial Stability Report*, 9–10.
- ¹⁶⁶ See (e.g.) Longstaff, “The Flight-to-Liquidity Premium in U.S. Treasury Bond Prices.”
- ¹⁶⁷ Cochrane, “A New Structure for U.S. Federal Debt.”
- ¹⁶⁸ Garbade, “The Emergence of ‘Regular and Predictable’ as a Treasury Debt Management Strategy.”
- ¹⁶⁹ Selgin, *The Menace of Fiscal QE*, 56–59.
- ¹⁷⁰ Russo, “Safeguarding the Federal Reserve’s Independence.”
- ¹⁷¹ The Federal Reserve “intends [...] to undertake roughly every five years a thorough public review of its monetary policy strategy, tools, and communication practices.” Board of Governors, “Statement on Longer-Run Goals and Monetary Policy Strategy.” The Federal Reserve’s initial review was in 2019–2020, suggesting that its next review will begin in 2024.
- ¹⁷² U.S. Treasury, “How Much Has the U.S. Government Spent This Year?”
- ¹⁷³ CBO, 10-Year Budget Projections, May 2023. Note that this is without excluding the effect of offsetting receipts.
- ¹⁷⁴ CBO, 10-Year Budget Projections, May 2023.
- ¹⁷⁵ John Hopkins Medicine, “Overview of Obesity.”
- ¹⁷⁶ Whitlock et al., “Body-mass Index and Cause-specific Mortality.”
- ¹⁷⁷ Sarwer and Polonsky, “The Psychosocial Burdens of Obesity.”; Purnell, “Definitions, Classification, and Epidemiology of Obesity.”

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- ¹⁷⁸ Whitlock et al., “Body-mass Index and Cause-specific Mortality.”; Kitahara et al. “Association Between Class II Obesity.”
- ¹⁷⁹ CDC, “Prevalence of Obesity and Severe Obesity Among Adults.”
- ¹⁸⁰ van den Broek-Altnerberg and Holladay, “Changes in Healthcare Spending.”
- ¹⁸¹ Cawley et al., “Savings in Medical Expenditures.”
- ¹⁸² Cawley et al., “Savings in Medical Expenditures.”
- ¹⁸³ Cawley et al., “Direct Medical Costs of Obesity in the United States and the Most Populous States.”; JEC economists updated Cawley et al.’s 2011–2016 estimate of the excess medical costs attributable to obesity (separating estimates for Class I and Class II from Class II and incorporating the projected population shares of persons suffering from each condition) for inflation and the annual trend of obesity-healthcare cost increases.
- ¹⁸⁴ Cawley et al., “Savings in Medical Expenditures.”
- ¹⁸⁵ Stierman et al., “National Health and Nutrition Examination Survey.”
- ¹⁸⁶ NIH, “Severe Obesity May Shorten Life Expectancy Up to 14 Years.”
- ¹⁸⁷ Cawley et al., “Savings in Medical Expenditures.”; Kitahara et al. “Association Between Class III Obesity.”
- ¹⁸⁸ Quetelet, “A Treatise on Man and the Development of His Faculties.”
- ¹⁸⁹ WHO, “Physical Status.”
- ¹⁹⁰ CDC, “Body Mass Index.”
- ¹⁹¹ McKee et al., “Obesity in the Elderly.”
- ¹⁹² McKee et al., “Obesity in the Elderly.”
- ¹⁹³ CDC, *Promoting Health for Older Adults*.
- ¹⁹⁴ Whitlock et al., “Body-mass Index and Cause-specific Mortality.”; Kitahara et al. “Association Between Class III Obesity.”
- ¹⁹⁵ Preston et al., “The Role of Obesity.”
- ¹⁹⁶ Preston et al., “The Role of Obesity.”
- ¹⁹⁷ CDC, “Prevalence of Obesity and Severe Obesity Among Adults.”; Calculations by JEC economists.
- ¹⁹⁸ Finkelstein et al., “Individual and Aggregate Years-of-life-lost Associated with Overweight and Obesity.”
- ¹⁹⁹ Kitahara et al., “Association between Class III Obesity (BMI of 40–59 kg/m²) and Mortality.”
- ²⁰⁰ Ward et al., “Projected U.S. State-Level Prevalence of Adult Obesity.”
- ²⁰¹ American Lung Association, “Overall Tobacco Trends.”
- ²⁰² Livingood Jr., Allegrante, and Green, “Culture Change from Tobacco Accommodation to Intolerance.”
- ²⁰³ Darden, Gilleskie, and Strumpf, “Smoking and Mortality.”
- ²⁰⁴ United States Census Bureau, “Annual Estimates of the Resident Population.”
- ²⁰⁵ Prospective Studies Collaboration, “Body-Mass Index and Cause-Specific Mortality in 900,000 Adults.”
- ²⁰⁶ Prospective Studies Collaboration, “Body-Mass Index and Cause-Specific Mortality in 900,000 Adults.”
- ²⁰⁷ Kitahara et al., “Association between Class III Obesity (BMI of 40–59 kg/m²) and Mortality.”

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- ²⁰⁸ Finkelstein et al., “Individual and Aggregate Years-of-Life-Lost.”
- ²⁰⁹ Xu et al., “Mortality in the United States, 2021.”
- ²¹⁰ CBO, *Update to the Budget Outlook*.
- ²¹¹ Wolf and Colditz, “Current Estimates of the Economic Cost of Obesity in the United States.”; Finkelstein et al., “National Medical Spending Attributable To Overweight And Obesity: How Much, And Who’s Paying?”
- ²¹² Finkelstein et al., “Annual Medical Spending Attributable to Obesity: Payer-And Service-Specific Estimates.”
- ²¹³ Biener, Cawley, and Meyerhoefer, “The Impact of Obesity.”
- ²¹⁴ Biener, Cawley, and Meyerhoefer, “The Impact of Obesity.”
- ²¹⁵ Biener, Cawley, and Meyerhoefer “The High and Rising Costs of Obesity to the U.S. Health Care System”; Tsai, Williamson, and Glick, “Direct Medical Cost of Overweight and Obesity in the USA.”
- ²¹⁶ Biener, Cawley, and Meyerhoefer, “The Impact of Obesity.”
- ²¹⁷ Finkelstein et al., “Annual Medical Spending.”
- ²¹⁸ The future rates of obesity (BMI>30) and severe obesity (BMI>40) is forecast for adults over the age of 19 from 2019–2034 using a linear trend based on 1999–2018 data from the National Health and Nutrition Examination Survey (NHANES). We combined this with a projection of the U.S. population ages 20 (and over) using 2014–2022 data from Series ID LNU00000024 from the Bureau of Labor Statistics. The population in 2022 is projected forward to 2034 by using the average annual growth rate from 2014–2022; The beginning of this time span matches the midpoint of the 2011–2016 data on obesity marginal costs reported by Cawley (2021). Cawley et al., “Direct Medical Costs of Obesity in the United States,” 360.
- ²¹⁹ Stierman et al., “National Health and Nutrition Examination Survey.”
- ²²⁰ Stierman et al., “National Health and Nutrition Examination Survey.”
- ²²¹ Stierman et al., “National Health and Nutrition Examination Survey.”
- ²²² Stierman et al., “National Health and Nutrition Examination Survey”; Fryar, Carroll, and Afful, “Prevalence of Overweight, Obesity, and Severe Obesity.”
- ²²³ Ward et al., “Simulation of Growth Trajectories of Childhood Obesity into Adulthood.”
- ²²⁴ Ward et al., “Simulation of Growth Trajectories of Childhood Obesity into Adulthood”; Ward et al., “Projected U.S. State-Level Prevalence of Adult Obesity.”
- ²²⁵ Note: We derived the per-patient excess annual expenditure from Lopez et al.’s research (\$370 billion in excess healthcare costs in 2018 compared against 95.4 million people qualifying as obese in 2018). Ward et al., “Association of Body Mass Index.”; Lopez, Bendix, and Sagynbekov, “Weighing Down America.”
- ²²⁶ Cawley et al., “Direct Medical Costs of Obesity in the United States and the Most Populous States.”
- ²²⁷ John Cawley et al., “Direct Medical Costs of Obesity in the United States,” 357.
- ²²⁸ We average the excess annual medical costs per obese person due to Class 1 obesity (\$1,882) with those for Class 2 (\$3,277) because our data does not provide separate estimates of the proportion of the population suffering from Class 1 and Class 2 obesity. Cawley et al., 360.
- ²²⁹ Cawley et al., “Direct Medical Costs of Obesity in the United States,” 360.
- ²³⁰ Finkelstein et al., “Annual Medical Spending.”

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- ²³¹ See Finkelstein, Fiebelkorn, and Wang, “National Medical Spending Attributable to Overweight and Obesity.”
- ²³² CBO, 10-Year Budget Projections, May 2023.
- ²³³ Five minutes over 260 working days totals 1,300 minutes, or almost 22 hours. 22 hours is equivalent to 1.06 percent of the 2,080 standard working hours in a year.
- ²³⁴ Biener, Cawley, and Meyerhoefer, “The Impact of Obesity.”
- ²³⁵ Wolf and Colditz, “Economic Cost of Obesity.”
- ²³⁶ Peterson, Hoffer, and Millner, “Are Drivers of Air-Bag-Equipped Cars More Aggressive?”
- ²³⁷ Mass, “Moral Hazard and Adverse Selection in Health Insurance.”
- ²³⁸ Ogden et al., “Prevalence of Obesity Among Adults, by Household Income and Education-United States, 2011–2014.”
- ²³⁹ Andreyeva, Tripp, and Schwartz, “Dietary Quality of Americans.”
- ²⁴⁰ Edwards, “Farm Bill 2023 and Obesity.”
- ²⁴¹ Mancino, “Nutritional Quality of Foods Acquired by Americans.”
- ²⁴² Singleton et al., “Examining Disparities in Diet Quality.”
- ²⁴³ United States Department of Agriculture, “Food Security and Nutrition Assistance.”
- ²⁴⁴ Trantidis, “Government Externalities.”; Coase, “The Problem of Social Cost.”
- ²⁴⁵ Peter G. Peterson Foundation, “Healthcare Spending in the United States Remains High.”
- ²⁴⁶ Negowetti, “The SNAP Sugar-Sweetened Beverage Debate.”
- ²⁴⁷ Garvey et al. “Two-year Effects of Semaglutide in Adults with Overweight or Obesity.”
- ²⁴⁸ United States Food & Drug Administration, “FDA Approves New Drug Treatment for Chronic Weight Management.”
- ²⁴⁹ Jensterle, Rizzo, Haluzi, and Janes, “Efficacy of GLP-1 RA Approved for Weight Management in Patients With or Without Diabetes.”
- ²⁵⁰ Jastreboff et al., “Triple-Hormone-Receptor Agonist Retatrutide.”
- ²⁵¹ Wilson, “How Much Does Ozempic Cost Without Insurance?”
- ²⁵² Neuman and Cubanski, “What Could New Anti-Obesity Drugs Mean for Medicare?”
- ²⁵³ Ward et al., “Benefits of Medicare Coverage.”
- ²⁵⁴ OPM, “Prevention and Treatment of Obesity.”
- ²⁵⁵ CEA, “Reforming Biopharmaceutical Pricing at Home and Abroad.”
- ²⁵⁶ Atlas, “How to Reduce Prescription-Drug Prices.”
- ²⁵⁷ CEA “Reforming Biopharmaceutical Pricing at Home and Abroad,” 9.
- ²⁵⁸ Biden, “President Biden Delivers Remarks on Bidenomics.” “Bidenomics. We’re turning this around. We’re supporting targeted investments. We’re strengthening America’s economic security, our national security, our energy security, and our climate security.”
- ²⁵⁹ Biden, “President Biden Delivers Remarks on Bidenomics.”; CEA, “*Report*.”
- ²⁶⁰ OMB, “Budget of the U.S. Government Fiscal Year 2024.”
- ²⁶¹ York et al., “Biden’s FY 2024 Budget Would Result in.”
- ²⁶² We limit our analysis to taxes, but other policies, especially those affecting the regulatory framework, would cause additional reductions in economic growth.
- ²⁶³ OMB, “Budget of the U.S. Government Fiscal Year 2024,” 44.

²⁶⁴ CBO, “Taxing Capital Income.”; Debt-Financed profits are not double taxed because the interests paid over bonds/debt are deducted at corporate level.

²⁶⁵ While it is uncommon that an investor would end up paying the maximum rate on both, the example is also omitting additional factors that would also reduce the post-tax income, like State levels of CIT and Capital Gains taxes.

²⁶⁶ Johansson et al., “Taxation and Economic Growth.”

²⁶⁷ Arnold et al., “Do Corporate Taxes Reduce Productivity and Investment?”

²⁶⁸ CEA, “The Growth Effects of Corporate Tax Reform and Implications for Wages.”

²⁶⁹ Part of this disagreement among economists is evaluating the statutory or the effective rate, the FY2024 budget proposal, by trying to close every tax avoidance mechanism to investment, would significantly increase both rates.

²⁷⁰ Lee et al., “Tax Structure and Economic Growth.”

²⁷¹ Mertens and Ravn., “The Dynamic Effects of Personal and Corporate Income Tax Changes in the United States.”

²⁷² That is, OMB estimates that raising CIT by 7 percent would increase tax revenue by \$1.3 Trillion over 10 years. If long term tax revenue from this tax remains unchanged, almost half of the benefits from the expected deficit reduction would vanish.

²⁷³ Barro and Redlick, “Macroeconomic Effects From Government Purchases and Taxes.”; It is also prudent to take these results with caution, especially since they use data of decades when most economies grew at a faster pace, most countries had higher tax rates, capital was less mobile, and the system of transfer pricing and other tools of tax avoidance were less complex as they became decades later.

²⁷⁴ Public investment has a lower rate of return than private investment. CBO estimates that productive Federal investment has an average annual rate of 5 percent, which is half of private investments. This is because, while there are positive spillovers on private productivity from public investments, such spending reduces the money available for private investment. Moreover, when adding the usual response by state and local governments of lowering their own investments, \$1 increase in Federal investment reduces investment by the other sectors by one-third of a dollar. And this still doesn’t consider the effects on interest rate and inflation from increasing the ratio of debt over GDP. CBO, “The Macroeconomic and Budgetary Effects of Federal Investment.”

²⁷⁵ Vartia, “How Do Taxes Affect Investment and Productivity?”

²⁷⁶ Arnold et al., “Do Corporate Taxes Reduce Productivity and Investment?”

²⁷⁷ Biden, “President Biden Delivers Remarks on Bidenomics.”; CEA, “Report,” 4.; OMB, “Budget of the U.S. Government Fiscal Year 2024,” 2, 6, 18, 44, 45, 51.

²⁷⁸ Entin, “Labor Bears Much of the Cost of the Corporate Tax.”; Nunns, “How TPC Distributes the Corporate Income Tax.”

²⁷⁹ Gale and Thorpe, “Rethinking the Corporate Income Tax.”

²⁸⁰ Fuest et al., “Do Higher Corporate Taxes Reduce Wages?”

²⁸¹ Hassett et al., “An Analysis of Vice President Biden’s Economic Agenda.”

²⁸² However, if it is estimated as the cumulative change since 2021, the increase would be higher, as almost all the tax policies analyzed are either included in FY2024 or were implemented in the first two years of Biden’s Administration.

²⁸³ Mulligan, “The Economic Effects of Joe Biden’s Tax Plans.”

²⁸⁴ Pomerleau, “The Tax Burden on Business Investment.”

²⁸⁵ Watson, “Details and Analysis of President Biden’s Fiscal Year 2024 Budget Proposal.”

²⁸⁶ This includes the 25 percent billionaire minimum tax, the implementation of some of the global minimum tax rules, and drug pricing provisions that are estimated to raise about one trillion dollars over 10 years.

²⁸⁷ Matheson et al., “The Impact on Foreign Investment.”

²⁸⁸ CEA, “Corporate Tax Reform and Wages.”

²⁸⁹ Garcia-Bernardo et al., “Did the Tax Cuts and Jobs Act Reduce Profit Shifting by U.S. Multinational Companies?”

²⁹⁰ Note that the authors’ calculations only reach to 2020. Revenue from Corporate taxes in 2022 jumped compared to previous years, exceeding the original expectations when TCJA was enacted.

²⁹¹ Heckemeyer and Overesch, “Multinationals’ Profit Response to Tax Differentials.”

²⁹² Dowd et al., “Profit Shifting of U.S. Multinationals.”

²⁹³ OMB, “Budget of the U.S. Government Fiscal Year 2024.” Page 45 states that “The Budget would set the corporate tax rate at 28 percent, still well below the 35 percent rate that prevailed prior to the 2017 tax law.” Both of those rates would put the United States at the top among developed countries, so the incentive to keep profits and operation abroad would be similar.

²⁹⁴ Guvenen et al., “Offshore Profit Shifting and Aggregate Measurement.”

²⁹⁵ Suárez Serrato, “Unintended Consequences of Eliminating Tax Havens.”

²⁹⁶ The following model relies heavily in the one used in Jaffe et al. “Chicago Price Theory,” Chapter 18.

²⁹⁷ We are simplifying the changes proposed by Biden’s White House imposing the same tax to all sectors of the economy. According to Barro and Furman “Macroeconomic Effects of the 2017 Tax Reform,” the share of net business income going to C-corporations fell by 39 percentage points from 1980 to 2000, in part due to the economy becoming more Service intensive, which are industries dominated by Passthrough entities.

²⁹⁸ Since it’s neutral on the willingness of people to delay consumption and the ability of producers to make investment goods rather than consumption goods.

²⁹⁹ Jaffe et al., “Chicago Price Theory,” Chapter 15.

³⁰⁰ Tax Foundation, “Historical Federal Individual Income Tax Rates.”

³⁰¹ Tax Foundation, “Historical Federal Individual Income Tax Rates.”

³⁰² McClelland et al., “Effective Income Tax Rates Have Fallen.”

³⁰³ OECD, “Revenue Statistics.”

³⁰⁴ York et al., “Biden’s FY 2024 Budget Would Result in.”

³⁰⁵ Hodge, “No Country Leans on Upper-Income Households as Much as U.S.”

³⁰⁶ OECD, “Revenue Statistics 2022,” Chapter 3.

³⁰⁷ Giandrea et al., “Estimating the U.S. Labor Share.” In this function, $\alpha = S_K$.

³⁰⁸ Note that while President Biden promised not to raise taxes on those earning less than \$400,000, given that most people of all incomes either have investments in corporations (whether direct or through retirement/pension funds), they will be affected by the proposed changes in the tax code.

³⁰⁹ IRS, “SOI Tax Stats.”

³¹⁰ Percentages are estimated by dividing the respective column of income tax paid by the income subject to tax, using IRS “SOI Tax Stats,” Table 3.3. JEC Calculations

³¹¹ IRS “SOI Tax Stats,” Table 3.3.; Note that we aren’t taking into consideration state level taxation. While including them will increase the impact of the proposed tax change as it lowers the post-tax dividends, we would have to estimate the average effective tax rate at every bracket, weighting for every state. Adding the average state corporate and income tax for top brackets would be an easy solution but it would mix marginal with average rates.

³¹² IRS “SOI Tax Stats,” Table 1.4.

³¹³ Note that the IRS tables don’t have breakdowns for \$400,000, so JEC economists used \$500,000 as the first group seeing their taxes on dividends being raised.

³¹⁴ BLS, LNS11300061.

³¹⁵ Employment Projections Program, “Table 3.3 Civilian Labor Force Participation Rates by Age, Sex, Race, and Ethnicity, 2001, 2011, 2021, and Projected 2031.”; Dubina et al., “Projections Overview and Highlights, 2021–31.”

³¹⁶ See later discussion of the economic effect of labor supply changes.

³¹⁷ JEC, “Inactive, Disconnected, and Ailing.”; CEA, “The Long-Term Decline in Prime-age Male Labor Force Participation.”

³¹⁸ To be officially counted as unemployed (in the Bureau of Labor Statistics primary unemployment metric, U-3), a person must satisfy 3 conditions: (1) They must be jobless, (2) They must have actively sought employment in a fashion that could lead to a job offer within the last four weeks (for example, passively perusing job advertisements does not count as an active job search), and (3) They must be currently available to start a job. This does leave out some people who report that they want a job, even if they haven’t been actively searching, but only a small proportion of inactive prime-age men fit into this group.

³¹⁹ Importantly, the fact that these statistics are tabulated for the non-institutional population means that changes in the number of prime-age men participating in the military, incarcerated, or receiving long-term healthcare don’t directly impact the labor force participation rate of prime-age men.

³²⁰ JEC, “Inactive, Disconnected, and Ailing,” 10.; Winship, “What’s Behind Declining Male Labor Force Participation.”

³²¹ JEC, “Inactive, Disconnected, and Ailing,” 5.

³²² Winship, “What’s Behind Declining Male Labor Force Participation,” 20, 27.

³²³ Winship, “What’s Behind Declining Male Labor Force Participation,” 27–30.

³²⁴ Winship, “What’s Behind Declining Male Labor Force Participation,” 27, 30–32.

³²⁵ JEC, “Inactive, Disconnected, and Ailing.”; Krueger, “Where Have All the Workers Gone?”; Austin, Glaeser, and Summers, “Jobs for the Heartland.”

³²⁶ Evans, “The Nurse Licensure Compact.”

³²⁷ Evans, “The Nurse Licensure Compact,” 13.

³²⁸ Interstate Commission of Nurse Licensure Compact Administrators, “NLC States.”

³²⁹ Zencare, “COVID-19: Teletherapy Across State Lines.”

³³⁰ JEC, “Inactive, Disconnected, and Ailing.”

³³¹ The BLS estimates that 7.2 million prime-age men were inactive in 2022 (Data Series LNU05000061). 1.8 million is 25 percent of this number. 1.8 million divided by

the average size of the U.S. workforce in 2022 (164.3 million) equates to 1.0955 percent. Note, this is equivalent to around 3 years of typical annual workforce growth.

³³² JEC, "Inactive, Disconnected, and Ailing," 8.

³³³ Coglianesi, "The Rise of In-and-Outs."

³³⁴ While prior research has found that inactive prime-age men tend to be less educated than employed prime-age men, we choose to not incorporate this into our calculations of economic and other benefits, in accordance with CBO methodology. We also recognize that the entry of additional lesser-skilled workers will enable labor reshuffling that will tend to move workers from each skill group slightly higher on the income and output ladder. Shackleton, "Estimating and Projecting Potential Output Using CBO's Forecasting Growth Model."

³³⁵ CBO projects that the capital share of income in the nonfarm/business sector will be 0.329 over the next 10 years. This implies labor share of income is approximately 0.671. CBO, "10-Year Economic Projections," February 2023.

³³⁶ Shackleton, "Estimating and Projecting Potential Output Using CBO's Forecasting Growth Model," 5.

³³⁷ Simulation provided by CBO staff using its Policy Growth Model, June 2023.

³³⁸ CBO, "The 2023 Long-Term Budget Outlook."

³³⁹ Note: Per the long-run nature of our calculations, our methodology assume that inactive prime-age men's labor force reconnection will happen uniformly over a five-year period from 2024-2028.

³⁴⁰ The most recent Census Bureau estimate is that there were 124 million households in the U.S. from 2017–2021.

³⁴¹ Brad Hershbein and Bryan Stuart, *Recessions and Local Labor Market Hysteresis*, https://research.upjohn.org/up_workingpapers/325

³⁴² Note, this assumes that both consumption and leisure are normal goods that experience diminishing marginal returns (a common and relatively safe assumption). It is also important to note that in the real world, a worker's utility function will change according to their current circumstances, including home environment, life stage, external factors that increase the value of leisure (such as availability of friends or family), and external factors that affect the value of work opportunities.

³⁴³ No implication is intended that mental health conditions are not legitimate reasons for disability. Prime-age men (and women) have reported increasing rates of ill mental health. Winship, "Declining Prime-Age Male Labor Force Participation," 21; Krueger, "Where Have All the Workers Gone?"

³⁴⁴ Winship, "What's Behind Declining Male Labor Force Participation?" 58.

³⁴⁵ Eberstadt and Abramsky, "What Do Prime-Age 'NILF' Men Do All Day?"

³⁴⁶ Lichter, Price, and Swigert, "Mismatches in the Marriage Market."

³⁴⁷ Blandin, Jones, and Yang, "Marriage and Work among Prime-Age Men."

³⁴⁸ As of writing, the Job Openings and Labor Turnover Survey estimated that 10.1 million job openings were available, against 6.1 million unemployed workers. BLS, "Job Openings and Labor Turnover Survey," April 2023. BLS, "Current Economic Situation," May 2023.

³⁴⁹ CEA "Occupational Licensing."

³⁵⁰ Reeves and Smith, "The Male College Crisis is Not Just in Enrollment."

³⁵¹ Suderman, "Young Men Are Playing Video Games Instead of Getting Jobs."

³⁵² National Center for Education Statistics, "Digest of Education Statistics. Table 318.10."

³⁵³ Giffi et al., "2018 Skills Gap in Manufacturing Study."; Wellener et al., "Creating Pathways for Tomorrow's Workforce Today."

³⁵⁴ CEA, "The Long-Term Decline in Prime-Age Male Labor Force Participation."

³⁵⁵ Farren, "Bridging The Skills Gap."

³⁵⁶ Current tax regulations limit employers' ability to claim the cost of worker training as a business expense. Tax-deductible business expenses are restricted to education or training which maintains or improves a workers' ability to perform their current role. It specifically disallows tax deductibility for training or education that meets the minimum requirements for a given role, as well as that which prepares a worker to perform a new role. The only alternative is for the employer to operate a formal education program, available to all employees, which allows them to pursue education opportunities of their own choice. Current tax regulations allow employers to claim the first \$5,250 of such education costs as a business expense, but this amount has not been updated since 1986, when it was sufficient to cover the average cost of tuition, fees, and room and board at the average public university. This allowance would be approximately \$13,000 today if adjusted for inflation. 26 CFR 1.162-5; Sauter, "Here's the Average Cost of College Tuition Every Year since 1971."

³⁵⁷ Farren, "Solving the Skills Gap."

³⁵⁸ CEA, "Government Employment and Training Programs."; GAO, "Employment and Training Programs."; GAO, "Multiple Employment and Training Programs."; Bishop, "Landscape Study of Federal Employment and Training Programs."

³⁵⁹ United States Department of Labor, "Employee or Independent Contractor Classification under the Fair Labor Standards Act."