

Written Testimony for the Senate Budget Committee
Reducing Inequality, Fueling Growth: How Public Investment Promotes Prosperity for All
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Thank you to Chairman Whitehouse, Ranking Member Grassley, and Members of the Committee for inviting me to testify at this important hearing today. I am honored to appear before the Committee to discuss ways that social investments can work towards the dual goals of reducing inequality while strengthening America’s economic future.

My testimony today will focus on policy strategies to promote sustained long-term economic growth. In particular, I will discuss a new perspective on growth termed “Modern Supply Side Economics,” which was introduced by Treasury Secretary Janet Yellen in a virtual keynote address to the World Economic Forum in January 2022.¹ The primary goal of this testimony is to advance and elaborate on key elements of Modern Supply Side Economics, laying out six principal pillars of the strategy. At times, my testimony will compare Modern Supply Side Economics to the more-established growth theory colloquially known as supply side economics—which I will refer to as “Traditional Supply Side Economics” to distinguish the two growth theories.

The US Growth Experience in Context

To frame any discussion concerning economic growth, it is important to note that the United States is projected to continue a period of modest, but steady, economic growth over the next decade. In the latest economic projections, the Congressional Budget Office (CBO) projects that real GDP growth will measure between 1.7 percent and 2.7 percent annually between 2024 and 2033.² While these ranges are within the recent historical experience, achieving faster growth cannot only improve livelihoods, but also partially mitigate our government’s long-term fiscal challenges.

The heart of these growth challenges relates to two key macroeconomic factors. The first is sluggish growth in the labor force, which is expanding very slowly for the foreseeable future. CBO’s projections show that labor, as measured by potential hours worked, is expected to grow by only 0.4 percent annually over the next decade, and by 2023 will be only about 4.3 percent higher than it was ten years earlier.

A second key factor constraining economic growth is productivity. Subpar productivity growth has been a long-term challenge for the United States and the advanced economies in general, with

¹ U.S. Department of the Treasury. (2022, January 21). *Remarks by Secretary of the Treasury Janet L. Yellen at the 2022 'Virtual Davos Agenda' Hosted by the World Economic Forum*. U.S. Department of the Treasury: Secretary Statements and Remarks. <https://home.treasury.gov/news/press-releases/jy0565>.

² Congressional Budget Office. (2023, February 15). *The Budget and Economic Outlook: 2023 to 2033*. Congressional Budget Office. <https://www.cbo.gov/publication/58848>.

slow productivity growth characterizing the economy since the early 1970s—with only brief exceptions. CBO projects these trends to continue, with various measures of productivity only increasing by 1 percent to 2 percent a year over the next decade.

These long-term challenges notwithstanding, it is important to recognize that the United States generally fared better than our competitors in the aftermath of the pandemic. As I explained in a March 2023 post published while I was serving as Assistant Treasury Secretary for Economic Policy,³ the US economy was just 1.2 percent below its expected pre-pandemic level at the end of 2022—better than major economies in the G7 and Euro area—while real GDP measured 5.1 percent higher than at the end of 2019). This relative success reflects a more robust turnaround in domestic consumption in the US, which has typically not been the case among our competitors. Importantly, too, the US has experienced a much stronger rebound in the labor market, while also maintaining core inflation rates that are lower than many of the other countries in the sample.

Principal Elements of Modern Supply Side Economics

Modern Supply Side Economics and Traditional Supply Side Economics share the common key goal of expanding the productive capacity of the economy, or the aggregate amount of goods and services that can be produced by US firms and workers. In economic terms, this can be expressed as the aggregate production function, which states output as a function of technology (sometimes referred to as “total factor productivity”), labor and human capital, other capital, and sometimes land. (These “inputs” into the aggregate production function are collectively referred to as “factors of production.”) From this perspective, both theories not only aim to maximize the size of the economy, but both aim to do so through expanding the factors of production. That is, the central challenge with both growth theories is maximize the amount of technology, labor, and capital employed by the US economy.

In broad strokes, the central difference between Modern Supply Side Economics and Traditional Supply Side Economics is the specific channel for boosting various factors of production. The central elements of the Traditional Supply Side Economics approach to booting factors of production are three-fold. One, that levels of investment are highly responsive to changes in tax rates, including corporate taxes and taxes on individual investment income, Two, that sweeping deregulation can reduce barriers to economic activity and promote growth, And three, that government intervention is a poor avenue for pursuing long-term growth, in part because ultra-low tax rates on capital are a necessary condition for maximizing capital—and over-time government intervention requires raising revenues to support various public programs.

It may be helpful to briefly contrast the traditional and modern supply-side growth theories with the Keynesian approach. Keynesianism, in its modern form, typically refers to the notion that government intervention can help mitigate economic downturns and restore an economy’s economic output to a level that is closer to its potential output. This contrasts with the belief that economic downturns are inherently self-correcting, and that market forces are sufficiently powerful to quickly draw the economy out of a recession if and when economic activity slows. In

³ U.S. Department of the Treasury. (2023, June 5). *The U.S. Economic Recovery in International Context*. U.S. Department of the Treasury: Featured Stories. <https://home.treasury.gov/news/featured-stories/the-us-economic-recovery-in-international-context-2023>.

short, Keynesianism can be considered a strategy for prompting the economy to leave no factors of production idle, while traditional and modern supply side economics can be thought of strategies for expanding the factors of production.

These two growth approaches can be connected through the idea that prolonged downturns can depress the level of factors of production over time, and thus using government intervention to draw an economy out of a recession is not only a strategy for short-term growth—but for achieving longer-term prosperity as well. While Keynesianism has been somewhat politicized, it was the theoretical foundation for the bipartisan support provided during the pandemic—including the collective support to households and businesses provided by the CARES Act, the Paycheck Protection Program and Health Care Enhancement Act, and the Consolidated Appropriations Act for 2021.

In the text below, I will define and briefly expand on central elements of Modern Supply Side Economics. My aim is to draw on the empirical evidence supporting each assertion, and to acknowledge instances when the evidence requires additional research before advancing a hardened conclusion. Overall, too, this testimony focuses exclusively on questions of steepening the rate of economic growth and does not delve into strategies for achieving attendant policy objectives, such as reducing income inequality or strengthening the safety net.

1. Federal policies can dramatically reduce barriers to work and raise the quantity of labor in the economy.

Raising an economy's supply of labor is a first-order approach for raising an economy's growth rate. As explained in an IMF research report,⁴ "Women's economic empowerment is key for growth...through the direct impact of the size of the labor force on output...through the impact on productivity," and through higher domestic demand.⁵ Greater participation of women in the labor force also brings greater diversity⁶ that can foster new ideas for production and management,⁷ boosting aggregate productivity.⁸ Unfortunately, the United States labor market suffers from low rates of participation relative to our economic competitors, with an especially troubling declining rate of labor force participation rate among men. Within the OECD, only one country—Iceland—saw a larger decline in male labor force participation rate between 2000 and 2021, and only two

⁴ International Monetary Fund Strategy, Policy, and Review Dept., & International Monetary Fund, African Dept. (2018, May 31). Pursuing Women's Economic Empowerment. *International Monetary Fund*. <https://www.elibrary.imf.org/view/journals/007/2018/029/article-A001-en.xml>.

⁵ Cuberes, D., & Teignier, M. (2016). Aggregate Effects of Gender Gaps in the Labor Market: A Quantitative Estimate. *Journal of Human Capital*, 10(1), 1-32. <https://doi.org/10.1086/683847>.

⁶ Ostry, J.D., Alvarez, J., Espinoza, R., & Papageorgiou, C. (2018, October 8). Economic Gains from Gender Inclusion: New Mechanisms, New Evidence. *IMF Staff Discussion Notes*. <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2018/10/09/Economic-Gains-From-Gender-Inclusion-New-Mechanisms-New-Evidence-45543>.

⁷ Christiansen, L.E., Huidan, H.L., Pereira, J., Topalova, P., & Turk, R.A. (2016, March 17). Gender Diversity in Senior Positions and Firm Performance: Evidence from Europe. *IMF Working Papers*. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Gender-Diversity-in-Senior-Positions-and-Firm-Performance-Evidence-from-Europe-43771>.

⁸ Loko, B., & Diouf, M.A. (2009, October 1). Revisiting the Determinants of Productivity Growth - What's new? *IMF Working Papers*. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Revisiting-the-Determinants-of-Productivity-Growth-Whats-new-23354>.

other countries—Denmark and Iceland—saw declines in labor force participation for both men and women over this period.⁹ These long-term trends notwithstanding, an encouraging development is the return of labor force participation to its pre-pandemic trend.

Strategies that reduce barriers to work in order to boost labor market participation are generally well-known among economists. These strategies can include providing more generous paid leave, lowering the cost of childcare while expanding the supply of providers, and making pre-school education more universally available. Other policies, such as addressing actual and perceived age-discrimination against older workers, can also help boost participation for workers nearing retirement age.¹⁰

On this point, the contrast between Modern Supply Side Economics and Traditional Supply Side Economics is stark. Modern Supply Side Economics suggests that reductions in work-related barriers is a proven approach to boosting the supply of workers, with a notable focus on prime-age workers—most frequently women—who face substantial caregiving demands. In contrast, Traditional Supply Side Economics suggests that lower tax rates on investment income and corporations can attract capital (from both foreign and domestic sources), which will raise productivity and wages—thus drawing more entrants in the labor market.

2. Legal immigration should be regarded as an economic growth strategy.

Legal immigration is a promising strategy for increasing growth because it increases the size of the labor market, allows for the filling of specific gaps in the supply of native-born workers, increases innovation and productivity, boosts capital investment, and can improve labor market specialization—all with little to no evidence that elevated rates of immigration depress the wages of native-born workers. The economic benefit of immigration appears to be largely uncontroversial among economists, at least directionally. For example, in a University of Chicago survey of notable economists asking degrees of agreement with the statement “Allowing US-based employers to hire many more immigrants with advanced degrees in science or engineering would raise per capita income in the US over time,”¹¹ none of the 42 respondents disagreed. In addition, a CBO score¹² of immigration-increasing legislation revealed the potential for immigration to boost economic growth, with CBO finding that S. 744—which would have increased the labor force by roughly 5 percent over the long-term—would raise gross domestic product by 3.3 percent after a decade and by 5.4 percent after two decades.

⁹ Asai, M., Chen, Q., Honda, J., Hu, X., & Zhang, Q. (2023, September 8). The Role of Structural Fiscal Policy on Female Labor Force Participation in OECD Countries. *IMF Working Papers*. <https://www.imf.org/en/Publications/WP/Issues/2023/09/08/The-Role-of-Structural-Fiscal-Policy-on-Female-Labor-Force-Participation-in-OECD-Countries-538956>.

¹⁰ Harris, S. (2020, November). Increasing employment for older workers with effective protections against employment discrimination. *Brookings Institution*. <https://www.brookings.edu/wp-content/uploads/2020/11/ES-11.19.20-Harris.pdf>.

¹¹ Kent A. Clark Center for Global Markets. (2016, September 20). *Science, Technology and Immigration*. Chicago Booth Kent A. Clark Center for Global Markets. <https://www.kentclarkcenter.org/surveys/science-technology-and-immigration>.

¹² Congressional Budget Office. (2013, June). The Economic Impact of S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act. *Congressional Budget Office*. <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44346-immigration.pdf>.

Recent experience has also shown how sharp downturns in the rate of legal immigration can be an impediment to strong growth. The combination of strict anti-immigration rhetoric in the prior presidential administration, coupled with logistical hurdles to immigration experienced during the pandemic, sharply depressed the stock of immigrants in the US labor market—by roughly 2 million people at the end of 2021, according to some estimates.¹³ This newfound shortage in the labor market contributed to unprecedented shortfalls in labor supply; for example the number of job vacancies peaked at over 12 million in March 2022—the highest level on record.

In the context of comparing Modern Supply Side Economics and Traditional Supply Side Economics, this may be the point of greatest agreement. Modern Supply Side Economics would suggest that legal immigration, by directly boosting labor supply, is a key ingredient to sustained growth. While Traditional Supply Side Economics does not appear to explicitly take a stand on legal immigration, the emphasis on deregulation and free markets suggests that higher levels of immigration could potentially be an acceptable growth strategy for traditional supply-siders.

3. More equal distribution of capital, all else equal, can raise economic output.

The US economy is characterized by differential rates of investment across both places and households. These differences include access to capital, such as differences in access to loans for entrepreneurial activity, investment in human capital, such as school expenditures, and investments in productivity-enhancing infrastructure, such as high-speed broadband.

This point concerns the distribution of capital across local economies, rather than level of aggregate capital employed by a given economy. The key takeaway is that equalizing access to human and physical capital across local economies can boost growth, even if the total level of capital remains fixed. It is worth noting that many of the more established models of economic growth assume that both physical and human capital exhibit diminishing returns with respect to output, meaning that each additional unit of capital in an economy result in slightly less increase in output. This economic assumption suggests that when capital is low, increased investment can have outsized impacts on growth relative to a situation when there is more ample access to capital.

In an address to the Stanford Institute for Economic Policy Research on Modern Supply Side Economics, Secretary Yellen elaborated on this point:¹⁴

“While the relevant definition of “place” can depend on context—sometimes it can be a city, other times it’s a neighborhood, or even a single building—the residents and workers who populate these places endure wide variation in resources, opportunities, and standards of living. And the magnitude of this variation is striking.

¹³ Duzhak, E.A. (2023, February 27). The Role of Immigration in US Labor Market Tightness. *FRBSF Economic Letters*, 2023(6). <https://www.frbsf.org/economic-research/publications/economic-letter/2023/february/role-of-immigration-in-us-labor-market-tightness>.

¹⁴ U.S. Department of the Treasury. (2022, March 4). *Remarks by Secretary of the Treasury Janet L. Yellen at Stanford Institute for Economic Policy Research’s 2022 Economic Summit*. U.S. Department of the Treasury: Secretary Statements and Remarks. <https://home.treasury.gov/news/press-releases/jy0632>.

Consider the gap in social and economic metrics between counties in the top and bottom quintiles, as calculated by economists Ryan Nunn and Jay Shambaugh. Looking across select years over the past two decades, they find that the median household income is just \$40,300 for the bottom quintile, compared to \$83,000 for the top.

The poverty rate was 22.7% for the bottom quintile, but only 8.1% for the top. Housing vacancy rates were 21.7% in the worst-performing quintile, but only 5.2% in the best. Others have found similar divergences in rates of opioid addiction, childhood poverty, and incarceration, to name a few.

Two specific metrics merit special mention given their outsized impact on the potential output of a local economy. One is educational attainment, which is a strong predictor of economic and social wellbeing across U.S. counties. Increases in educational attainment can explain roughly 11% to 20% of U.S. productivity growth in recent decades, according to a U.S. Department of Education report that examined the link between education and economic productivity.

A second important metric is participation in the labor market. As economist Tim Bartik points out, labor force participation varies substantially across metro areas, with a participation gap of 9 percentage points between the 10th and 90th percentiles of the employment rate distribution – roughly equivalent to the difference between the 1st and 22nd place among OECD countries.

What emerges from these statistics is a portrait of an economy fractured by zip code, where economic resources are increasingly concentrated in the best-endowed areas, while the rest of the economy languishes—creating persistent income disparities.”

In practice, addressing these disparities and reversing chronic underinvestment in people and places can be achieved through a wide range of policies. These include targeted mechanisms for directing capital to underserved areas, such as funding Community Development Financial Institutions, providing funding for entrepreneurs who typically lack affordable access to capital, such as through the State Small Business Credit Initiative, and providing better access to education and training for underserved populations, including for example by addressing underfunding for Historically Black Colleges and Universities.

4. The rate of aggregate investment is not especially sensitive to the tax rate on capital.

A central tenant to Traditional Supply Side Economics is the notion that lowering tax rates on capital—including taxes on capital gains, dividends, interest income, and corporate profits—is an effective mechanism for raising investment. The justification for this notion is rooted in the proposition that long-term standards of living are ultimately dependent on levels of investment, and levels of investment are dependent on the “user cost of capital”—an economic determination that falls with the tax rate on investment income. In addition, some economists worry about the “lock-in” effect of that arises with capital gains taxation, whereby the exemption of most gains held until death incents investors to hold onto assets for tax reasons—preventing a more efficient allocation of capital. These observations have propelled some conservative economists to call for a complete repeal of capital gains and dividend taxes, with some even arguing that the economic gains from a reduction or repeal would be sufficient to compensate for the associated lost

revenue.¹⁵ (The latter claim is poorly supported by evidence, however, especially at current levels of capital gains taxation.¹⁶)

A critical component to the link between lower tax rates on investment profits and economic growth is the empirical link between tax rates and changes in aggregate investment. In the absence of an established link, such justification for these claims is weakened and instead depends on the impact of more efficient allocation of capital, rather than the level. To be fair, the sensitivity of investment to tax rates has long been a contentious issue in public finance, complicated by the complexity of the tax code and empirical challenges with measuring specific drivers of private investment.

The Tax Cuts and Jobs Act (TCJA), passed in 2017, offered a unique opportunity to test that theory by instituting roughly \$2 trillion in deficit-financed tax cuts. Specifically, that act offered sweeping cuts in the corporate tax rate, dropping it from 35 percent to 21 percent, while simultaneously instituting a deduction for pass-through income, changing tax rules for multinational corporations, and sharply scaling back the scope of the estate tax. If business investment were highly responsive to changes in tax rates, the natural experiment offered by the 2017 bill would have shown a discrete change in investment trends.

Unfortunately, the TCJA has failed to live up to its promise. In the years following its implementation, many economists have attempted to measure the impact on investment and economic growth—isolating the impact of the tax cut from other macroeconomic changes. Despite its exceptionally high cost in terms of lost revenue, the bulk of economic evidence suggests that the impact on investment and business formation was muted at best. As explained in a Brookings Institution review by William Gale and Claire Haldeman, “TCJA was advocated as a way to increase tax-based supply-side incentives that could boost the economy. Discerning the short-term impact on GDP is difficult. But TCJA clearly reduced federal revenues significantly and several pieces of evidence suggest that TCJA’s supply-side incentives had little effect on investment, wages, or profit-shifting.”¹⁷

¹⁵ For example, Heritage Foundation economists argued that “When the financial sector and private investment are weak, as is currently the case, the best taxes to reduce are investment-related taxes. The elimination of capital gains and dividend taxes would encourage increased investment that puts more funds into the financial service sector so that the economic pipes can begin flowing again.”

Campbell, K.A., & Nell, G. (2009, February 3). Sustainable Economic Stimulus: Repeal Capital Gains and Dividend Taxes. *The Heritage Foundation: Web Memo*, 2263. <https://www.heritage.org/trade/report/sustainable-economic-stimulus-repeal-capital-gains-and-dividend-taxes>.

¹⁶ The bulk of the academic evidence suggests a revenue-maximizing capital gains rate that is substantially higher than the current rate. For example, a recent study put the revenue-maximizing rate at 38 to 47 percent. Agersnap, O., & Zidar, O. (2021, December). The Tax Elasticity of Capital Gains and Revenue-Maximizing Rates. *American Economic Review: Insights*, 3(4), 399-416. <https://doi.org/10.1257/aeri.20200535>.

¹⁷ Gale, W., & Haldeman, C. (2021, July). The Tax Cuts and Jobs Act: Searching for supply-side effects. *Brookings Institution*. https://www.brookings.edu/wp-content/uploads/2021/07/20210628_TPC_GaleHaldeman_TCJASupplySideEffectsReport_FINAL.pdf.

5. Addressing climate change can both mitigate risks and boost growth by investing in the green energy transition.

In terms of addressing the potential threat from climate change, Modern Supply Side Economics offers the dual benefits of mitigating harm from climate disruptions while offering an opportunity to expand on growth. On the first objective, the strategy aims to address the negative implications of economic shocks, including the increasing disruptions from climate-related events like hurricanes, flooding, and persistent drought. The cost of these events is substantial, with one oft-cited calculation by the National Oceanic and Atmospheric Association noting that the US economy last year incurred \$165 billion in damages from these disruptions.¹⁸ And a wide range of economic studies have concluded that rising temperatures owing to increased carbon emissions will have a strongly negative impact on GDP.¹⁹ For example, a report by the University of Chicago’s Energy Policy Lab found that every one-degree Fahrenheit increase in temperatures would confer economic costs equal to 0.7 percent of GDP,²⁰ on average. These are striking figures, but they likely understate the true costs of climate change because they do not account for the outstanding uncertainty around the impacts of climate change. These projected costs are *averages*, indicating that the ultimate costs could be much worse, or perhaps not as harmful as anticipated.

Laying aside the gains from reducing emissions, the clean energy transition promises a major macroeconomic advantage to those countries that invest in low-carbon technologies.

The world is in the midst of a massive transition in the way energy is consumed and, in particular, produced. This transition promises a series of economic, social, and health benefits that rival some of the greatest achievements in human history—principally related to the gains achieved by mitigating the harmful impacts of carbon emissions.

Unfortunately, the United States has been lagging far behind China in terms of aggregate investment. According to Bloomberg, last year global investment in this transition amounted to \$1.1 trillion—approximately the same amount invested in the production of fossil fuels and a remarkable doubling of three the investment recorded years earlier. The bulk of this \$1.1 trillion figure was due to investment in renewable energy production (wind, solar, biofuels and other renewables) or electrified transport (electric vehicles and supporting infrastructure).²¹ Over half this investment—50.8 percent—was attributed to investment from China (\$546 billion), while the US investment amounted to just 12.7 percent of the total (\$12.7 percent).

¹⁸ National Oceanic and Atmospheric Administration. (2023, January 10). *Assessing the U.S. Climate in 2022*. National Oceanic and Atmospheric Administration: National Centers for Environmental Information. <https://www.ncei.noaa.gov/news/national-climate-202212>.

¹⁹ Kahn, M.E., Mohaddes, K., Ng, R.N.C., Pesaran, M.H., Raissi, M., & Yan, J.C. (2019, October 11). Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis. *IMF Working Papers*. <https://www.imf.org/en/Publications/WP/Issues/2019/10/11/Long-Term-Macroeconomic-Effects-of-Climate-Change-A-Cross-Country-Analysis-48691>.

²⁰ Jina, A. (2021, March 25). Climate Change and the U.S. Economic Future. *Energy Policy Institute at The University of Chicago: U.S. Energy & Climate Roadmap*. <https://epic.uchicago.edu/area-of-focus/climate-change-and-the-us-economic-future>.

²¹ BloombergNEF. (2023, January 26). *Global Low-Carbon Energy Technology Investment Surges Past \$1 Trillion for the First Time*. BloombergNEF Blog. <https://about.bnef.com/blog/global-low-carbon-energy-technology-investment-surges-past-1-trillion-for-the-first-time>.

The macroeconomic stakes could not be higher. To start, in a world in which fossil fuel consumption declines, the United States will need to bolster its clean energy production to preserve its hard-fought energy independence. The economic consequences of surrendering energy independence have been crystalized time and again, most recently through the experience of the European Union—which suffered under exponentially rising natural gas prices when Russia weaponized the natural gas supply in the winter of 2021. Europe’s economy staggered under the weight of gas prices rising on the order of 1,000 percent in a short period of time, coupled with the persistent threat of energy shortages.

The US can solidify our industries as leaders in clean energy production, producing employment, wage, and GDP growth in economies around the country. A salient example of this opportunity is the electric vehicle industry, which promises to overcome cars produced with internal combustion engines as soon as 2027. As outlined in the 2022 Economic Report of the President, the economic potential is massive: nearly 1 million Americans work in auto production, the output of the motor vehicle and parts industry amounts to \$500 billion each year, and the value of the worldwide electric vehicle market is projected to increase by nearly five-fold to \$800 billion over this decade.²² Maintaining a global leadership role in the electric vehicle industry can be an economic gain for decades. Other clean industries offer similar benefits. For example, clean energy generation offers a sizeable opportunity for high-paying employment, in part due to the size of the potential investment and in part due to the labor-intensive nature of industries like solar, wind, and geothermal energy.

A final benefit comes in the form of lower energy expenditures for consumers, an occasionally underappreciated gain from the transition to clean energy. As detailed in a recent report from the Rhodium Group, consumers stand to gain through three primary mechanisms. One is the utilization of consumer tax credits, which lower the costs of transition passed on to households. A second is the total demand of energy consumed due to increased efficiency, which lowers total expenditures even if actual prices don’t change. A third factor is the per-unit cost of energy, with lower demand for natural gas lowering the cost of gas for all sectors in the economy. All told, the Rhodium group estimates that these factors will help lower average household energy spending by \$411 to \$566 by 2030.²³

6. More robust competition can spur faster growth.

Competition is an essential element of capitalism, and lack of competition often impedes the ability of markets to deliver their full economic potential. Perhaps contrary to the central takeaways of Traditional Supply Side Economics, more robust regulation in certain circumstances—including in particular the labor market—can improve competition, lead to more efficient economic outcomes, and expand the productive capacity of the US economy. This section focuses on lack of

²² Office of the U.S. President. (2022, April). Accelerating and Smoothing the Clean Energy Transition. In *Economic Report of the President: April 2022* (pp. 221-249). Office of the U.S. President. <https://www.whitehouse.gov/wp-content/uploads/2022/04/Chapter-7-new.pdf>.

²³ Larsen, J., King, B., Wimberger, E., Pitt, H., Kolus, H., Rivera, A., Dasari, N., Jahns, C., Larsen, K., & Herndon, W. (2021, October 19). Pathways to Paris: A Policy Assessment of the 2030 US Climate Target. *Rhodium Group*. https://rhg.com/wp-content/uploads/2021/10/Rhodium-Group_Pathways-to-Paris-A-Policy-Assessment-of-the-2030-US-Climate-Target.pdf.

competition in the labor market, but there are other circumstances to which similar lessons apply. Importantly, too, there are instances where deregulation can improve economic outcomes, with permitting reform serving as one prescient example.

In explaining sluggish wage growth over the past several decades, economists have turned to a host of theories ranging from declining union density to the uneven impact on technological change. More recently, however, lack of labor market competition has emerged as a possible explanation and has led to a renewed interest in policy reforms designed to improve competition.²⁴

The central hypothesis around low labor market competition is that employers have gained market power through a host of factors, enabling them to increase their profits over what would be expected in a competitive labor market. Economists refer to this situation as a “monopsony,” which is the labor market equivalent of a monopoly in the product market. In a monopsony, firms hire the amount of labor that will maximize their profits, typically a lower amount that would be employed in a competitive market. This ultimately leads to less employment, lower wages, and diminished economic efficiency.

The alternative to a monopsony is a perfectly competitive labor market, whereby firms simply take the market wage as given. Workers are paid the market wage, simply because paying anything less leads to a complete exodus of workers to another firm who is willing to pay the market rate. Competitive labor markets enjoy both higher wages and more jobs.

Perhaps the most obvious way monopsonies can arise is due to highly concentrated markets with few hiring firms relative to the number of workers. One such approach is to apply a measure of market concentration typically utilized by federal regulators (Herfindahl-Hirschman Index) to measure concentration in product markets. In a recent study, economist Jose Azar and co-authors find that 60 percent of US labor markets (by geography), accounting for nearly 20 percent of employment, are “highly concentrated” according to this measure—with generally higher rates of concentration in rural areas compared to cities.²⁵ The authors speculate that the relatively high concentration in rural areas may account for slower wage growth compared to other labor markets.

Monopsony-like conditions can also arise if workers are tied to their jobs to such an extent that they are reluctant to accept a higher wage offer—such as desire to keep employer-provided health insurance or to avoid a long commute. Ammar Farooq and Adriana Kugler studied the impact of workers moving to a state with more generous public health benefits (which reduces the incentive to stay with an employer for the purpose of maintaining health insurance), finding that more generous public insurance raises job mobility by about 8 percent.²⁶

²⁴ For an outstanding review of the issues surrounding labor market competition, see the Treasury report “The State of Labor Market Competition,” as directed by President Biden’s Executive Order on Promoting Competition in the American Economy.

U.S. Department of the Treasury. (2022, March 7). The State of Labor Market Conversation. *U.S. Department of the Treasury*. <https://home.treasury.gov/system/files/136/State-of-Labor-Market-Competition-2022.pdf>.

²⁵ Azar, J., Marinescu, I., Steinbaum, M., & Taska, B. (2020, October). Concentration in US labor markets: Evidence from online vacancy data. *Labour Economics*, 66. <https://doi.org/10.1016/j.labeco.2020.101886>.

²⁶ Farooq, A., & Kugler, A. (2022). Impacts of Public Health Insurance on Occupational Upgrading. *ILR Review*, 75(1), 225-250. <https://doi.org/10.1177/0019793920928066>.

Recent empirical work has focused on workforce labor policies that can diminish competition by restricting workers' abilities to separate from employment. Non-compete agreements, impacting 27.8 percent and 45.6 percent of private-sector workers,²⁷ can restrict workers' ability to take a better-paying job by threatening legal action for doing so—even in states where non-compete agreements are banned or limited. Economists Michael Lipsitz and Evan Starr studied Oregon's 2008 non-compete ban and found it raised impacted workers' wages by as much as 14 percent to 21 percent—while also shifting more workers in salaried work and improving job mobility.²⁸ Empirical studies have also examined the impact of information, namely the disclosure of comparable wages on worker behavior. Depending on the nature of employment, lack of wage transparency can inhibit competition if workers are unaware that they are paid less relative to others with similar positions. One study of the faculty and staff at the University of California found that workers with below-median wages significantly increased their job search activity after discovering their peers' wages.²⁹

In sum, increased competition can, in some circumstances, help expand economic efficiency and boost growth. In the case of the labor market, strengthened competition can mitigate the harmful impacts of local monopsonies and perhaps boost employment.

²⁷ Colvin, A.J.S., & Shierholz, H. (2019, December 10). Noncompete agreements: Ubiquitous, harmful to wages and to competition, and part of a growing trend of employers requiring workers to sign away their rights. *Economic Policy Institute*. <https://www.epi.org/publication/noncompete-agreements>.

²⁸ Lipsitz, M., & Starr, E. (2021). Low-Wage Workers and the Enforceability of Noncompete Agreements. *Management Science*, 68(1), 143-170. <https://doi.org/10.1287/mnsc.2020.3918>.

²⁹ Card, D., Mas, A., Moretti, E., & Saez, E. (2012). Inequality at Work: The Effect of Peer Salaries on Job Satisfaction. *American Economic Review*, 102(6), 2981-3003. <http://dx.doi.org/10.1257/aer.102.6.2981>