THE 2024 JOINT ECONOMIC REPORT

R E P O R T

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

ON THE

2024 ECONOMIC REPORT
OF THE PRESIDENT

CHAPTER 5 OF THE
REPUBLICAN RESPONSE

The Role of Artificial Intelligence in Governance

JUNE 17, 2024

Joint Economic Committee Republicans
Vice Chairman David Schweikert

CHAPTER 5: THE ROLE OF ARTIFICIAL INTELLIGENCE IN GOVERNANCE

As the other Chapters of the *Response* have reiterated, the United States faces a grave fiscal trajectory. The U.S. Federal debt is on an unsustainable path that could have devastating consequences if unaddressed.[1] As noted by the Blanchard-inspired fiscal balance framework in Chapter 1, inducing economic growth to increase the overall size of the economy will help to stabilize our debt-to-GDP ratio. This Chapter explores the potential economic and fiscal benefits of the broad adoption of artificial intelligence (AI) and the opportunity it has to improve governance to accelerate economic growth. First, this Chapter examines the potential economic benefits of the broad adoption of AI. Then, it explores adopting smarter regulatory approaches to reduce bureaucracy and raise economic growth. It then discusses the use of AI to make government more effective and efficient, before concluding with the potential for AI to implement a smarter regulatory landscape and grow the economy.

The Economic Growth Potential of Artificial Intelligence Adoption

Technological advancement can increase labor productivity, which can unlock faster economic growth. There are three primary components to economic output: the size of the working population, its skill level, and the number of hours worked. Technological innovation raises output per labor hour. When each

[1] Joint Economic Committee (JEC), *Republican Response to the Economic Report of the President* (U.S. Congress Joint Economic Committee, 2023), https://sen.gov/LVQYY.

unit of labor results in greater output, incomes, purchasing power, and economic growth rise.[2]

Recent innovations in AI present significant opportunities for increasing productivity and, thus, economic growth. AI uses modern computing power to identify patterns in data on which a given model is trained. AI can then make predictions or classifications when fed new data.[3] A popular example of its broad use is in large language models (LLMs), such as Chat-GPT. These technologies can assist in coding, writing, editing, brainstorming, and answering technical questions—even medical diagnoses. This technology has been found to notably improve the efficiency of software engineers and economists, as well as significantly accelerate writing speed.[4] AI can also be employed in chatbots, fraud detection, and text analysis of large volumes of documents. It can also facilitate more accurate decision-making.[5] While there

---

[2] YiLi Chien, "What Drives Long-Run Economic Growth?", Federal Reserve Bank of St. Louis, June 1, 2015, https://www.stlouisfed.org/on-the-economy/2015/june/what-drives-long-run-economic-growth.

[3] IBM, "What is AI?", https://www.ibm.com/topics/artificial-intelligence.

[4] Eirini Kalliamvakou, "Research: quantifying GitHub Copilot's impact on developer productivity and happiness," GitHub blog, September 7, 2022, https://github.blog/2022-09-07-research-quantifying-github-copilots-impact-on-developer-productivity-and-happiness/; Anton Korinek, "Language Models and Cognitive Automation for Economic Research," NBER Working Paper no. 30957 (February 2023), https://doi.org/10.3386/w30957; Shakked Noy and Whitney Zhang, "Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence," Massachusetts Institute of Technology Working Paper (March 2023), https://economics.mit.edu/sites/default/files/inline-files/Noy_Zhang_1.pdf.

[5] Frederic Becker, Julian Skirzyński, Bas van Opheusden, and Falk Lieder, "Boosting Human Decision-making with AI-Generated Decision Aids," *Computational Brain & Behavior* 5 (2022): 467-90, https://doi.org/10.1007/s42113-022-00149-y; Sukwoong Choi, Hyo Kang, Namil Kim, and Junsik Kim, "How Does AI Improve Human Decision-Making? Evidence from the AI-Powered Go Program,"

will likely be some distributional effects on labor (for example, there may be fewer lawyers required as a result of AI), research suggests that labor demand will increase as a result of large-scale AI adoption, increasing employment.[6] By aiding firms to serve more customers, process more transactions, access more information, increase aggregate intellectual capital, and improve efficiency of processes, AI supports increases in productivity and economic growth.[7]

Because widespread adoption of AI is a relatively new phenomenon, many of the economic growth effects have not been studied extensively. Accurate forecasts of AI's impact on economic growth and other economic variables, such as employment, are limited. Nevertheless, research has found that the number of AI patents (a proxy for AI adoption and innovation) has a significant, positive effect on economic growth. Notably, a 1 percent increase in the number of AI patents results in a 0.00223–0.00367 percentage point increase in the GDP per-capita growth rate (five-year average) in advanced countries.[8] Thus, under this assumption, if the number of AI patents doubled, the rate of medium-term economic growth would be expected to increase by 0.2 to 0.4 percentage points. Increased adoption of AI would have positive implications for growth and, subsequently, the overall size of the economy.

USC Marshall School of Business Research Paper, October 1, 2023, http://dx.doi.org/10.2139/ssrn.3893835.

[6] Lili Yan Ing and Gene M. Grossman, *Robots and AI: A New Economic Era* (2022), https://doi.org/10.4324/9781003275534.

[7] Philip Trammell and Anton Korinek, "Economic Growth under Transformative AI," NBER Working Paper no. 31815 (October 2023), https://doi.org/10.3386/w31815.

[8] Julius Tan Gonzales, "Implications of AI innovation on economic growth: a panel data study," *Journal of Economic Structures* 12, no. 13 (2023), https://doi.org/10.1186/s40008-023-00307-w.

Given the magnitude of its potential benefits, Congress should be cautious to avoid deterring investment or hindering innovation in this space. Policymakers should not require entrepreneurs to seek permission to create new AI products or services, nor implement onerous and unnecessary regulations. Restricting the invention of new AI tools and products could mean missing out on potential lifesaving and productivity-enhancing technologies that could vastly improve human and economic well-being.

While the potential of AI to improve economic growth is significant, the fiscal problem warrants the exploration of other avenues to boost economic growth.[9] Given the mass of regulatory accumulation—which the Biden Administration accelerated—and the costs that poorly constructed regulations impose on economic activity, the current regulatory framework should be made smarter to reduce bureaucracy and improve economic growth, thus helping to balance the fiscal situation.[10]

The Impact of Regulation on Economic Growth

Regulations are rules promulgated by Federal agencies in response to authority granted to them by statute. As of 2021, there are over 1.3 million Federal regulatory restrictions.[11] There is limited oversight and review of regulations once issued and limited coordination between agencies to ensure regulations do not conflict.

---

[9] Congressional Budget Office (CBO), *The Long-Term Budget Outlook: 2024 to 2054* (March 2024): Table 1, https://www.cbo.gov/system/files/2024-03/51119-2024-03-LTBO-budget.xlsx.

[10] Dan Goldbeck, "The Spring Surge Resumes," *American Action Forum*, May 13, 2024, https://www.americanactionforum.org/week-in-regulation/the-spring-surge-resumes/.

[11] QuantGov, "RegData 4.1,"," Mercatus Center, https://quantgov-bulk-downloads.s3.amazonaws.com/RegData-US_4-1.zip.

Regulation can dampen economic activity in various ways, including:

- distorting resource utilization;[12]
- restricting investment;[13]
- imposing labor and capital costs due to diverting resources to compliance, reducing companies' investment in innovation;[14]
- creating barriers to market entry;[15]
- reducing business dynamism, which disproportionally falls on small businesses, making businesses larger and older;[16]
- hampering entrepreneurship and firm formation, which has a downward effect on wages and total employment, leading to less competition, further reducing productivity and innovation;[17] and

---

[12] Phil Lewis, Alice Richardson, and Michael Corliss, "Compliance Costs of Regulation for Small Business," *Journal of Business Systems, Governance & Ethics* 9, no. 2 (2015), https://doi.org/10.15209/jbsge.v9i2.715.

[13] Lewis, Richardson, and Corliss, "Compliance Costs of Regulation for Small Business."

[14] Michael Mandel and Diana G. Carew, "Regulatory Improvement Commission: A Politically-Viable Approach to U.S. Regulatory Reform," Progressive Policy Institute Policy Memo, May 2013, https://www.progressivepolicy.org/wp-content/uploads/2013/05/05.2013-Mandel-Carew_Regulatory-Improvement-Commission_A-Politically-Viable-Approach-to-US-Regulatory-Reform.pdf; Alberto Alesina, Silvia Ardagna, Giuseppe Nicoletti, and Fabio Schiantarelli, "Regulation and Investment," NBER Working Paper no. 9560 (March 2003), https://doi.org/10.3386/w9560.

[15] Alesina, Ardagna, Nicoletti, and Schiantarelli, "Regulation and Investment."

[16] Dustin Chambers, Patrick McLaughlin, and Tyler Richards, "Regulation, Entrepreneurship, and Firm Size," Mercatus Center Working Paper (April 26, 2018), https://www.mercatus.org/research/working-papers/regulation-entrepreneurship-and-firm-size.

[17] James Bailey and Diana Thomas, "Regulating Away Competition: The Effect of Regulation on Entrepreneurship and Employment,"

- raising prices as increased costs are passed on to consumers, increasing poverty and inequality.[18]

The ultimate result of misguided or overly burdensome regulation is forgone investment, lower labor productivity, and diminished output.[19]

Only 137 of the 36,255 final regulations issued between 2007 and 2016 had estimates of quantifiable benefits and costs.[20]. The cumulative cost of all regulations is larger than their summed costs.[21] Moreover, as the volume of regulation grows, so does the risk that they conflict with each other. For example, vehicle safety requirements favor larger and heavier vehicles, but fuel economy

---

Mercatus Center Working Paper (September 9, 2015), https://www.mercatus.org/students/research/journal-articles/regulating-away-competition-effect-regulation-entrepreneurship.

[18] Dustin Chambers and Courtney A. Collins, "How Do Federal Regulations Affect Consumer Prices? An Analysis of the Regressive Effects of Regulation," Mercatus Center Working Paper, (February 23, 2016), https://www.mercatus.org/research/working-papers/how-do-federal-regulations-affect-consumer-prices-analysis-regressive; Dustin Chambers, "The Human Cost of Regulations and Some Possible Solutions," Mercatus Center Working Paper (November 17, 2022), https://www.mercatus.org/research/policy-briefs/human-cost-regulations-and-some-possible-solutions.

[19] Philippe Aghion, Antonin Bergeaud, and John Van Reenen, "The Impact of Regulation on Innovation," NBER Working Paper no. 28381 (January 2021), https://doi.org/10.3386/w28381.

[20] James Broughel and Richard A. Williams, "More Information Needed on the Benefits and Costs of Regulations," Mercatus Center Expert Commentary, August 22, 2018, https://www.mercatus.org/economic-insights/expert-commentary/more-information-needed-benefits-and-costs-regulations.

[21] Council of Economic Advisers (CEA), *Economic Report of the President* (The White House, 2019): 81, https://www.whitehouse.gov/wp-content/uploads/2021/07/2019-ERP.pdf.

standards favor the opposite. Car companies must design vehicles that fit both parameters, resulting in excess costs to consumers.[22]

Cumulative regulation provides a negative drag on economic growth, particularly for developed countries like the United States.[23] Since 1970, total regulatory restrictions, as measured by a count of the words, "shall," "must," "may not," "required," and "prohibited" in the Code of Federal Regulations (CFR) have tripled, creating significant headwinds for economic growth.[24]

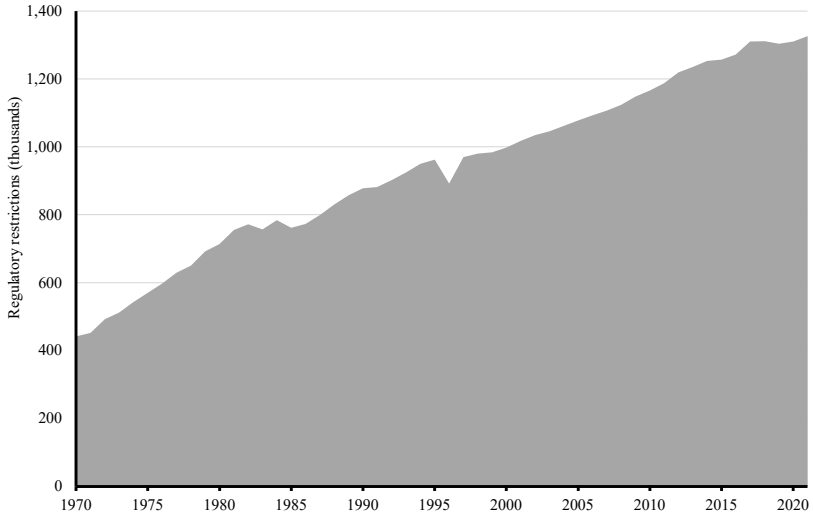
---

[22] Mandel and Carew, "Regulatory Improvement Commission: A Politically-Viable Approach to U.S. Regulatory Reform."

[23] John Dawson and John Seater, "Federal Regulation and Aggregate Economic Growth," *Journal of Economic Growth* 18 (2013): 137-177, https://doi.org/10.1007/s10887-013-9088-y; Simeon Djankov, Caralee McLiesh, and Rita Maria Ramalho, "Regulation and Growth" (2006), https://ssrn.com/abstract=893321; Jamal Ibrahim Haidar, "The impact of Business Regulatory Reforms on Economic Growth," Centre d'économie de la Sorbonne Working Paper (2012), https://shs.hal.science/halshs-00717423; CEA, *Economic Report of the President* (The White House, 2018): 73, https://www.whitehouse.gov/wp-content/uploads/2021/07/2018-ERP.pdf.

[24] QuantGov, "Bulk Downloads;" Patrick McLaughlin, Jonathan Nelson, and Thurston Powers, "RegData U.S. 4.1 User's Guide," March 15, 2022, https://quantgov-documentation.s3.amazonaws.com/regdata_4_1_user_guide.pdf.

Figure 5-1: Total Regulatory Restrictions in the Code of Federal Regulations, 1970 -2021



Source: QuantGov, RegData 4.1 "restrictions_2_0"

According to Coffey et. al, if regulatory restrictions were frozen at their 1980 levels, the U.S. economy would have been about 25 percent larger in 2012. This would amount to an average annual GDP growth rate 0.8 percentage points higher per year over the period from 1980 to 2012.[25]

Box 5-1: GDP in 2023 Under 1980 Regulation

Assuming this average trend of increased growth would have continued through 2023, JEC Republicans estimate that the economy would be nearly 40 percent larger than it was last year.[26]

[25] Bentley Coffey, Patrick McLaughlin, and Pietro Peretto, "The Cumulative Cost of Regulations," Mercatus Center Working Paper (April 26, 2016), https://www.mercatus.org/research/working-papers/cumulative-cost-regulations.

[26] 39.4 percent larger

Mathematically, this can be represented as follows.

$$ERGDP_{1980+t} = RGDP_{1980} * (1 + \delta + \varepsilon)^t$$
$$\Delta = ERGDP_{1980+t} - RGDP_{1980+t}$$

$t =$ Years since 1980
$\delta =$ Average real GDP growth rate from 1980 to 2023 (2.67 percent)
$\varepsilon =$ Average annual increase in growth with 1980-level regulation (~0.8 percentage points per year)
$\Delta =$ Foregone GDP growth
$RGDP =$ Real GDP, chained 2017 dollars
$ERGDP =$ Estimated real GDP, chained 2017 dollars

An economy nearly 40 percent larger would mean GDP would be over $38 trillion in 2023, far larger than the $27.4 trillion recorded in 2023. Keeping the current government debt profile static, the gross Federal debt would be under 90 percent of GDP, compared to 121.6 percent observed in the fourth quarter of 2023.[27] While some regulations added since 1980 may have benefits that outweigh their costs, the point remains: cumulatively, regulations lead to slower economic growth.

Reducing Bureaucracy with Smart Regulation to Boost Economic Growth

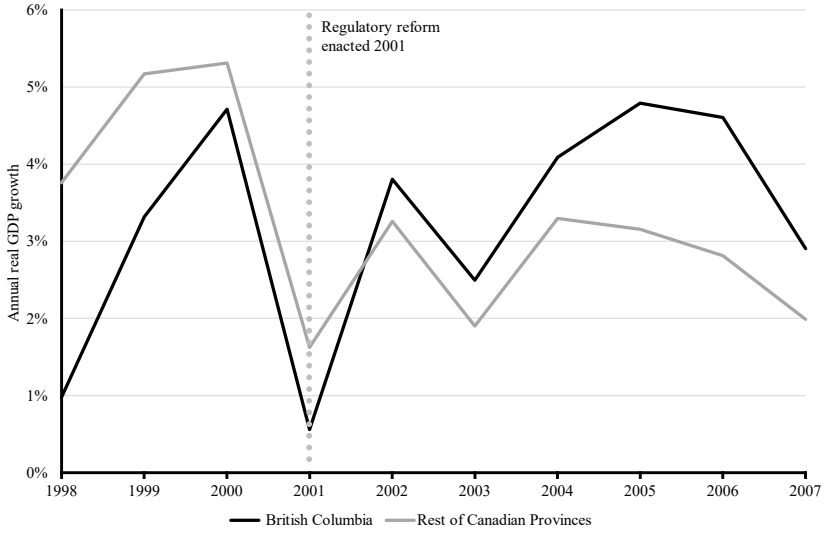
As increasing regulations slow economic growth, reducing bureaucracy through the implementation of smarter regulatory

[27] U.S. Office of Management and Budget, "Total Public Debt as Percent of Gross Domestic Product [GFDEGDQ188S]", retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GFDEGDQ188S.

approaches presents an avenue to increase growth. Because addressing excessive regulatory burdens does not materially shrink receipts or increase outlays, it presents a pragmatic opportunity to help restore fiscal balance.

McLaughlin and Coffey study the effect of repealing excessively burdensome rules on economic growth using data from British Columbia, Canada. Regulatory reform enacted in 2001 reduced the quantity of the most bureaucratic provincial regulatory restrictions by nearly 40 percent. They found that this led to an increase in annual economic growth of approximately 1 percentage point. The increase in the growth rate is shown in Figure 5-2.[28]

Figure 5-2: Economic Growth in Canada, Observing the Impact of Regulatory Reform



Source: Statistics Canada, "Gross domestic product (GDP) at basic prices, by industry, provinces and territories"

[28] Coffey, McLaughlin, and Peretto, "The Cumulative Cost of Regulations."

Box 5-2: British Columbia Bureaucracy Reform

Appropriately called the "Red Tape Reduction" program, in 2001, the province of British Columbia, Canada enacted an initiative to eliminate "regulatory excess," targeting regulations that limited economic activity with no tangible benefits. The program mandated the reduction in the quantity of regulatory restrictions by one-third by 2004.[29] By establishing a requirement that each new regulation implemented required the repeal of another, and by creating a Minister of Deregulation and the Office of Regulatory Reform, British Columbia surpassed their goal. Regulatory requirements fell by 36 percent from their 2001 level. Controlling for other policy changes, research finds that the reforms corresponded to an increase in annual economic growth of 1 percentage point. The improvements brought British Columbia from growing significantly below the national growth rate to well above it in the five years following the implementation of the program.[30]

This finding suggests that addressing bureaucratic excess improves economic growth not only in theory, but also in practice. Vice Chairman Schweikert has previously proposed and

[29] Laura Jones, "Cutting Red Tape in Canada: A Regulatory Reform Model for the United States?", Mercatus Center Research Paper (November 11, 2015), https://www.mercatus.org/research/research-papers/cutting-red-tape-canada-regulatory-reform-model-united-states.

[30] Patrick McLaughlin and Bentley Coffey, "Regulation and Economic Growth: Evidence from British Columbia's Experiment in Regulatory Budgeting," Mercatus Center Working Paper (June 1, 2021), https://www.mercatus.org/research/working-papers/regulation-and-economic-growth; Juan de Lucio and Juan S. Mora-Sanguinetti, "New Dimensions of Regulatory Complexity and Their Economic Cost. An Analysis Using Text Mining," Banco de España Working Paper no. 2107 (February 9, 2021), http://dx.doi.org/10.2139/ssrn.3782403.

sponsored legislation to improve the current regulatory framework: H.R. 4335, H.R. 283, and H.R. 2676. H.R. 4335, the NEPA Accountability and Enforcement Act, creates deadlines for Federal agencies to complete reviews of the environmental effects of proposed major Federal actions and imposes penalties for agencies that do not comply with these deadlines. H.R. 283, the Crowd Sourcing of Environmental Data Act of 2021, authorizes states to monitor certain air pollutants and restricts the EPA from preventing states from relying on said data to meet national pollutant standards. H.R. 2676, the Small Business Health Relief Act of 2011, repeals burdensome provisions added to the Internal Revenue Code as a result of the Patient Protection and Affordable Care Act. Further, he co-sponsored H.R. 3794, the Public Land Renewable Energy Development Act of 2019, which sets forth improvements to making permitting renewable energy projects on public lands easier. He also sponsored H.R. 190, the Saving Gig Economy Taxpayers Act, which raises the reporting requirement for third party settlement platforms to $20,000, and more. These proposals address bureaucracy across several sectors. Regrettably, instead of addressing regulatory excess to support economic growth, the Biden Administration has taken the opposite approach.

Using AI to Improve Governance

Addressing regulatory excess provides an opportunity to grow the economy and improve governance. A more efficient and responsive government would provide a better backdrop for economic growth and could also lead to lower outlays, further correcting the fiscal trajectory. Beyond its potential for improving economic growth, AI also presents the prospect of improving the efficacy and efficiency of government.

So long as AI innovation continues with limited interference from regulators, existing and new technologies will increase economic

growth, and help government be more responsive, effective, and efficient. By automating tasks, improving administrative processes, and creating new methods of policy analysis and measurement, governance can improve, and the economic effects of AI could be fully realized. The potential of reducing deadweight loss due to administrative waste could lead to a decline in outlays, thereby reducing deficits without any policy changes.

While widespread adoption by administrative agencies across most functions has not yet been realized, there exist several examples of successful use cases across the Federal government. Many uses of AI in administrative agencies relate to science and research, distinct from policy, regulatory, or administrative functions. Examples of these include using AI to estimate the wind speed of hurricanes (National Aeronautics and Space Administration), assess water quality (National Oceanic and Atmospheric Administration), classify images to assist in monitoring endangered species (Department of the Interior), and more.[31] While scientific research currently makes up a sizeable share of the over 700 examples of AI usage in the Federal government, there remains a substantial number of use cases that are more closely related to reducing administrative burdens and making government more efficient and responsive.

A 2020 article published by Stanford Law School categorizes current uses for AI to improve governance in administrative agencies into five major categories. These are presented in Table 5-1.

[31] AI.gov, "The Government is Using AI to Better Serve the Public," https://ai.gov/ai-use-cases/.

Table 5-1: Examples of AI use in Administrative Agencies[32]		
Use Type	Description	Examples
Enforcement	Tasks that identify or prioritize targets of agency enforcement action	• Securities and Exchange Commission, Centers for Medicare and Medicaid Services, and Internal Revenue Service predictive enforcement tools. • Customs and Border Protection and Transportation Security Administration facial recognition systems. • Food Safety and Inspection Service prediction to inform food safety site testing.
Regulatory research, analysis, and monitoring	Tasks that collect or analyze information that shapes agency policymaking	• Consumer Financial Protection Bureau analysis of consumer complaints. • Bureau of Labor Statistics coding of worker injury narratives. • Food and Drug Administration analysis of adverse drug events.
Adjudication	Tasks that support formal or informal agency adjudication of benefits or rights	• Social Security Administration system for correcting adjudicatory errors. • U.S. Patent and Trademark Office tools for adjudicating patent and trademark applications.
Public services and engagement	Tasks that support the direct provision of services to the public or facilitate communication with the public for regulatory or other purposes	• U.S. Postal Service autonomous vehicles project and handwriting recognition tool. • Department of Housing and Urban Development and U.S. Citizenship and Immigration Services chatbots. • Agency analysis of submitted rulemaking comments.
Internal management	Tasks that support agency management of resources, including employee management, procurement, and maintenance of technology systems	• Department of Health and Human Services tool to assist procurement decision-making. • General Services Administration tool to ensure legal compliance of Federal solicitations. • Department of Homeland Security tool to counter cyberattacks on agency systems.

[32] David F. Engstrom, Daniel E. Ho, Catherine M. Sharkey, and Mariano-Florentino Cuéllar, *Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies*, Administrative Conference of the United States (2020), https://www.acus.gov/sites/default/files/documents/Government by Algorithm.pdf.

One notable example of AI's implementation in administrative agencies for improving policy efficacy is at the Food and Drug Administration (FDA). AI has been used to enhance data collection and surveillance during the clinical trial period and for post-market surveillance of drugs following FDA approval.[33] At the FDA, it monitors adverse drug events using data from reports that were filed to the Federal Adverse Event Reporting System (FAERS). Using this technology, analysts at the FDA have been able to find relationships previously undetected by pre-market trials between specific adverse effects and particular drugs. Expanding this type of analysis to other agencies and use cases could help improve understanding of potentially unconsidered consequences of regulation. Feedback from programs such as this could help shape policy.

Another noteworthy use of AI is to improve engagement with the public. AI chatbots can take in information and provide answers or relevant documentation, making interfacing with government more efficient and seamless (i.e., Emma at U.S. Citizenship and Immigration Services).[34] Furthermore, AI can make government more responsive to public sentiment, as observed at the Federal Communications Commission (FCC) and Consumer Financial Protection Bureau (CFPB). These agencies receive comments from the public in response to rulemaking actions. AI has been used to analyze the sentiment of batches of comments to improve understanding of public feedback. Use of this technique across the

[33] U.S. Food & Drug Administration, "Using Artificial Intelligence & Machine Learning in the Development of Drug & Biological Products," FDA Discussion Paper (May 5, 2023), https://www.fda.gov/media/167973/download.

[34] U.S. Citizenship and Immigration Services, "Meet Emma, Our Virtual Assistant," U.S. Department of Homeland Security, https://www.uscis.gov/tools/meet-emma-our-virtual-assistant.

government can save countless paperwork hours and make the government more responsive to the input of the public.[35]

AI could also improve mandatory spending programs. The integration of AI technology could reduce costs without significant legislative changes.

Box 5-3: Administrative Waste in Federal Healthcare Programs

JEC Republicans estimate the total amount of waste in Federal healthcare expenditures. By relying on the findings from three recent studies by Himmelstein et al., Cutler, and Sahni et al., that take the most expansive view of administrative waste in healthcare, JEC Republicans estimate a lower bound and median estimate of waste.[36] The estimate is represented mathematically below.

[35] Engstrom et al., *Government by Algorithm*.

[36] David U. Himmelstein, Terry Campbell, and Steffie Woolhandler, "Health Care Administrative Costs in the United States and Canada, 2017," *Annals of Internal Medicine* 172, no. 2 (2020): 134-42, https://doi.org/10.7326/M19-2818; David M. Cutler, "Reducing Administrative Costs in U.S. Health Care," The Hamilton Project Policy Proposal, March 2020, https://www.hamiltonproject.org/assets/files/Cutler_PP_LO.pdf; Nikhil Sahni, George Stein, Rodney Zemmel & David M. Cutler, "The Potential Impact of Artificial Intelligence on Healthcare Spending," NBER Working Paper no. 30857 (January 2023), https://doi.org/10.3386/w30857.

Median estimate:

$$\text{FHAWME} = \beta \times \varepsilon \times \delta$$

FHAWME = Federal healthcare administrative waste, median estimate

δ = Average of administrative waste estimates as share of national healthcare expenditures across Himmelstein et al., Cutler, and Sahni et al. (44.1 percent)

ε = Average of administrative spending estimates as share of total healthcare expenditures, across Himmelstein et al., Cutler, and Sahni et al. (26.8 percent)

β = Total Federal healthcare spending in 2023 ($1,733 billion)[37]

Lower bound estimate:

$$\text{FHAWLE} = \beta \times \gamma \times \theta$$

FHAWLE = Federal healthcare administrative waste, lower bound estimate

θ = Lowest of administrative waste estimates as share of national healthcare expenditures across Himmelstein et al., Cutler, and Sahni et al. (21.3 percent)

γ = Lowest of administrative spending estimates as share of total healthcare expenditures, across Himmelstein et al., Cutler, and Sahni et al. (27.9 percent)

β = Total Federal healthcare spending in 2023 ($1,733 billion)

[37] CBO, *The Budget and Economic Outlook: 2024 to 2034* (February 2024): Table 1-4, https://www.cbo.gov/system/files/2024-02/51118-2024-02-Budget-Projections.xlsx.

> We conservatively estimate that between $100 to $200 billion or 6 to 12 percent of Federal healthcare spending can be attributed to administrative waste.[38]

Specific examples of AI's implementation to address inefficiencies in mandatory spending programs include being used to better process redeterminations of eligibility for Medicaid and preventing improper payments in Medicare programs, resulting in hundreds of billions in savings. Improper Medicaid payments were over $50 billion in FY2023, about one quarter of total improper payments made during the last fiscal year.[39]

Vice Chairman Schweikert has previously proposed legislation to support the adoption of AI in other potential Federal government use cases, such as H.R. 206, H.R. 7147, and H.R. 8283. H.R. 206, the Healthy Technology Act of 2023, establishes a legal framework to allow AI or machine learning (ML) technology to be eligible to prescribe drugs. H.R. 7147, the Medicare Transaction Fraud Prevention Act, would establish a pilot program for the Centers for Medicare and Medicaid to use AI to detect fraud in durable medical equipment purchases. H.R. 8283 would create an experimental program to test the efficacy of real time, AI-powered claims development tools for Medicaid. Moreover, the Vice Chairman had two amendments agreed to in H.R. 8580, the Military Construction, Veterans Affairs, and Related Agencies

---

[38] Note that JEC Republican economists assume that the share of healthcare expenditures is equivalent between NHE and Federal government healthcare spending. Further note that in Culter, a range is provided for administrative waste as a share of NHE so the midpoint of said range, 30.5 percent, is utilized.

[39] U.S. Government Accountability Office, "Federal Government Made $236 billion "Improper Payments" Last Fiscal Year," March 26, 2024, https://www.gao.gov/blog/federal-government-made-236-billion-improper-payments-last-fiscal-year.

Appropriations Act of 2025. These support the Veterans Benefits Administration's utilization of AI to expedite claims and a study on the benefits of AI to streamline oversight, reduce fraud, and improve data accuracy and financial management practices at the department, respectively. Congress should consider these bills as well as other similar proposals to allow government agencies to adopt AI more readily in ways that minimize waste and improve administration of government services. Moreover, Congress could consider legislative changes to facilitate AI adoption in areas where it is currently limited or prohibited.

While there may be a moderate decrease in spending due to administrative waste reduction from the implementation of AI across government functions, increasing economic growth remains a more viable method of improving the fiscal situation. Congress can act to increase the implementation of AI in government to increase economic growth. This can be done by using AI to reduce excess bureaucracy and make existing regulation smarter.

How Artificial Intelligence, Machine Learning, and Natural Language Processing Can Enhance Regulatory Review

The emergence of AI technologies, such as Natural Language Processing (NLP) that allow for large-scale text analysis, provide an opportunity to improve regulatory review.[40] Given the volume of regulatory text in the CFR, a detailed manual review of the existing regulatory text is impractical. Implementing these technologies could assist in categorization and the identification of linguistic complexity and conflicting sentiments in existing regulations.

[40] NLP is an application of ML, which is a subfield of AI. NLP is focused on large-scale text analysis.

The use of AI, ML, and NLP to analyze the CFR has been done before. The RegData project at the Mercatus Center at George Mason University took a novel approach to measuring the quantity of regulatory restrictions in the CFR.[41] It used NLP to count regulatory restrictions and estimate total regulatory accumulation. Moreover, each individual restriction was classified into the most likely industry that the rule pertains to. [42]

To complement the categorization of regulations, these technologies can be used to identify the linguistic complexity of regulatory text. Linguistic complexity can be viewed as a proxy of a rule's complexity. Regulatory complexity is found to reduce productivity growth, a major component in economic growth.[43] The RegData project estimates linguistic complexity through two lenses: the median sentence length of text in each section or document and Shannon entropy. Shannon entropy is a measure of the density of information transmitted in text.[44]

Sections of regulatory text that are linguistic complexity outliers, such as NAICS code or date of regulation being added, could be targeted for review. Furthermore, NLP could be used to identify

---

[41] Omar Al-Ubaydli and Patrick A. McLaughlin, "RegData: A Numerical Database on Industry-Specific Regulations for All United States Industries and Federal Regulations, 1997-2012," *Regulation & Governance* 11, no. 1 (March 2017): 109-123, https://doi.org/10.1111/rego.12107.

[42] Al-Ubaydli and McLaughlin, "RegData."

[43] de Lucio and Mora-Sanguinetti, "New Dimensions of Regulatory Complexity."

[44] C.E. Shannon, "A Mathematical Theory of Communication," *The Bell System Technical Journal* 27, no. 3 (1948): 379-423, https://doi.org/10.1002/j.1538-7305.1948.tb01338.x; Patrick McLaughlin, "RegData Canada: A Data-Driven Approach to Regulatory Reform," Mercatus Center Policy Brief, March 19, 2019, https://www.mercatus.org/research/policy-briefs/regdata-canada-data-driven-approach-regulatory-reform.

whether language is outdated. For example, the RegData model can detect the last date any given regulatory text's word count changed by more than 1 percent. Measures like this can help to identify regulations that are old and that should be brought up for review. [45]

While JEC Republicans have not found a use case for regulatory text in the literature, machine learning techniques have been used to identify conflicting sentiments and logical inconsistencies in text.[46] The application of these techniques to analyze regulatory text, particularly within each industry subcategory of regulation, can be used to help target rules for revision.

Research also finds that it is possible to predict how much regulatory discretion a particular agency has and detect the evolution of the location and scope of regulatory authority and action over time.[47] These approaches can further aid in the prioritization and identification of regulations to review.

---

[45] McLaughlin, "RegData Canada;" McLaughlin, Nelson, and Powers, "RegData U.S. 4.1 User's Guide."

[46] Vishal Lingam, Sonika Bhuria, Madhavan Nair, Damanpreet Gurpreetsingh, Ankush Goyal, and Ayush Sureka, "Deep Learning for Conflicting Statements Detection in Text," *PeerJ Preprints* 6 (2018), https://doi.org/10.7287/peerj.preprints.26589v1; Satoshi Masuda, Tohru Matsuodani, and Kazuhiko Tsuda, "Detecting Logical Inconsistencies by Clustering Technique in Natural Language Requirements," *IEICE Transactions on Information and Systems* E99.D (2016): 2210-18, https://doi.org/10.1587/transinf.2015KBP0005.

[47] Sharyn O'Halloran, Sameer Maskey, Geraldine McAllister, David K. Park, and Kaiping Chen, "Data Science and Political Economy: Application to Financial Regulatory Structure," *The Russell Sage Foundation Journal of the Social Sciences* 2, no. 7 (2016): 87-109, https://muse.jhu.edu/article/644576; S. O'Halloran, K. Chen, R. Biswas, H. Kim, P. Liu, Y. Zhang, and Y. Zhou, "Delegating Regulation: European Union and Financial Markets," *Annales des Mines - Réalités industrielles* (2018): 91-111, https://doi.org/10.3917/rindu1.184.0091.

Incorporating AI, ML, and NLP into Traditional Approaches to Regulatory Reform

Traditional policy approaches to regulatory reform and review have a mixed history of success. While some are successful, they often are implemented temporarily then eliminated or have limited enforcement power. Given that AI can enable almost instantaneous analysis of regulations across numerous metrics, regulations that fit the parameters for potential reform can be identified easily. While AI cannot eliminate human discretion, it can be used to improve existing approaches to regulatory review and reform.

Regulatory Budgeting

Implemented effectively in British Columbia as well as in the Trump Administration through Executive Order 13771, regulatory budgeting is a procedure whereby the total quantity of regulations or regulatory restrictions is capped, the total economic impact of regulations or regulatory restrictions is limited, or existing rules must be repealed to add regulations.[48] The downside of this approach is that changes in administration can easily result in the overturning, repeal, expiry, or elimination of such policies.

The advancements in processing capability in AI make the identification process of expiring regulations more efficient and cost-effective. Decreasing the management costs of regulatory review could increase the potential of keeping such a policy. Similarly, an Obama-era Executive Order, 13610, tasks agencies

[48] Trump White House Archives, "Presidential Executive Order on Reducing Regulation and Controlling Regulatory Costs," January 30, 2017, https://trumpwhitehouse.archives.gov/presidential-actions/presidential-executive-order-reducing-regulation-controlling-regulatory-costs/.

to regularly review their cumulative regulations to minimize overly complex, duplicative, and conflicting mandates.[49] Given that agencies are likely biased in their assessment of their own rules, Congress could consider passing legislation to centralize this form of retroactive review in OIRA—or in Congress itself—and compel the use of AI in the review process.

Regulatory Sunsetting

Used briefly in 2020 at the Department of Health and Human Services (HHS), regulatory sunsetting was implemented to force periodic reviews of regulations for their effect on small businesses. If the review was not undertaken or the regulation was not adequately defended, the regulation would expire.[50] This provides the opportunity to revise or eliminate poorly constructed regulations. While this approach to retrospective review appears to have proven successful at reducing old, irrelevant regulations, there appears to be limited coordination between agencies.

AI's ability to identify outdated language and conflicting sentiments and logical inconsistencies could improve the implementation of regulatory sunsetting. Congress may consider pursuing legislation that utilizes AI to force review and potential revision of regulations after a set period, or else the rule sunsets.

---

[49] The White House, "Executive Order -- Identifying and Reducing Regulatory Burdens," May 10, 2012, https://obamawhitehouse.archives.gov/the-press-office/2012/05/10/executive-order-identifying-and-reducing-regulatory-burdens.

[50] James Broughel and Kofi Ampaabeng, "HHS's Innovative New Sunset Regulation," Mercatus Center Public Interest Comment, December 4, 2020, https://www.mercatus.org/research/public-interest-comments/hhss-innovative-new-sunset-regulation.

Regulatory Impact Analysis Reform

RIA involves producing cost-benefit analyses of each regulation.[51] While an important component of evaluating the impact and necessity of each regulation, the current approach to RIA lacks consistency across agencies, resulting in estimates that are not comparable across agencies, time, or subject matter. Moreover, the interactions between regulations are not typically measured.

RIA could also be improved by implementing AI to identify existing rules that may have interaction effects. Congress could pursue legislation that standardizes the RIA process, requiring the analysis and calculation of potential interaction effects between regulations and use of AI in the regulatory identification process.

[51] The White House, "Agency Checklist: Regulatory Impact Analysis," https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/inforeg/inforeg/regpol/RIA_Checklist.pdf.