

Promoting Resilience: How the Economic Development Administration Can Help Communities Make the Best of Automation

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Committee on Transportation and Infrastructure

“Building Prosperity: EDA’s Role in Economic Development and Recovery”

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Chairman DeFazio, Ranking Member Graves, and Members of the Committee:

Thank you for inviting me to testify today on the continuing importance of the Economic Development Administration (EDA) and, especially, on an important new role that it needs to shoulder.

As it stands, the agency plays an essential role supporting economic adjustment and resilience in local places large and small, urban and rural, and amidst constantly changing conditions. And yet, while the Commerce Department’s EDA remains invaluable in its current mission, it is my view that the agency’s reach and responsibilities need to now grow to encompass the opportunities and challenges for people and places associated with the spread of powerful new technologies—particularly, automation and, increasingly, artificial intelligence.

While local economic disruption is what the agency addresses, it is not now formally tasked to support communities being affected by technology-based disruption, which is now being recognized as one of the most significant sources of current and future community distress.

Along these lines, my testimony—based on new research from my group at Brookings—initially affirms the importance of the EDA before turning to the new issue of automation. At that point, my narrative focuses on:

- The nature and spread of automation
- The particular geographical stamp of its impacts
- The relevance of a modernized EDA in mitigating some of the most troublesome local side-effects of these technologies.

Overall, I argue that in reauthorizing the agency, policymakers should broaden the EDA’s mission to include a concern about the impact of automation on local communities. More specifically, I suggest that the reauthorization explicitly name automation as an economic disruption eligible for economic adjustment assistance.

The remainder of this testimony elaborates on these conclusions and related points. I also am attaching our recent comprehensive study of recent and near-future automation trends and needed responses, as well as data on the significant levels of projected automation-related task disruption expected in committee members’ districts.

Introduction

Even as it is currently charged and operating the EDA has a compelling mission that is only getting more important—and that merits reauthorization.

As the only federal government agency focused exclusively on regional economic development, the agency plays a critical role in fostering economic resilience in communities in an era of disruption.

In this respect, the EDA has for 54 years endeavored to help local communities alleviate conditions of economic distress by providing public works investment, planning grants, technical assistance, adjustment aid, and other supports.¹

As such, the agency—while constantly under-funded and facing uncertainty about its future—has been on the front lines of deploying a flexible set of tools to respond to an intensifying proliferation of economic challenges in communities, including foreign competition, factory shutdowns, corporate restructuring, base closures, natural resource depletion, changes in energy markets, and natural disasters.

In this way, the EDA has become the nation’s principal government resource for supporting community adjustment in an era of dislocation.

¹ Ernest Boyd, “Economic Development Administration: A Review of Elements of Its Statutory History.” (Washington: Congressional Research Service, 2011).

Yet there is now evidence that the amount of distress that confronts the EDA is growing—and changing. The recent Great Recession was the most dire and prolonged economic crisis for smaller cities, towns, and rural areas since the Depression. And the number and scale of weather-induced natural disasters appear to be increasing, with catastrophic implications for regions.²

And beyond that, a significant body of research literature—including my own at Brookings—suggests that emerging digital technologies, including various forms of automation and artificial intelligence (AI), have introduced a new type of disruption into the nation’s economic geography.³

Most evident to date have been machine-driven dynamics that amplify the ability of skilled workers to add value, substitute for rote work, and inject winner-take-most—or “superstar”—dynamics into markets.⁴ These trends have brought about growth surges in big, techy cities with the “right” skills and industries (think of New York, Washington, and the Bay Area) that have been accompanied by drift elsewhere. As a result, rising superstar places are now pulling away from the rest of America, leaving many smaller or rural communities with the “wrong” industries and skills in distress.

Central to these dynamics, including the problems of the “places left behind,” are the disruptive impacts of automation, which boosted star places but hit smaller, less-educated Heartland communities hard.

All of which suggests the need to add another item to the list of local economic dislocations that the EDA addresses: the fact that automation and AI, for all of their positive benefits for some, are injecting quantifiable negative impacts into many other, often-smaller, local communities. Pushing back against this challenge needs to become a

² See Brian C. Thiede and Shannon M. Monnat, “The Great Recession and America’s Geography of Unemployment,” *Demographic Research*, 2016; USGCRP, *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, (Washington, DC: U.S. Global Change Research Program, 2017).

³ Mark Muro, “Countering the Geographical Impacts of Automation: Computers, AI, and Place Disparities.” (Washington, DC: February 14, 2019). See also Mark Muro, Rob Maxim, and Jacob Whiton, “Automation and Artificial Intelligence: How Machines are Affecting People and Places.” (Washington, DC: Brookings Institution, 2019); Clara Hendrickson, Mark Muro, and William Galston: “Counter the Geography of Discontent: Strategies for Left-Behind Places.” (Washington, DC: Brookings Institution, 2018); and Paul Beaudry, Mark Doms, and Ethan Lewis, “The IT Revolution at the City Level: Testing a Model of Endogenous Biased Technology Adoption,” NBER Working Paper No. 12521.

⁴ See Enrico Moretti, *The New Geography of Jobs*, (New York, NY: Houghton Mifflin Harcourt, 2013) as well as Richard Florida, *The New Urban Crisis*, (New York, NY: Basic Books, 2017). See also Mark Muro, Jacob Whiton, and Sifan Liu, “Online giants must accept responsibility for impacts on the physical world,” *The Avenue*, January 8, 2018; Clara Hendrickson, Mark Muro, and Bill Galston, “Mitigating the geography of discontent,” *LSE Business Review*, December 10, 2018; David H. Autor, Frank Levy, and Richard J. Murnane, “The Skill Content of Recent Technological Change: An Empirical Exploration,” *The Quarterly Journal of Economics*, 2003; James Manyika, Sree Ramaswamy, Jacques Bughin, Jonathan Woetzel, Michael Birshan, and Zubin Nagpal, “‘Superstars’: The Dynamics of Firms, Sectors, and Cities Leading the Global Economy.” McKinsey Global Institute Discussion Paper, October, 2018; Sherwin Rosen, “The Economics of Superstars,” *The American Economic Review*, 1981.

new, explicit priority of the EDA as it continues to evolve with the economy and American communities.

The Automation Challenge

The need for EDA attention to automation and AI follows from the breadth of the technologies' reach combined with their uneven impacts, which in turn stem from their tendency to *amplify* the productivity of skilled work and “substitute” for rote or “routine” work.⁵ These uneven effects across tasks, occupations, workers, and industries have hit home in disparate ways across communities in very much the same way as have such recognized EDA concerns as foreign competition, factory shutdowns, or corporate restructuring.

How is this playing out specifically, in places? Brookings' recent research and policy report “Automation and Artificial Intelligence: How Machines Are Affecting People and Places” shows how with both a “backward-looking” analysis of national occupational trends in the “IT” era of automation from 1980 to now and a “forward-looking” analysis of the coming “AI” phase of automation.⁶

Informed by data and procedures derived from those of MIT economist David Autor, our backward-looking research suggests that while the first era of digital automation from 1980 until now did not bring mass unemployment (in fact 54 million new jobs were created) it did bring traumatic dislocation as well as wider job gains.

Most notably, the period brought a painful “hollowing out” of the labor market, which resulted from reduced demand for “mid-skill,” “routine,” or repetitive work given machine substitution for such tasks.

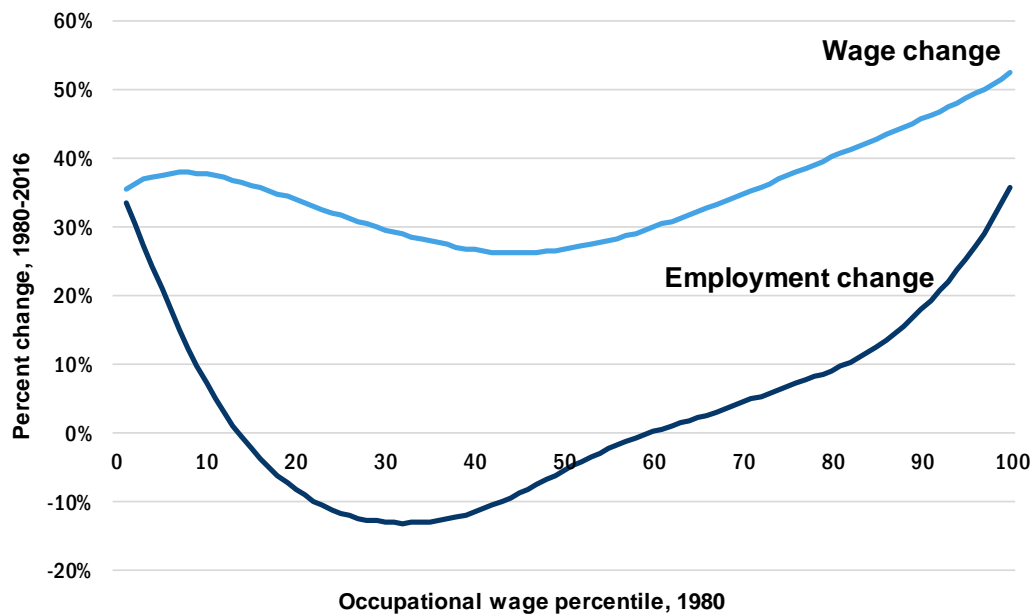
As the chart below suggests, in fact, it is very clear that the rapid adoption of automation throughout the economy caused both employment growth and wage progress to slump or cease in the middle of the skill distribution for middle-wage occupations like production and clerical workers. Only at the high and low ends of the skill distribution did employment and wages grow. Our research confirms, then, that the expansion of IT-powered automation in the decades after 1980 helped disrupt millions of “routine” middle-skill jobs, forcing large shifts of workers into low-wage service employment as robots and computers substituted for factory and clerical work even as it supported gains at the top and bottom.

⁵ Muro, Maxim, and Whiton, “Automation and Artificial Intelligence.”

⁶ Ibid.

Wage and employment growth has been slowest in middle-wage jobs

United States, 1980-2016

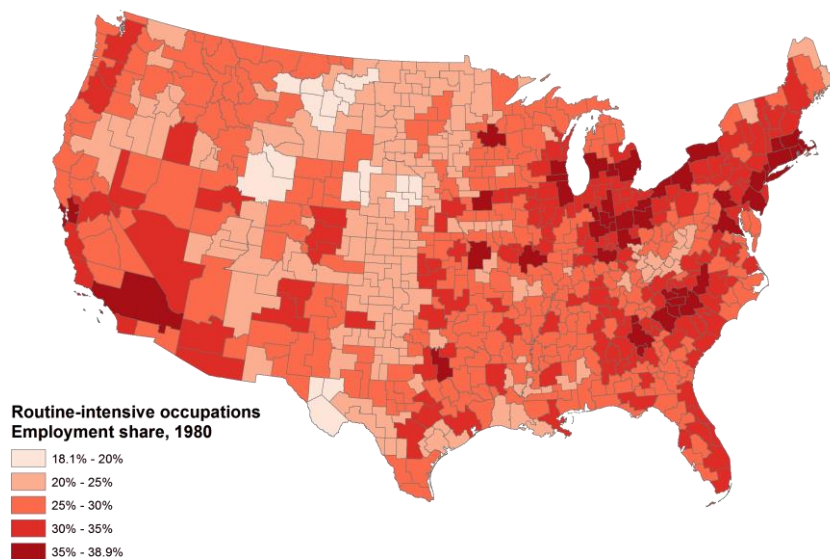


Note: Figures have been smoothed using a LOWESS regression

Source: Brookings analysis of Autor (2015), US Census Bureau, IPUMS

Nor were these effects evenly dispersed across the country. By mapping the local incidence of “routine” or repetitive work in 1980 we are able to depict the geography of automation disruption as it played out over the last four decades.

Routine share of employment by commuting zone, 1980



Source: Brookings analysis of Autor and Dom (2013)

The map is clear. Whereas routine work was spread widely throughout the country at the onset of the automation era, it was not spread evenly.

And so what has followed in the last 35 years has also been uneven. With widespread adoption of industrial robots and the personal computer (PC) came a traumatic, locally variable disruption of middle-wage employment combined with a massive shift of middle-skilled, often non-college-educated workers into lower-wage service activities. Notably, manufacturing and office administration-oriented regions—areas of the **Midwest, Northeast, South, and West Coast** with the highest concentrations of routine employment—were also the places that saw the largest shift to low-wage service employment in the information age.

In sum, the first era of digital automation has not been spatially neutral. The places with the largest exposure to routine work—such as **Detroit** with its auto factories or **New York** with its millions of clerical workers—saw some of the greatest increases of lower-skill service employment in the IT era. Their relatively large routine, middle-skill workforces came under special pressure from automation. Conversely, metro areas with lower shares of routine employment—like **Raleigh**, North Carolina, with its universities and hospitals—saw less dramatic labor market transitions.

But that’s the initial IT era of automation. Now the IT era is transforming into an AI era pervaded by more powerful digital technologies such as machine learning and other forms of artificial intelligence.⁷ Which raises the question: What will the next phase of the interplay between automation and employment look like?

To shed some light on this, my group worked further with economist Ian Hathaway—a Brookings non-resident senior fellow—to analyze future trends in the AI phase of automation using estimates provided by the McKinsey Global Institute of occupational susceptibility to automation over the next few decades. (For more on our method see our paper).⁸

Once again, we linked national information on automation’s projected impact on task types and occupations to information on the occupational mix of local geographies to assess potential employment outcomes in states and metropolitan areas.

What did we find? Looking at data that incorporates projections of AI’s influence, the picture of future impact on occupation—and, in turn, on geography—appears a bit different from that of the earlier period.

⁷ See, for example, Darrell West and John Allen, “How Artificial Intelligence is Transforming the World.” (Washington: Brookings Institution, 2018) and Chris Meserole, “What Is Machine Learning?” (Washington: Brookings Institution, 2018).

⁸ Muro, Maxim, and Whiton, “Automation and Artificial Intelligence.”

To be sure, the overall effects of automation we anticipate look set to again be wrenching but not cataclysmic in aggregate. That only 25 percent of U.S. employment will face "high" exposure to automation (with 70 percent of current tasks at risk of substitution in the next few decades) seems manageable in aggregate. Likewise, it is reassuring that only about 6 percent of workers with a bachelor's degree face high automation threats in the coming decades. All of which leaves aside the likely creation of many new jobs supported by new productivity.

However, even the 25 percent total job disruption figure amounts to 36 million jobs that will incur significant upheaval in the coming years. Furthermore, our calculations suggest that significant occupational and geographical variation lies beneath the relatively manageable aggregate figures.

At the national level, a curve describing occupations' current automation potential (with exposure rising up the vertical axis) has a distinct new look, in that it reports the highest exposure for roles with the lowest wages (those to the left on the horizontal axis) with reduced automation exposure the more wages rise (to the right of the figure):

The lowest wage jobs are the most exposed to automation

United States, 2016



Note: Figures have been smoothed using a LOWESS regression

Source: Brookings analysis of BLS, Census, EMSI, and McKinsey

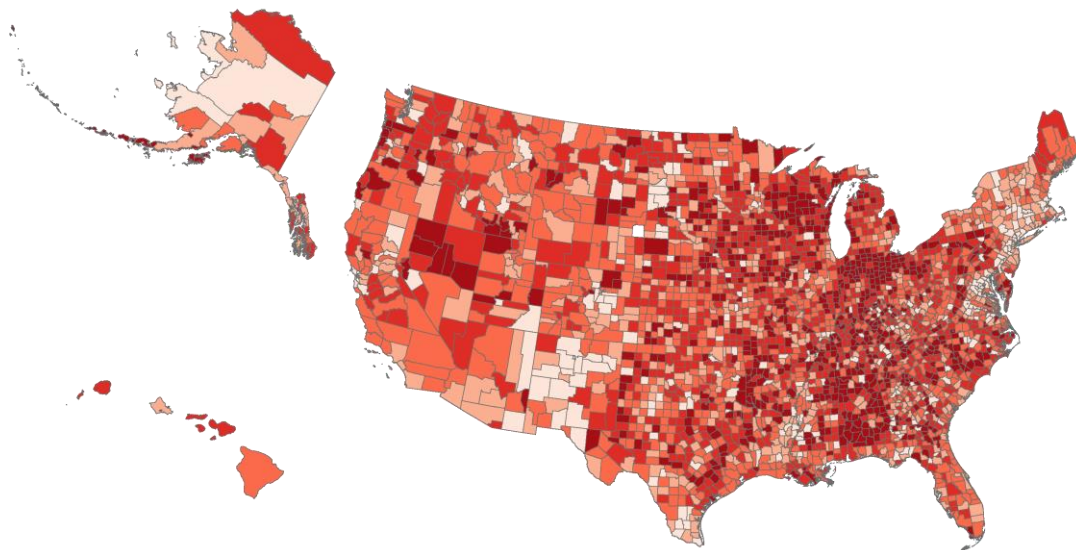
This curve looks different from the earlier one plotting wage and employment growth against wage levels so as to suggest automation pressure. Whereas before routine task

content below the 20th wage percentile was low, here the highest potential for future automation of current tasks is concentrated among the lowest-wage earners. This reflects in part a dramatically increased projected inroads of automation into the service sector thanks to coming AI applications for food-service operations and office administration. Task-level automation potential, meanwhile, falls steadily as average wages rise. Higher earners generally continue to face low automation threats based on current task content—though that could change as AI begins to put pressure on some higher-wage “non-routine” jobs.

Turning now to the geography of these trends, we see again that while automation risk will be felt everywhere, its inroads in the AI era will continue to be felt differently across place (though now, the pattern is a little different given the broad new vulnerability of lower-end services).

Along these lines, the data for automation exposure in the AI era show that automation impacts will be most disruptive in **Heartland states, counties, and cities**. Many of these are the same regions hit hardest by IT-era changes but now the impacts will extend into lower-skill service occupations.

Average automation potential by county, 2016



Automation potential 2016

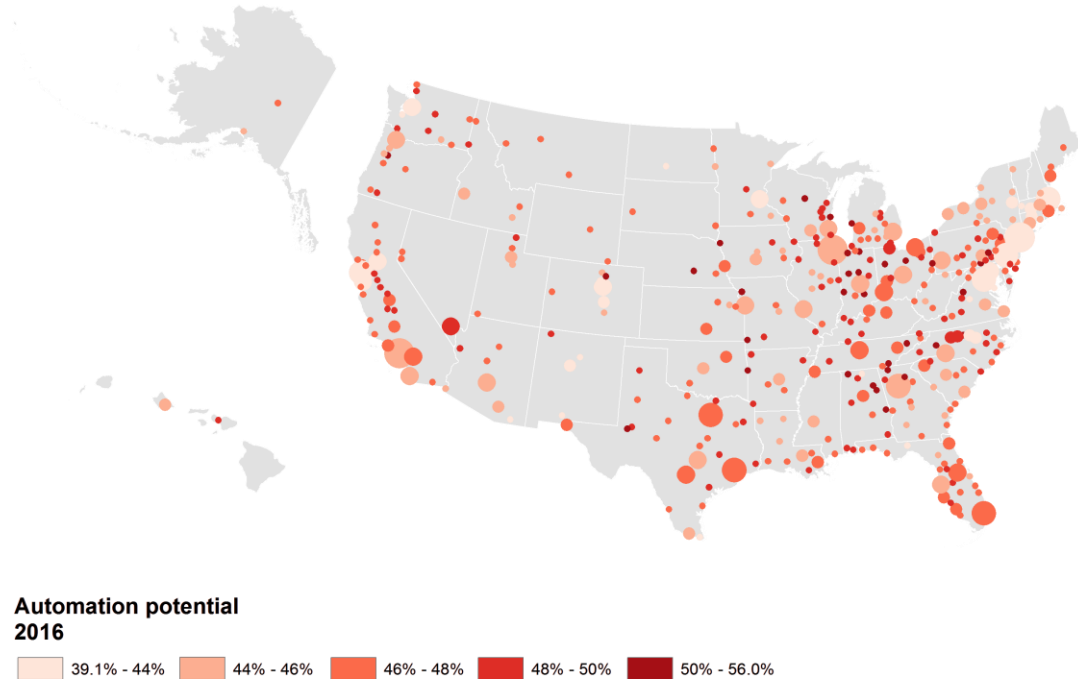


Source: Brookings analysis of BLS, Census, EMSI, Moodys, and McKinsey data

Along these lines, less-educated Heartland states and counties specialized in manufacturing and low-end service industries could be especially hard-hit by automation in the AI era, whereas well-educated states and counties along the **Boston-Washington corridor** and on the **West Coast** appear less exposed.

In parallel fashion, smaller, less-educated communities will struggle relatively more with AI-phase automation, while larger, better-educated cities will experience less disruption and be more resilient. Here's how that looks:

Average automation potential by metropolitan area, 2016



Source: Brookings analysis of BLS, Census, EMSI, Moodys, and McKinsey data

According to the map, more than 50 percent of all workers' current employment-weighted tasks are potentially automatable in small metropolitan areas like **Kokomo, Indiana** and **Hickory, North Carolina**. In fact, the automation exposure of work tasks reaches or exceeds 50 percent in no less than 43 of the nation's 382 metropolitan areas and in some 562 out of 1,974 rural counties. By contrast, the shares of vulnerable work in highly educated, highly digital metros like **San Jose, California** and the **District of Columbia** are just 40 percent and 39 percent, respectively. Overall, these variations owe heavily to variations in local skill and education levels. Higher education levels can serve as a stay against AI-phase automation while lower, more "routine" skills are more vulnerable to machine substitution.

In sum, the spread of AI-era automation—like the earlier IT phase—appears likely to have significant and varied local impacts on exactly the kind of communities that the EDA serves. While the technology will surely benefit the nation in aggregate and in its best-educated urban centers, its disparate local effects will likely hit home in disruptive, locally varied ways that roil local labor markets, depress hiring, or necessitate arduous community transitions. These likely local effects need to be recognized and addressed—and the EDA is better positioned than any other federal agency to take them on.

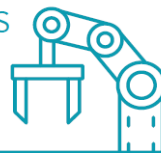
Promoting Resilience: How the Economic Development Administration Can Help Communities Make the Best of Automation

Without a doubt the full needed federal response to automation and AI is significant and multi-dimensional—far beyond the purview and capacity of even a robustly modernized and expanded EDA.

For that reason, our recent report provides more than 20 pages of policy recommendations covering five major strategies aimed at multiple federal agencies as well as state and local government, business, educators, and the civic sector. These recommendations call on government to work with the private sector to **embrace growth and technology** so as to maintain or increase hiring and capitalize on the power of automation to foster productivity and create new work.

Five policy strategies for adjusting to automation

FIVE POLICY STRATEGIES FOR ADJUSTING TO AUTOMATION



Embrace growth and technology

Run a full-employment economy, both nationally and regionally

Embrace transformative technology to power growth

Promote a constant learning mindset

Invest in reskilling incumbent workers

Expand accelerated learning and certifications

Make skill development more financially accessible

Align and expand traditional education

Foster uniquely human qualities

Facilitate smoother adjustment

Create a Universal Adjustment Benefit to support all displaced workers

Maximize hiring through a subsidized employment program

Reduce hardships for workers who are struggling

Reform and expand income supports for workers in low-paying jobs

Reduce financial volatility for workers in low-wage jobs

Mitigate harsh local impacts

Future-proof vulnerable regional economies

Expand support for community adjustment

Source: Metropolitan Policy Program at Brookings

In addition, Brookings' agenda challenges all parties to invest more thought and effort into ensuring that the labor market works better for all people. To that end, all actors need to **promote a constant learning mindset, facilitate smoother transitions, reduce hardships for individuals** whose jobs are being restructured, and **help communities that are being heavily impacted.**

In this regard, it is both the first and the last challenges—of helping places make the most of emerging technologies while mitigating harsh local impacts—that calls upon this committee to articulate an important new responsibility for EDA.

As I have implied, any comprehensive strategy for making sure automation and AI work for people and places will need to help places absorb automation for their economic good while specifically addressing the hardships of local communities that are especially disrupted. In keeping with that, an overarching new commitment for the EDA is in order, as are several more particular strategies.

To begin with, the scale of the new needs highlighted here recommends not just that the EDA be reauthorized but that it be significantly expanded. Along those lines our research suggests that that the reauthorization should:

- **Make a major, comprehensive investment in the EDA to raise the agency's authorized funding level significantly so as to increase its ability to support communities' efforts to build strong economies.** This testimony has noted that more communities have more to lose in an increasingly "winner-take-most" economy. Given that, this is clearly the time to double down on the nation's investment in the EDA and to raise the agencies authorized funding level. That the agency's 1978 funding level exceeded \$3.5 million (equivalent to about \$14 billion in today's dollars) argues for significant multiplication of the agency's current \$300 million authorization.

In addition, our research suggests that Congress should broaden the EDA's mission to include a concern about the impact of automation on local communities. Specifically, I recommend that the reauthorization:

- **Explicitly name automation as an economic disruption eligible for EDA economic adjustment assistance.** Notwithstanding perennial concerns about the agency's broad targeting, the committee should specifically and prominently call out automation-related dislocation as an important source of community economic distress that qualifies for EDA assistance. Automation is already arguably as significant a challenge for local communities as such accepted shocks as factory shutdowns, foreign competition, and the loss of manufacturing jobs. Not to acknowledge such dynamics seems arbitrary. What's more, the current silence implicitly limits and tilts the EDA's responses. Without an explicit naming of automation EDA responses will continue to flow toward a relatively narrow swath of trade, defense, natural disaster, and energy production industries when the true range of local distress is wider and includes significant dislocation in the

service sector. With automation more prominently named the agency would be more likely to respond to on-the-ground conditions in a more relevant way through the use of its main tools, including adjustment assistance, planning assistance, technical assistance, research and evaluation, or adjustment for firms.

Beyond that, several other recommendations appear appropriate and call on the committee to:

- **Reaffirm the EDA’s commitment to regional full employment, especially to facilitate worker-adjustment in hard-hit communities.** On this point, numerous analysts agree that one of the most fundamental policy responses in the automation era must be to run a full-employment economy, with special attention paid to struggling localities.⁹ This consensus reflects the fact that in conditions of widespread hiring workers will have an easier time maintaining employment or transitioning from one job to another—a critical need given the disruptions of automation. Given that, the EDA should do more going forward to promote full-employment in the nation’s local communities. Specifically, the committee should approve, as it has approved before, the use of EDA funds as a locally targeted anti-recessionary or full-employment measure.¹⁰ Such targeting might even include providing standby authority to the President to be used to allow the EDA to allocate direct additional funds for public works projects aimed at boosting job-creation through public investment in areas of drastic need such as infrastructure, broadband, or housing.
- **Expand support for community adjustment in regions experiencing harsh local impacts from automation and AI.** Finally, Congress should not only officially empower the EDA to address automation fall-out and opportunities but bolster its budget so as to make a difference on this topic. The preceding discussion suggests the breadth and multifaceted nature of the issue. Therefore, Congress should increase the agency’s ability to deploy its relevant programs and tools to help communities contending with the side-effects of automation-related job losses and labor-market dislocation. In this regard, virtually all of EDA’s current programs appear highly relevant to helping rural and urban communities manage automation-related transitions so as to become more resilient. Public Works and Economic Development Assistance can help communities develop physical infrastructure such as technology-based facilities for utilizing distance learning for worker skill upgrading. Economic Adjustment Assistance could be deployed to support “bottom-up” local initiatives to mitigate dislocation and improve resilience, as with local retraining, technology adoption, and community adjustment strategies. Economic Development Planning Assistance could be

⁹ See, for example, Jared Bernstein, “The Importance of Strong Labor Demand” (Washington: The Hamilton Project, 2018); Josh Bivens, “Recommendations for Creating Jobs and Economic Security in the U.S.” (Washington: Economic Policy Institute, 2018); and Robert Atkinson, “Technological Innovation, Employment, and Workforce Adjustment Policies” (Washington: Information Technology and Innovation Foundation, 2018).

¹⁰ Boyd, “Economic Development Administration.”

leveraged to help states, counties, cities, and other planning regions incorporate automation issues into regional strategic initiatives. And for that matter the agency's Technical Assistance program can help communities promote resilience and address under- and unemployment by accessing expertise, data, reporting, and forecasts on automation trends across occupational groups, industries, and geographies.

- **Require all funded Comprehensive Economic Development Strategy (CEDS) plans to incorporate analysis of emerging technologies' impacts on local people, firms, and economy to set strategies to pro-actively embrace new trends.** CEDS are strategy-driven plans for regional economic development, which regions must update at least every five years to qualify for EDA assistance. These plans help communities assess their economic conditions and build regional capacity, and as such they can nudge communities toward embracing new technologies while working to mitigate their harshest impacts. For example, a CEDS plan must contain a strengths, weaknesses, opportunities, and threats (SWOT) analysis, in which communities assess the effects of a wide variety of regional dynamics, such as international trade and investment, workforce preparedness, and natural hazards. In that vein, communities should likewise be encouraged to assess the impacts of emerging technologies—both opportunities for new economic activity, as well as areas of risk. CEDS also require communities to incorporate the concept of “economic resilience,” or a community’s ability to recover from major shocks such as economic shifts or natural disasters. Here too, communities should consider their resilience in the face of disruptions caused by automation and other emerging technologies.
- **Empower EDA to launch an interagency program to help communities implement strategies for automation, AI, and emerging technology adoption, with a focus on modernizing services and maximizing co-work with new technologies.** Triage, mitigation, and defensiveness, meanwhile, should not be the sole response to automation of the EDA. In the long run embracing these new technologies will for many communities be the most effective way to maintain economic growth and provide struggling areas an opportunity to revitalize their economies. And so the EDA should support resilience by supporting communities’ work to embrace technology and digital skills as a way to embrace change. However, the nation and its communities will be unable to achieve its full economic potential without better coordination across the multiple agencies of government tasked with supporting workers, firms, and communities. Accordingly, the EDA should lead in the creation of a robust interagency push for region future-proofing through technology. Among the relevant agencies are NIST’s Manufacturing Extension Partnership; the Department of Labor’s Employment and Training Administration; the Department of Education’s Office of Career, Technical, and Adult Education; the Appalachian Regional Commission and Delta Regional Authority; the Small Business Administration; and the Manufacturing USA Institutes housed under multiple Executive Branch departments. Such a push, what’s more, will need cohesion and funding.

Currently the disparate relevant offices and agencies operate with only limited coordination. And many of them, like EDA, are under the constant threat of extinction. Congress, therefore, should not only ensure a predictable, multi-year stream of funding for each of these agencies, but should also mandate that they enhance their cross-agency cooperation and align their missions to help communities embrace emerging technologies for growth. As the only federal government agency focused exclusively on economic development, EDA would be well positioned to lead such an effort.

- **Expand the scope of the Trade Adjustment Assistance (TAA) for Firms program to help companies adapt to disruptive new technologies.** Finally, the EDA should move to update its dealings with firms given the emergence of new technologies such as AI. Government policies to embrace the transformative power of emerging technologies will have significant impacts on firms across the country—creating both “winners and losers.” Some firms, particularly those who have the capacity to be early adopters of new technologies, will see a boost to their production and sales. However, others will be forced to contract, merge, or go out of business when exposed to these new technologies—threatening the livelihood of the workers they employ. The EDA’s TAA for Firms program helps firms affected by the disruptive impacts of international competition restructure their business operations, in order to minimize layoffs and boost production and sales. However, the program is narrow in scope (helping only those firms disrupted by trade), and grossly underfunded. Congress should therefore look at reorienting TAA for Firms to help companies adapt to the disruptive effects of both trade *and* technology, and should expand its budget to allow it to meet the full scope of forthcoming challenges.

In sum, expanding the EDA’s budget to deliver of these activities in automation-impacted regions would enable the EDA to continue evolving its work of helping communities retain existing jobs and generate new ones in the age of automation and AI.

Conclusion

Chairman DeFazio, Ranking Member Graves, members of the committee: The EDA has steadily evolved during its lifespan to respond to an evolving series of national concerns ranging from the problems of depressed rural communities and the well-being of people in urban poverty to the local impacts of outmigration, military base closures, natural disasters, trade disruptions, and the sudden loss of manufacturing jobs. Now, it is time for Congress to acknowledge and respond to the pervasive, but also locally specific, side-effects and opportunities associated with automation and AI.

Automation’s inroads are hitting home with special force among many of the EDA’s historic partners in the Heartland of America. Likewise, many of the agency’s existing tools are highly relevant to helping such communities respond.

Given that, the upcoming reauthorization of the EDA holds out a signal opportunity for Congress to help America's people and places contend with the challenges of automation in local labor markets and employ these powerful technologies in ways that support prosperity.

Thank you again for inviting me. I look forward to addressing these issues with you.

The author would like to thank Rob Maxim, Jacob Whiton, and Anthony Fiano for help with preparing this testimony.

The views expressed in these written remarks are those of the author alone and do not necessarily represent those of the staff, officers, or trustees of the Brookings Institution.

For additional information, including an appendix of automation exposure by state, county, metropolitan area, and Committee Member districts, and a full copy of the report "Automation and Artificial Intelligence: How machines are affecting people and places," see electronic version of submitted testimony.