The Microstructure of AI Diffusion: Evidence from Firms, Business Functions, and Worker Tasks*

A proposal for NBER AI and Economic Measurement Conference

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Abstract

Using novel data from the second AI supplement to the U.S. Census Bureau's Business Trends and Outlook Survey (BTOS), fielded in late 2025 and early 2026, we characterize the microstructure of AI diffusion by jointly measuring AI use at three interconnected layers: firm adoption, deployment across business functions, and worker task-level use (including generative AI). We first quantify within-firm alignment between firm-reported AI adoption and worker task-level AI and generative AI use, documenting when these measures coincide and where they diverge. We then map the distribution of AI use across 15 business functions and across 9 task domains in order to characterize the intensive margin of diffusion by measuring how broadly AI is deployed across functions and tasks and how function-level deployment relates to task-level use within firms. Furthermore, we examine how AI changes work (i.e. augmenting tasks, substituting for tasks, creating new tasks, and replacing software or equipment) as reported by firms and relate these mechanisms to worker task use, functional deployment, and firms' reported employment effects of AI. We also analyze how extensive and intensive measures of AI use are associated with firms' assessments of current and near-term expected performance. Finally, we benchmark key results against findings from the first BTOS AI supplement (Bonney et al., 2024) to highlight shifts in adoption, deployment, and reported impacts over the intervening period. Overall, the evidence underscores the value of integrating firm-, function-, and worker task-based measures to obtain a more complete picture of how AI is diffusing through U.S. businesses. Our findings also shed some light on the relevance of two channels of AI diffusion: a "top-down" channel where formal firm-level systemic adoption translates into worker AI use, versus a "bottom-up" channel where worker AI tool use becomes codified into firm policies and broader deployment as it scales.

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* This is a proposal for a paper with the same title that is planned to accompany the Spring 2026 release of the public data based on the new AI supplement in Census Bureau's Business Trends and Outlook Survey (BTOS). Any opinions and conclusions expressed herein are those of the authors and do not represent the views of the U.S. Census Bureau. *This proposal contains no analysis with confidential data. Sample tables and figures included in this proposal are to illustrate some of the analyses that will be included in the paper. At this point, they either contain no data or feature fictitious numbers.*

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1. Introduction

[Sample tables and figures included in this proposal are to illustrate some of the analyses that will be included in the paper. At this point, they either contain no data or feature fictitious numbers. The data from the second BTOS AI supplement that is in the field until February 8, 2026 will be used in the proposed analysis.]

A major impediment to understanding how artificial intelligence (AI) is diffusing through the economy is that measurement has not kept pace with the ways AI is deployed inside organizations. Existing evidence has largely come in two separate streams: firm-level surveys that ask whether the business uses AI (see, e.g., Bonney et al. (2024a), Acemoglu et al. (2022), Zolas et al. (2020)), and worker- or household-facing surveys that ask whether individuals use AI in their work (see, e.g., Bick et al. (2025)). These measures are informative but incomplete in isolation. Firm-level adoption does not reveal where within the organization AI is used, which activities it targets, or whether reported adoption reflects broad integration versus narrow, localized applications. Likewise, worker-reported use provides a window into task-level exposure, but it may be only loosely connected to firm-level adoption, especially when adoption is uneven across business functions or when worker use is decentralized. As a result, we have limited empirical evidence on the internal structure of diffusion: how AI use is distributed across functions and tasks, how worker AI use maps to organizational adoption, and how these layers relate to firm outcomes and adjustment margins.

One manifestation of this disconnect is that worker- and firm-based instruments can yield very different AI use estimates. On the worker side, Bick et al. (2025) report that, pooling their August and November 2024 Real-Time Population Survey waves, 32 percent of workers used generative AI for work. On the firm side, the most recent estimates from the U.S. Census Bureau's Business Trends and Outlook Survey (BTOS) indicate that about 18 percent of firms report using AI over the prior two weeks (firm-weighted).[1] These magnitudes are not directly comparable because the underlying concepts, sampling frames, respondents, and reference periods differ: worker surveys typically measure individual AI tool use, whereas business surveys typically capture the respondent's assessment of organizational AI use for business purposes. Nevertheless, taken together, these estimates are consistent with the possibility that worker-facing instruments capture a broader set of AI interactions than those reflected in formalized or organization-wide adoption as reported by firms. Thus, the divergence in these estimates underscores the value of a combined measurement framework that links organizational and worker-level perspectives.

This pattern also motivates a distinction between two diffusion channels that can coexist across firms and over time. In a "top-down" channel, diffusion is driven by deliberate organizational implementation: deployment in core business functions, workflow integration, complementary investments, and governance. Worker task use could then be closely aligned with the functions in which AI is deployed. In a "bottom-up" channel, diffusion begins with worker-level experimentation and task-level tool use that may be concentrated in particular roles or tasks and only later becomes codified into firm policies and broader functional deployment as practices scale. These channels have different empirical signatures within firms. Consider, for example, adoption that is narrow

[1] Part of the gap between firm and household level survey adoption rates of AI is the difference between firm-weighted and employment-weighted measures. Our analysis will take that into account. Acemoglu et al. (2022) have emphasized that large firms have higher AI adoption rates so worker exposure rates are higher. In the most recent BTOS data, firms with more than 250 employees have adoption rates higher than 30 percent.

across functions and weakly reflected in worker use versus adoption that is accompanied by extensive worker/task engagement. These patterns cannot be assessed using firm-only or worker-only measures.

In this paper, we characterize the microstructure of AI diffusion by jointly measuring AI use at three interconnected layers: firms, business functions, and worker tasks. We do so by using newly collected data from the second BTOS AI supplement, together with the BTOS core questions on firm AI use. The second AI supplement expands the first supplement fielded between late 2023 and early 2024 over several dimensions. It measures AI use across 15 business functions, worker AI use (including generative AI), and AI use across nine worker task domains with a write-in option for tasks not covered. It also provides more detailed measures of how AI changes work through task substitution, augmentation, and creation, and it includes items on the replacement of software and equipment. By connecting these elements within a single instrument, the supplement enables an integrated assessment of where AI is deployed inside firms, how that deployment relates to worker and task-level use, and how these patterns covary with reported workforce impacts and business performance assessments. An important caveat is that the BTOS questionnaire was sent to firms and not separately (or independently) to individual workers in firms. Thus, questions related to worker use of AI are usually answered by the designated respondents within the firm. In other words, our measurement of worker AI use can be described more precisely as a "firm-level" assessment of AI use by its workers.[2]

Empirically, we use these data to build a set of linked descriptive analyses that move from incidence to deployment and then to reported impacts. We begin by constructing within-firm contingency tables relating firm-level AI adoption to AI and generative AI use in worker-tasks, summarizing overlap, divergence, and "conditional diffusion" patterns. We then characterize the intensive margin of diffusion by mapping the breadth of AI deployment across business functions and the footprint of AI use across worker tasks, using concentration and co-occurrence measures (e.g., distributions of the number of functions with AI use, distributions of the number of tasks with AI use, and function–task association matrices). Next, we connect deployment patterns to reported mechanisms of change by analyzing how task substitution, augmentation, and creation vary with function and task footprints, worker use, and firm characteristics. Finally, we relate these microstructure measures and mechanism indicators to reported employment effects and to current and expected business performance, using regression-style summaries to describe conditional associations across sectors, size classes, and locations.

A central feature of our analysis is that it places AI diffusion at the level where organizational change occurs: business functions and tasks. Firm-level adoption rates are an essential benchmark, but they are an incomplete proxy for the operational footprint of AI. By integrating function-, task-, and worker-based measures, we provide a more granular characterization of diffusion that is informative about both the locus of deployment and the nature of adjustment. In addition, while this paper is designed as a stand-alone measurement and analysis of the new BTOS AI supplement data, we systematically compare key results to those documented using the first BTOS AI supplement (see Bonney et al. (2024a,b)). That comparison benchmarks how patterns of adoption and use have shifted over time and helps interpret how questionnaire design changes may affect measured levels

[2] We plan to also conduct our analysis using employment-weighted measures to provide further insights into worker level exposure. The "ideal" survey would have both firm-level and worker-level responses. Absent the "ideal," it would be difficult to ensure representative coverage by linking existing firm-level and worker-level responses.

and composition of AI use. It also provides a disciplined way to assess whether reported task, labor, and capital adjustment margins associated with AI appear to be evolving as diffusion progresses.

The BTOS provides real-time measurement of business economic activity, and with the AI supplement, timely information on AI use at the firm, function and worker-task-level. The BTOS is the only nationally representative large-scale survey of firms in the U.S. with such timely data which is critical given the rapid developments of AI. Beyond the timely tracking, the BTOS provides guidance on the type of information on AI use that can and should be collected by the U.S. statistical agencies. Lessons learned from the BTOS collection helps inform plans to include AI questions on core business surveys, such as the Annual Integrated Economic Survey (AIES), that underlie some key economic indicators. The BTOS findings and analysis on business AI use will provide essential guidance for what needs to be collected to track the impact of AI on the U.S. economy.

The paper proceeds as follows. Section 2 describes the revised BTOS and the AI supplement and maps survey items into firm-, function-, and worker task-level measures, highlighting design features relevant for interpretation. Section 3 benchmarks firm-level AI adoption and expectations using the BTOS core questions and documents heterogeneity across firms and locations, with explicit comparison to earlier BTOS evidence. Section 4 links AI use across business functions, worker tasks, and worker use and introduces intensive-margin measures of breadth and depth. Sections 5 and 6 analyze how firms report AI changing work through task substitution, augmentation, and creation and through labor and capital replacement, relating these mechanisms to deployment footprints and to worker AI and generative AI use. Section 7 studies adjustment costs and barriers to adoption, conditioning them on richer measures of adoption and use. Section 8 relates multi-layer AI use to current conditions and near-term expectations regarding performance and activity. Section 9 concludes and outlines directions for integrating BTOS responses with administrative microdata to study realized outcomes and longer-run dynamics in firm performance, including employment, revenue, and productivity.

2. Data and Measurement

This section describes the BTOS instrument and the second AI supplement (shown in Appendix A), providing the measurement architecture that underpins the paper's analysis. It maps survey content into a three-layer framework (firm adoption, business-function use, and worker task use) and distinguishes extensive margins (whether AI is used at all) from intensive margins (how broadly AI is deployed across functions and tasks, and whether usage reflects narrow versus broad integration). The section also documents key design features that matter for interpretation, especially wording changes in the BTOS core AI questions and the worker task related questions.

A central purpose is to make comparability and interpretation explicit. The section explains which measures are intended to align with earlier BTOS inquiries and which are new, and it describes how question revisions can affect measured levels even when underlying behavior is unchanged.

3. Benchmarking AI Adoption

Section 3 establishes some baseline facts about firm-level AI adoption and expectations using the revised BTOS core questions, producing national estimates and documenting heterogeneity across industries, firm size classes, and geography. It provides descriptive tables (such as Tables 1 and 2) and figures that summarize current versus expected future adoption, and it examines the time-series evolution of adoption and expectations across BTOS waves, including the gap and reappearance of the AI supplement content. It also includes contingency tables describing how current AI use patterns relate to expected near term use patterns at the firm-level. This type of analysis provides insight into whether AI use is persistent at the firm level or more sporadic. The section also introduces compact regression-style summaries to report correlates of adoption and expected adoption.

The section emphasizes comparisons that are informative even when levels may not be strictly comparable, such as whether expectations act as a leading indicator of *growth* in adoption, and whether cross-sectional heterogeneity patterns are stable across BTOS instruments.

Table 1. Firm versus Worker Use of AI

Panel A. Firm-weighted

	Employees use AI to assist in any work-related tasks that support business functions?		
Firm use AI in any business function?	**Yes**	**No**	**Don't know**
Yes	% of firms	% of firms	% of firms
No	% of firms	% of firms	% of firms
Don't know	% of firms	% of firms	% of firms

Panel B. Employment-weighted

	Employees use AI to assist in any work-related tasks that support business functions?		
Firm use AI in any business function?	**Yes**	**No**	**Don't know**
Yes	% of emp.	% of emp.	% of emp.
No	% of emp.	% of emp.	% of emp.
Don't know	% of emp.	% of emp.	% of emp.

Table 2. Worker Use of AI versus Gen AI

Panel A. Firm-weighted

	Employees use Gen AI to assist in any work-related tasks?		
Employees use AI to assist in any work-related tasks that support business functions?	**Yes**	**No**	**Don't know**
Yes	% of firms	% of firms	% of firms
No	% of firms	% of firms	% of firms
Don't know	% of firms	% of firms	% of firms

Panel B. Employment-weighted

	Employees use Gen AI to assist in any work-related tasks?		
Employees use AI to assist in any work-related tasks that support business functions?	**Yes**	**No**	**Don't know**
Yes	% of emp.	% of emp.	% of emp.
No	% of emp.	% of emp.	% of emp.
Don't know	% of emp.	% of emp.	% of emp.

4. Connecting Business Functions, Worker Tasks, and Worker Use

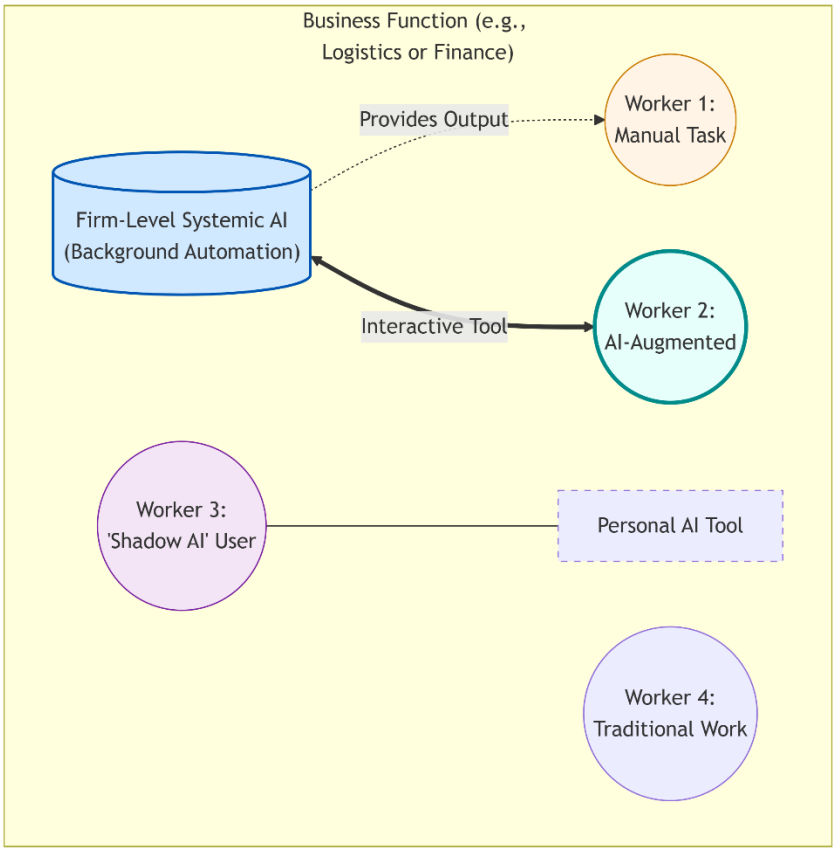
This section delivers the paper's central microstructure evidence by describing where AI is used inside firms and how the layers of use relate. Figure 1 provides a representation of AI adoption within the firm for a business function. At the foundational layer, the firm may implement AI to function as an autonomous infrastructure (such as background data processing or automated optimization engines) that operates independently of individual worker intervention. Consequently, a firm may have high-levels of AI utilization in a specific business function while the associated worker-level tasks remain manual; in this scenario, a worker (such as Worker 1) acts as a passive recipient of AI-generated output rather than an active user of the technology. Conversely, the collaborative case (Worker 2) represents an integrated state where workers utilize AI copilots or interfaces to augment their specific tasks, creating a bidirectional flow between human labor and firm capital. There could be also cases where workers adopt external tools independently of firm infrastructure (Worker 3), and workers (Worker 4) whose tasks remain untouched by AI despite the firm's broader digital transformation. This framework demonstrates that worker-level non-use does not necessarily imply a lack of firm-level AI adoption, but rather a specific structural choice in how

the technology is deployed. Similarly, the lack of firm-level systematic or formal adoption in a business function does not imply that workers do not use AI tools in daily work-related tasks.

This section first identifies which business functions most commonly report AI use (Table 3) and which worker task domains are most frequently associated with generative AI use (Table 4). It then quantifies within-firm linkages across business functions and worker tasks, using intuitive co-occurrence and conditional-distribution analyses (e.g., how task-use footprints vary among firms using AI in each function). An example of such analysis is Table 5.

The analysis also emphasizes the difference between AI used in producing goods and services (which was the focus of the first BTOS AI supplement), AI used in broader business functions (the focus of the second BTOS AI supplement), and AI used by workers in specific tasks, showing how these concepts relate to each other.

Figure 1. The Connection between Firm Use of AI in a Business Function and Worker Use of AI



A key output is a set of intensive-margin measures of diffusion: the breadth of functional deployment (number of functions using AI – see Figure 2), the breadth of task-level use (number or variety of tasks where GenAI is used), and the prevalence of "aligned" adoption where organizational adoption coincides with reported worker use. These measures convert "AI adoption" from a binary indicator into a distribution of organizational deployment, which is essential for interpreting downstream results on task impacts, employment adjustments, and performance expectations.

Figure 2. Histogram of the number of business functions in which AI is used

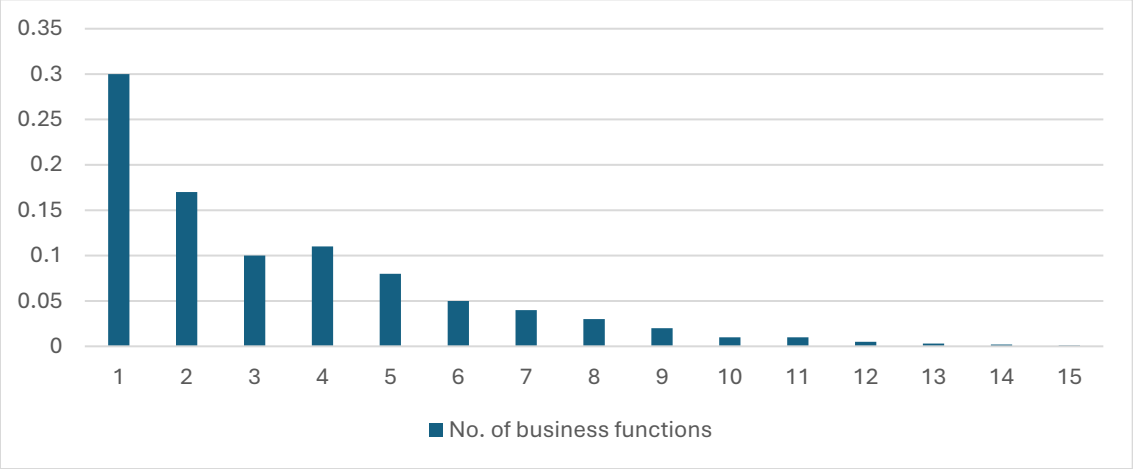


Table 3. Firm AI Use by Business Function

Business Function	**AI Use Rate (% of firms)**	**AI Use Rate (% of employment)**
Production of goods (e.g., making or assembling products, construction)		
Provision of services, products, or merchandise (e.g., providing services, products, or merchandise to customers)		
Strategy and business development		
Finance and accounting		
Sales and marketing		
Customer service		
Research and development		
Information technology		
Human resources		
Public relations and communication		
Management and administration		
Sourcing, supply chains, and purchasing		
Quality management and control		
Distribution		
Legal and compliance		

Table 4. Worker Gen AI Use in Work-Related Tasks

Business Function	AI Use Rate (% of firms)	AI Use Rate (% of employment)
Information processing, paperwork, or filing		
Writing or editing documents, emails, or communications		
Interpreting, analyzing, translating, or summarizing documents		
Customer support		
Developing or researching new projects, processes, or products		
Searching for information or technical help		
Software coding or debugging		
Data analysis or visualization		
Tutoring, training, or learning		
Other tasks		

Table 5. The Firm-Level Connection between AI Use in Business Functions and Worker Gen AI Use in Tasks

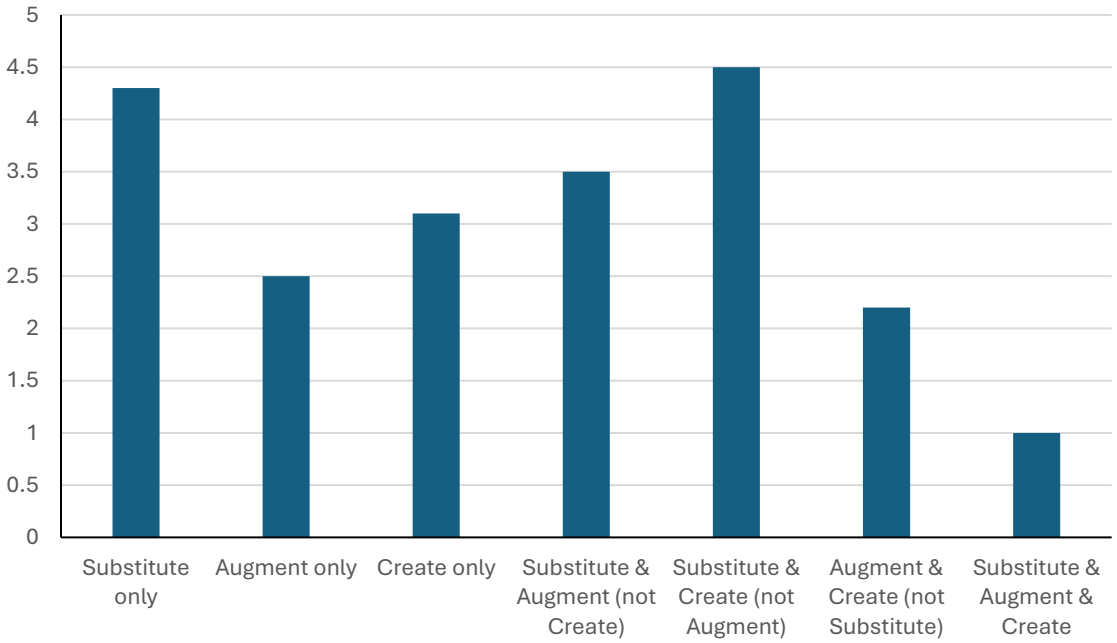
Business function where AI is used	Top 3 tasks GenAI is used by workers in the firm
Production of goods (e.g., making or assembling products, construction)	
Provision of services, products, or merchandise (e.g., providing services, products, or merchandise to customers)	
Strategy and business development	
Finance and accounting	
Sales and marketing	
Customer service	
Research and development	
Information technology	
Human resources	
Public relations and communication	
Management and administration	
Sourcing, supply chains, and purchasing	
Quality management and control	
Distribution	
Legal and compliance	

5. What AI does to Work: Task Substitution, Augmentation, and Creation

Section 5 focuses on the mechanisms through which AI affects work by analyzing firms' reports of task substitution, task augmentation, and task creation. It classifies firms by which of these margins they report and documents the co-occurrence structure—for example, what fraction of firms reports both task replacement and task creation, but no augmentation (see Figure 3). The section also measures intensity (e.g., the reported extent of tasks replaced) and relates these patterns to the microstructure measures from Section 4, asking whether breadth of functional deployment and the presence of worker or GenAI task use are associated with greater likelihood or intensity of task replacement.

The section then connects reported task impacts to employment adjustments using BTOS items on employment changes and AI-related employment effects as descriptive association rather than causal effects. The section also relates these patterns to Bonney et al. (2024) to assess stability or change in the reported nature of task impacts, while considering the changes in the nature of some questions.

Figure 3. The Effects of AI Use on Worker Tasks -- % of Firms using AI (conditional on some effect)



Note: Numbers in the figure are fictitious for illustration purposes.

6. How much does AI Substitute for Labor and Capital?

Building on task-level mechanisms, Section 6 broadens the focus to labor and capital substitution by analyzing reported replacement of workers and software and equipment, and the joint presence of labor-replacing and capital-replacing behavior. It constructs a simple, interpretable typology—firms reporting labor substitution, capital substitution, both, or neither—and documents how these

categories vary across industries, size classes, and the measures of AI deployment. This is a practical way to summarize heterogeneity in adjustment behavior and to distinguish firms where AI is primarily an automation technology from firms where it appears to be part of broader capital upgrading and organizational redesign.

The section then relates substitution patterns to reported recent and expected employment changes, and to firm AI and generative AI use, clarifying how internal deployment patterns correlate with different adjustment margins. Comparisons to Bonney et al. (2024) are used to benchmark whether substitution patterns and their correlates appear to be changing over time.

7. Adjustments to Accommodate AI and Barriers to Adoption

Section 7 studies adjustment costs and barriers to AI adoption. Rather than treating "barriers" as a single list reported by firms not planning to use AI in the near term, the section conditions barriers on where firms sit in the diffusion microstructure: whether they currently use AI, whether use is broad across functions, whether workers report using AI, and whether GenAI is used in tasks. This approach helps distinguish barriers that impede initial adoption from frictions that limit scaling and integration among adopters (e.g., workforce readiness, data constraints, governance and compliance, integration with existing systems). It also gives information on whether businesses narrowly experimenting with AI (as evidenced by the number and type of business functions AI is deployed) are more likely to not use AI in the near future.

The section also benchmarks barrier patterns to those documented in the first supplement (Bonney et al. (2024a,b)) where comparable, highlighting which constraints appear persistent and which may be shifting as diffusion progresses. The section will also provide a longer historical context of barriers by comparing BTOS results with results from earlier Annual Business Survey results on constraints. The product of this section is a more policy-relevant and economically interpretable account of what slows diffusion, because it connects reported constraints to measured adoption depth and internal deployment rather than to a single binary adoption indicator.

8. AI Use and Firm Performance

Section 8 connects multi-layer AI use to business performance indicators and adjustment margins in a disciplined descriptive framework. It relates firm adoption, breadth of function deployment, task-level GenAI use, and worker use to BTOS measures of businesses' current conditions and near-term expectations (e.g., overall performance, demand/revenue, employment and hours), as well as input and output prices where relevant. The analysis emphasizes whether intensive-margin measures (breadth and depth of deployment of AI) are more informative about outcomes than binary adoption alone, and it uses regression-style summaries to report conditional associations compactly while avoiding causal interpretation.

Overall, this section consolidates the paper's microstructure framework into economically meaningful patterns: which kinds of deployment correlate with positive versus negative employment adjustments, whether reported task substitution aligns with weaker employment expectations, and whether broader functional deployment is associated with stronger performance expectations. The results will motivate subsequent work linking BTOS responses to administrative microdata for

realized outcomes and longer-horizon effects. The section will also provide additional context on impacts on performance from results using the Annual Business Survey (see McElheran et al. (2024)).

9. Conclusion

This paper focuses on the microstructure of AI diffusion: the degree of alignment between firm adoption and worker use, where AI and GenAI are deployed across business functions and tasks, how firms report AI changing work through task substitution/augmentation/creation, and how these mechanisms relate to labor and capital replacement behavior. It also summarizes what the benchmarking comparisons to the earlier findings in Bonney et al. (2024) suggest about changes over time versus changes in measurement, making clear which patterns appear robust across instruments and which may require caution due to questionnaire revisions.

The paper highlights the value of integrated multi-faceted measurement of AI adoption for economic impact and policy relevance. A central next step is linking rich BTOS measures of AI adoption to administrative microdata to study realized employment, earnings, productivity, and firm dynamics, and to evaluate whether early extensive and intensive measures of AI use predict subsequent scaling, reorganization, and longer-run performance.

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Appendix A. BTOS Cycle 2 Questionnaire with AI Supplement

Welcome to the Business Trends and Outlook Survey Content V4
Cycle 2 with AI Supplement Revised 07/23/2025

The U.S. Census Bureau is requesting your assistance to produce important data on current economic conditions, as well as the impact on our nation's economy when natural disasters or other emergencies occur.

Your response is especially important as it helps policy makers, government officials, and businesses like yours understand these effects. Please complete this quick survey; **it will take approximately 20 minutes**

The data you provide will be aggregated to create a two-week snapshot of economic activity within the U.S. This survey is not intended to replace more comprehensive surveys that typically require the use of company records.

- **Estimates are acceptable and encouraged.**
- **The survey will take approximately 20 minutes**
- **This survey includes questions about this business's use of AI**
- **Please include all domestic operations of this consolidated business, including all locations, subsidiaries, and divisions.**

1. FOR SINGLE UNITS ONLY Is the Employer Identification Number (EIN) used on this business's latest Internal Revenue Service Form 941, Employer's Federal Quarterly Tax Return?
   - Yes
   - No

If no, please provide EIN:

2. Which of the following best describes the current operational status of this business?
   - In business
   - Temporarily or seasonally inactive
   - Ceased operation
   - Sold or leased to another operator

3. Overall, how would you describe this business's current performance? *Please include all domestic operations of this consolidated business, including all locations, subsidiaries, and divisions.*
   - Excellent
   - Above average
   - Average
   - Below average
   - Poor

4. Between MMM DD – MMM DD, how did this business's operating revenues/sales/receipts change? *Please compare this two-week period to the two weeks prior. Estimates are acceptable.*
   - Increased
   - Decreased
   - No change

5. Between MMM DD – MMM DD, how did this business's number of paid employees change?
   - Increased
   - Decreased
   - No change

6. Between MMM DD – MMM DD, how did the total number of hours worked by this business's paid employees change?
   - Increased
   - Decreased
   - No change

7. Between MMM DD – MMM DD, how did the time it takes for this business to receive deliveries from suppliers change?
   - Increased
   - Decreased
   - No change
   - Not applicable

8. How would you describe this business's current inventories?
    - Larger than optimal
    - Optimal
    - Smaller than optimal
    - Not applicable

9. Between MMM DD – MMM DD, how did demand for this business's goods or services change?
    - Increased
    - Decreased
    - No change

10. Between MMM DD – MMM DD, how did the prices this business charges for its own goods or services change?
    - Increased
    - Decreased
    - No change

11. Between MMM DD – MMM DD, how did the prices this business pays for goods or services change?
    - Increased
    - Decreased
    - No change

12. In the last six months, in what ways did changes to interest rates negatively impact this business? *Select all that apply.*
    - Decreased profitability
    - Inability to service debt
    - Inability to refinance existing loans
    - Inability to invest in this business
    - Not applicable

13. In the last six months, did this business experience any monetary losses due to an extreme weather event (for example, hurricane, flood, drought, or heat wave)?
    - Yes
    - No

14. What type of extreme weather event caused the monetary losses? *Select all that apply.*
    - Wildfire
    - Earthquake
    - Hurricane
    - Tornado
    - Flood
    - Drought
    - High winds
    - Severe storm/hail
    - Snow/blizzard/ice
    - Extreme temperature (heat or cold)
    - Other _____

15. Six months from now, how do you think you will describe this business's performance?
    - Excellent
    - Above average
    - Average
    - Below average
    - Poor

16. Six months from now, how do you think this business's number of paid employees will have changed?
    - Increased
    - Decreased
    - No change

17. Six months from now, how do you think the total number of hours worked by this business's paid employees will have changed?
    - Increased
    - Decreased
    - No change

18. Six months from now, how do you think the time it takes for this business to receive deliveries from suppliers will have changed?
    - Increased
    - Decreased
    - No change
    - Not applicable

19. Six months from now, how do you think you will describe this business's inventories?
    - Larger than optimal
    - Optimal
    - Smaller than optimal
    - Not applicable

20. Six months from now, how do you think demand for this business's goods or services will have changed?
    - Increased
    - Decreased
    - No change

21. Six months from now, how do you think the prices this business charges for its own goods or services will have changed?
    - Increased
    - Decreased
    - No change

22. Six months from now, how do you think the prices this business pays for goods or services will have changed?
    - Increased
    - Decreased
    - No change

23. Between MMM DD – MMM DD, did this business use Artificial Intelligence (AI)[1] in any of its business functions? *(Examples of AI: machine learning, natural language processing, virtual agents, voice recognition, etc.)*
    - Yes
    - No
    - Do not know

[1] Added 10/23/23. AI Definition: Computer systems and software that are able to perform tasks normally requiring human intelligence, such as decision-making, visual perception, speech recognition, and language processing. Types or applications of AI include machine learning, natural language processing, virtual agents, predictive analytics, machine vision, voice recognition, decision making systems, data analytics, image processing, etc.

24. In the last six months, did this business use Artificial Intelligence (AI) in any of the following business functions?

	Yes	No	Don't know
Production of goods (e.g., making or assembling products, construction)			
Provision of services, products, or merchandise (e.g., providing services, products, or merchandise to customers)			
Strategy and business development			
Finance and accounting			
Sales and marketing			
Customer service			
Research and development			
Information technology			
Human resources			
Public relations and communication			
Management and administration			
Sourcing, supply chains, and purchasing			
Quality management and control			
Distribution			
Legal and compliance			

Skip to 30 if the answer to 24 is No

25. In the last six months, did this business use Artificial Intelligence (AI) to do any of the following? *Select all that apply*.
    - Perform a task previously done by an employee
    - Supplement or enhance a task performed by an employee
    - Introduce a new task not previously done by an employee
    - None of the above

Show 26 only if 25's response is perform a task previously done by an employee, otherwise skip to 27.

26. In the last six months, how many tasks previously done by employees were instead performed by Artificial Intelligence (AI)?
    - A small number
    - A moderate number
    - A large number

27. In the last six months, did this business use Artificial Intelligence (AI) to perform operations previously performed by existing software or equipment?
    - Yes
    - No
    - Do not know

28. In the last six months, how did the use of Artificial Intelligence (AI) affect this business's total employment?
    - Increased
    - Decreased
    - Did not change

29. In the last six months, to use Artificial Intelligence (AI), what changes did this business make? *Select all that apply.*
    - Trained current staff to use AI
    - Hired staff trained in AI
    - Purchased computing power or specialized equipment or software
    - Purchased cloud services or cloud storage
    - Changed data collection or data management practices
    - Developed new workflows
    - Used vendors or consulting services to install or integrate AI
    - Other (*please describe*: _____)
    - This business did not make any changes to use AI

30. In the last six months, did this business's employees use Artificial Intelligence (AI) to assist in any work-related tasks that support business functions? *(e.g. software coding, writing emails, preparing visualizations, summarizing documents, gathering and processing information)*
    - Yes
    - No
    - Do not know

31. In the last six months, did this business's employees use Generative AI to assist in any work-related tasks? (*Generative AI is a type of Artificial Intelligence that uses prompts or other inputs to create text, images, music, videos, or code. Some examples of Generative AI include ChatGPT, Gemini, Copilot, Claude, Dall E, MidJourney, and GitHub Copilot*.)
    - Yes
    - No
    - Do not know

Skip to 33 if No or Do not know is selected for 31

32. In the last six months, what work-related tasks did this business's employees use Generative AI to assist with? *Select all that apply.*
    - Information processing, paperwork, or filing
    - Writing or editing documents, emails, or communications
    - Interpreting, analyzing, translating, or summarizing documents
    - Customer support
    - Developing or researching new projects, processes, or products
    - Searching for information or technical help
    - Software coding or debugging
    - Data analysis or visualization
    - Tutoring, training, or learning
    - Other tasks (*please describe*: _____)

33. During the next six months, do you think this business will be using Artificial Intelligence (AI)[2] in any of its business functions? (*Examples of AI: machine learning, natural language processing, virtual agents, voice recognition, etc.)*
    - Yes
    - No
    - Do not know

Skip to 35, if no or don't know is selected for 33

[2] Added 10/23/23. AI Definition: Computer systems and software that are able to perform tasks normally requiring human intelligence, such as decision-making, visual perception, speech recognition, and language processing. Types or applications of AI include machine learning, natural language processing, virtual agents, predictive analytics, machine vision, voice recognition, decision making systems, data analytics, image processing, etc.

34. During the next six months, do you think this business will be using Artificial Intelligence (AI) in any of the following business functions?

	Yes	No	Don't know
Production of goods (e.g., making or assembling products, construction)			
Provision of services, products, or merchandise (e.g., providing services, products, or merchandise to customers)			
Strategy and business development			
Finance and accounting			
Sales and marketing			
Customer service			
Research and development			
Information technology			
Human resources			
Public relations and communication			
Management and administration			
Sourcing, supply chains, and purchasing			
Quality management and control			
Distribution			
Legal and compliance			

If the answer to 34 is yes then skip 35

35. Why does this business not plan to use Artificial Intelligence (AI) during the next six months? *Select all that apply.*
    - Too expensive
    - AI is not a mature enough technology yet
    - Lack of knowledge on the capabilities of AI
    - Concerns about privacy/security
    - Concerns about bias
    - Lack of skilled workforce
    - Lack of required data
    - Laws and regulations prevent or restrict use of AI
    - Previous or current use of AI did not meet expectations
    - AI is not applicable to this business
    - Other (*please describe*: _____)

36. Would you like to provide any information about your responses to these questions or this business?

Remarks (500 characters)

37. For future Business Trends and Outlook Survey requests, please provide your preferred contact information:

Contact name:
Contact title:
Email:

38. Please correct the following information for your company

Doing Business As (DBA) name:
Street:
City/State:
Suite/ Unit:
Zip:

This collection has been approved by the Office of Management and Budget (OMB). The eight-digit OMB approval number is 0607-1022 and appears in the lower left corner of each reporting screen. Without this approval, we could not conduct this survey.

Authority and Confidentiality

Title 13, United States Code, Sections 131 and 182, authorizes the U.S. Census Bureau to conduct this collection and to request your voluntary assistance. The Census Bureau is required by Section 9 of the same law to keep your information confidential and use your responses only to produce statistics. The Census Bureau is not permitted to publicly release your responses in a way that could identify your business, organization, or institution. Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the systems that transmit your data.

Burden Estimate Statement

We estimate the Business Trends and Outlook Survey will take an average of 20 minutes to complete. Factors such as company size, complexity and activity will affect your actual time to complete the survey. This estimate includes the time to review instructions, search existing data sources, gather and maintain the data needed, and complete and review the survey.

You may email comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: econ.btos@census.gov. Be sure to use "EID Survey Comments 0607-1022" as the subject.

DISCLOSURE STATEMENT

January 30, 2026

None of the authors of the paper “The Microstructure of AI Diffusion: Evidence from Firms, Business Functions, and Worker Tasks” has any conflict of interest or financial relationships pertaining to the content of this paper.

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