

The Digest

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In This Issue

Price Competition and Fraud Among Medicare Equipment Suppliers

Taxation and the Origins of the French Revolution

How Industrial Policies Shaped the Global Electric Vehicle Supply Chain

Spending Responses to Interest Rate Movements

How Large Language Models Are Reshaping the Book Market

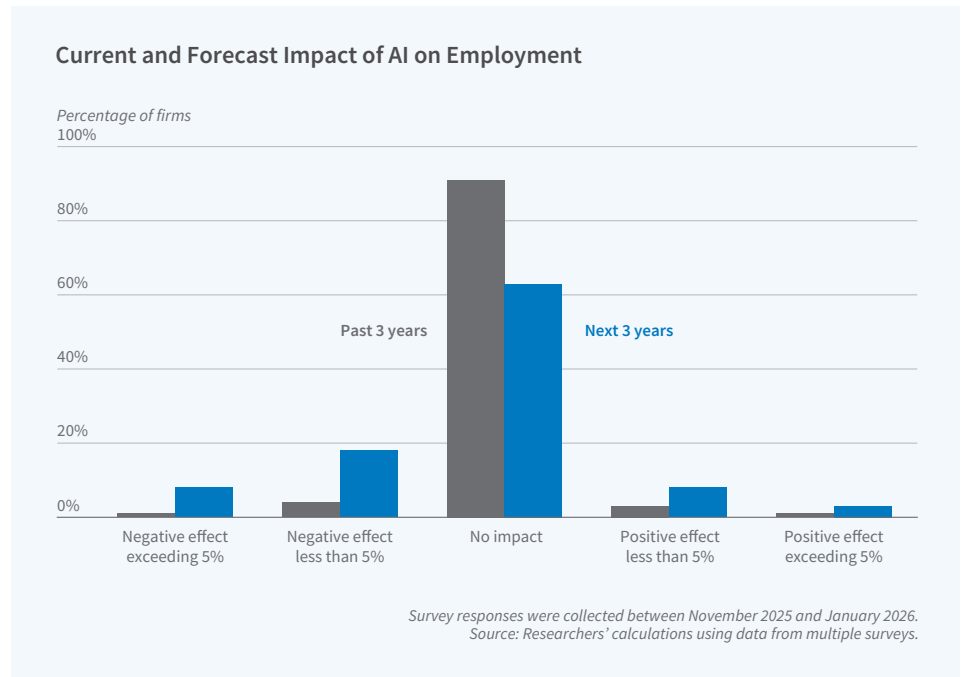
Global Evidence on Business Use of AI

Despite the rapid rise of artificial intelligence (AI), internationally comparable data on how businesses use this new tool are scarce. In [Firm Data on AI](#) (NBER Working Paper 34836), [Ivan Yotzov](#), [Jose Maria Barrero](#), [Nicholas Bloom](#), [Philip Bunn](#), [Steven J. Davis](#), [Kevin M. Foster](#), [Aaron Jalca](#), [Brent H. Meyer](#), [Paul Mizen](#), [Michael A. Navarrete](#), [Pawel Smietanka](#), [Gregory Thwaites](#), and [Ben Zhe Wang](#) address this gap by fielding a representative, multi-country survey of firm-level AI.

Research teams at the Federal Reserve Bank of Atlanta, the Bank of England, the Deutsche Bundesbank, and Macquarie University fielded identical survey questions between November 2025 and January 2026, yielding responses from nearly 6,000 CEOs, CFOs, and senior finance managers.

AI adoption is widespread, with 69 percent of businesses across the four countries reporting some current use of AI technology. The rate was highest in the US (78 percent) and lowest in Australia (59 percent). The most commonly cited application is text generation using large language models, used by 41 percent of firms. Larger, more productive, and higher-paying firms are significantly more likely to use AI, while older firms and those with older directors are less likely to do so. Across all four countries, about 75 percent of firms expect to be using AI over the next three years.

While over two-thirds of senior executives report personally using AI during a typical week, the intensity remains modest—averaging around 1.5 hours per week. CEOs use AI more



In the US, UK, Germany, and Australia, roughly 70 percent of firms have adopted AI, but its effects so far on employment and productivity remain small.

frequently than CFOs and other senior executives.

More than 90 percent of executives report no effect of AI use on employment over the past three years, and 89 percent report no impact on labor productivity. Among the minority that do report effects, the results tilt slightly positive for productivity, with an estimated average boost of 0.29 percent. However, executives anticipate much larger effects going forward. They forecast that over the next three years, AI will increase labor productivity by 1.4 percent on average while reducing employment by 0.7 percent, implying a net output gain of roughly

0.8 percent. About two-thirds of the anticipated workforce reduction is expected to come from reduced hiring.

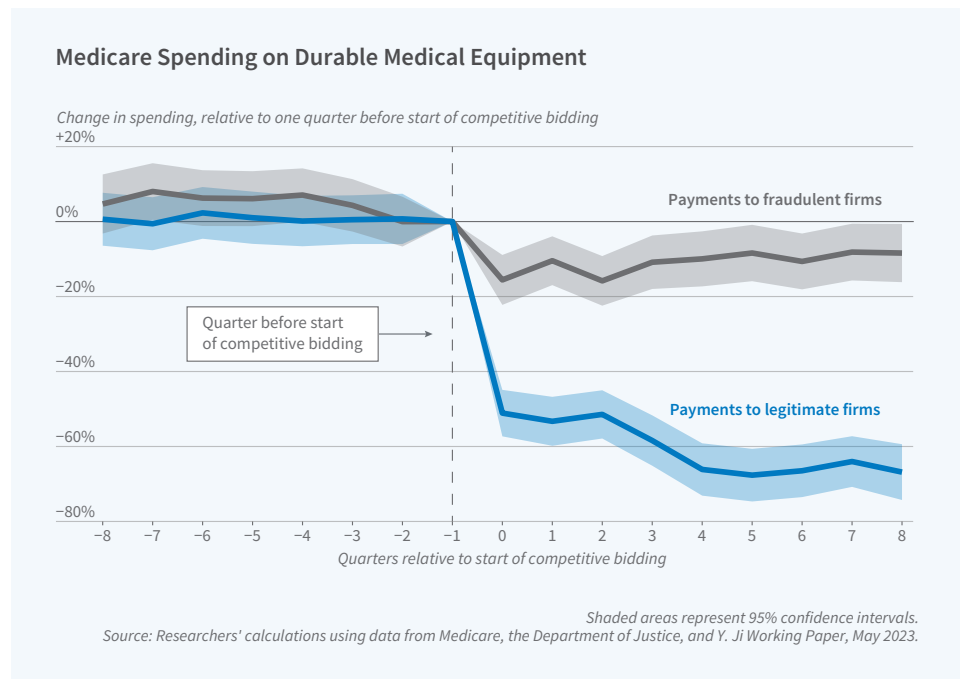
The researchers also surveyed about 3,000 employees in the US. AI use among workers was similar to that of US executives—averaging around 1.8 hours per week. Workers have very different expectations of the future, however. They expect that AI will *increase* employment at their firms by about 0.5 percent over the next three years, while US executives predict a 1.2 percent reduction. Employees also expect *smaller* productivity gains of 0.9 percent versus the US executives' estimate of 2.3 percent.

Price Competition and Fraud Among Medicare Equipment Suppliers

Before 2011, Medicare paid durable medical equipment (DME) suppliers a fixed, administratively set price that often resulted in high profit margins. In some cases, this price was several times what suppliers paid to acquire the equipment. In 2011, Medicare introduced procurement auctions, requiring suppliers to compete for contracts. In [Competition and Fraud in Health Care](#) (NBER Working Paper 34802), [Renuka M. Diwan](#), [Paul J. Eliason](#), [Riley League](#), [Jetson Leder-Luis](#), [Ryan C. McDevitt](#), and [James W. Roberts](#) exploit the staggered implementation of these auctions to identify the effect of competition on fraud.

Medicare spends nearly \$10 billion annually on DME, purchasing products from thousands of suppliers. To measure fraud, the researchers construct a dataset of fraudulent and suspicious DME suppliers. They identify 849 firms subject to anti-fraud enforcement through Department of Justice press releases and the List of Excluded Individuals/Entities from the Office of the Inspector General. They further identify an additional set of suspicious firms—those sharing names, owners, addresses, or referral networks with sanctioned suppliers. Together, these groups comprise roughly 2,900 fraudulent or suspicious firms out of more than 154,000 total suppliers.

Consistent with prior research, the researchers find competitive bidding led to a 35 percent reduction in total Medicare DME spending, the result of a 23 percent drop in prices and a 15 percent decline in quantities. However, the spending reduction was almost completely associated with legitimate firms. Payments to legitimate suppliers declined by 46 percent, while those to fraudulent firms fell by only 14 percent.



The introduction of procurement auctions for durable medical equipment tilted Medicare spending towards fraudulent firms.

Claims submitted by fraudulent firms increased by 5 percent, compared to a 26 percent decline for legitimate firms. The number of active legitimate firms dropped by 26 percent, with virtually no change in the number of fraudulent firms. Fraudulent firms' market share rose by 8 percentage points following the introduction of competitive bidding. Even conditional on size, fraudulent firms gained market share.

This shift was driven primarily by a selection effect rather than changes in firm behavior. Quality measures—including the rate of equipment repairs and replacements and the health characteristics of patients receiving DME—showed no meaningful deterioration after the introduction of competitive bidding. The researchers do not find any evidence that fraudulent firms

shifted toward legitimate business practices.

Bidding data show that fraudulent firms were far more likely than legitimate firms to participate in the auctions. Nearly 16 percent of bids came from fraudulent firms despite these firms comprising just over 2 percent of the market. The bid distributions of fraudulent firms were nearly identical to those of legitimate firms. Fraudulent firms' key advantage was cost: They could operate at lower cost by billing for equipment never delivered, supplying products to ineligible patients, and selling used equipment as new. The researchers' estimates confirm that lower prices favor fraudulent firms, with the extent of selection towards these firms growing stronger as prices decline.

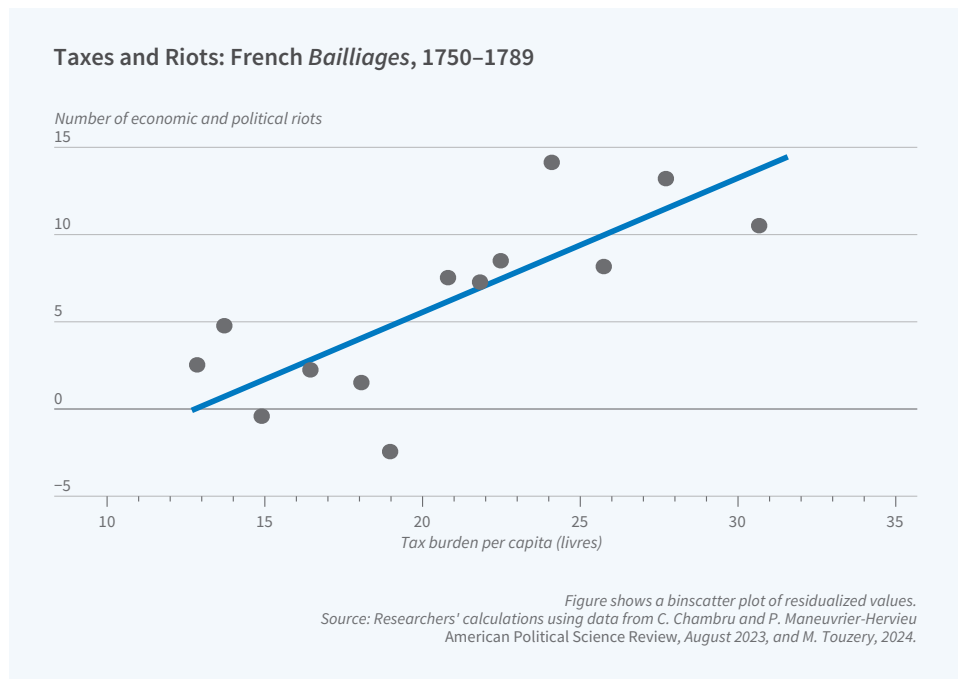
Taxation and the Origins of the French Revolution

The French Revolution dismantled the *ancien régime* and redefined the relationship between state power and citizens. Historians have long emphasized the role of the monarchy's extractive and deeply unequal fiscal system in contributing to the revolutionary crisis. The pre-revolutionary tax system largely exempted the clergy and nobility, while the Third Estate, which included about 98 percent of the population, bore nearly all of the tax burden. By the 1780s, taxation absorbed between 25 and 30 percent of average income, and sharp disparities across regions meant that otherwise similar areas faced markedly different tax burdens.

In [Extractive Taxation and the French Revolution](#) (NBER Working Paper 34816), [Tommaso Giommoni](#), [Gabriel Loumeau](#), and [Marco Tabellini](#) study how taxation shaped the emergence and the escalation of the French Revolution. They assemble a dataset covering per capita tax burdens across France's roughly 435 administrative districts (*bailliages*) around 1780 and document a strong cross-sectional relationship between tax burdens and unrest. They find roughly twice as many recorded riots between 1750 and 1789 in *bailliages* in the top quartile of the tax-burden distribution as in the bottom quartile. The difference in the per capita tax burden between these *bailliages*, on average, is about 9 livres.

Areas with heavier taxes also submitted significantly more complaints against taxation, known as the *cahiers de doléances*. This relationship was primarily driven by indirect taxes; there was no association between complaints and either direct or local taxes.

The researchers then exploit variation across otherwise similar municipalities that faced different tax burdens depending on their location relative to the collection zones of the salt tax and internal customs duties



Taxes under France's ancien régime (1750–89) fueled the spread of revolutionary sentiment; more heavily taxed districts were more likely to experience economic and political riots.

(*traites*), which together accounted for about 20 percent of royal revenues by 1780. They find that municipalities in the high-tax zone had roughly twice as many riots as those in the low-tax zone. The effects are concentrated in tax-related unrest, and the researchers do not find any differences in riots related to food, labor, or political issues.

The disparity between the two groups of municipalities emerged in the 1760s and peaked in the 1780s before disappearing after 1790, when the salt tax and the *traites* were abolished. Effects were stronger where fiscal disparities across municipal borders were larger and where Enlightenment ideas were more widespread—measured by local book sales and subscriptions to the *Encyclopédie*, a project aimed at compiling and disseminating human knowledge based on reason, science, and secular thought.

The researchers also find that unusually hot summers led to a disproportionate increase in riots in high-tax municipalities relative to their low-tax neighbors. A 10 percent rise in summer temperatures relative to the long-run mean increased riots roughly 10 percent more on the high-tax side. This interaction helps explain the sharp escalation of unrest in the 1780s, when subsistence crises compounded long-standing fiscal grievances.

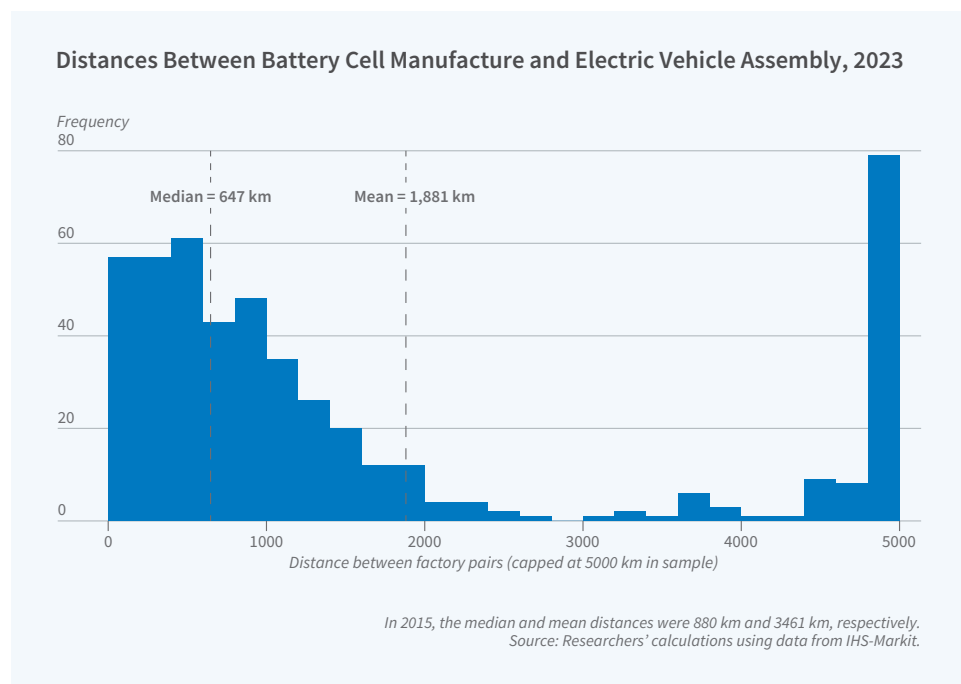
Deputies from high-tax constituencies were about 70 percent more likely to deliver speeches on taxation, 60 percent more likely to criticize the *ancien régime*, and over 70 percent more likely to defend the revolutionary project in their fiscal speeches. At key political turning points, legislators from heavily taxed areas were more likely to demand institutional change, support the abolition of the monarchy, and vote for the king's execution.

How Industrial Policies Shaped the Global Electric Vehicle Supply Chain

Governments worldwide are spending billions to attract electric vehicle (EV) and battery manufacturing to their shores. The US Inflation Reduction Act, Canadian production subsidies, and European Union tariffs on Chinese EVs all aim to build domestic supply chains in an industry characterized by massive fixed costs and complex, multistage production. Average investment costs are substantial—\$660 million for an EV assembly plant and \$1.85 billion for a battery plant.

In *Industrial Policies for Multi-Stage Production: The Battle for Battery-Powered Vehicles* (NBER Working Paper 34884), [Keith Head](#), [Thierry Mayer](#), [Marc Melitz](#), and [Chenyang Yang](#) develop a quantitative framework to analyze how industrial policies reshape plant location decisions and EV adoption across the global value chain. They model two key production stages, battery cell manufacturing and vehicle assembly, along with final distribution to consumers. They estimate fixed and marginal costs of production, and use their estimates to simulate how firms might reorganize their global supply chains in response to policy shocks.

The researchers construct a novel dataset by combining three proprietary sources from S&P Global Mobility that track production paths from battery cells to assembly to final sales destinations for all EV models sold in 24 major markets from 2015 to 2023. They find that for most car models and battery specifications, single sourcing is the norm. Less than 5 percent of battery cell or vehicle production involves multiple suppliers.



Industrial policies that tie EV subsidies to domestic production requirements boost local battery manufacturing but undercut the expansion of EV adoption.

The simulations compare three policy scenarios, each involving a 20 percent consumer subsidy: an unconditional subsidy, one conditional on domestic assembly, and one conditional on both domestic assembly and domestic cell production. For North America, the unconditional subsidy increases EV expenditure by 86 percent while also raising the number of assembly production lines by 16 percent and cell production lines by 7 percent. Conditioning the subsidy on domestic assembly reduces the EV adoption effect to 71 percent, while requiring both domestic assembly and cells cuts it further to 32 percent.

The full supply chain requirement quadruples the expansion of cell factories in North America relative to the unconditional subsidy, a 27 percent increase, but raises the marginal cost of the average delivered vehicle by just over 2 percent.

For Europe, the unconditional subsidy increases EV expenditure by 63 percent. Requiring the full supply chain to be in Europe reduces that to about 31 percent. The trade-offs are less severe than in North America because European cell manufacturing costs are roughly 39 percent below North American levels and only about 6 percent above those in Asia.

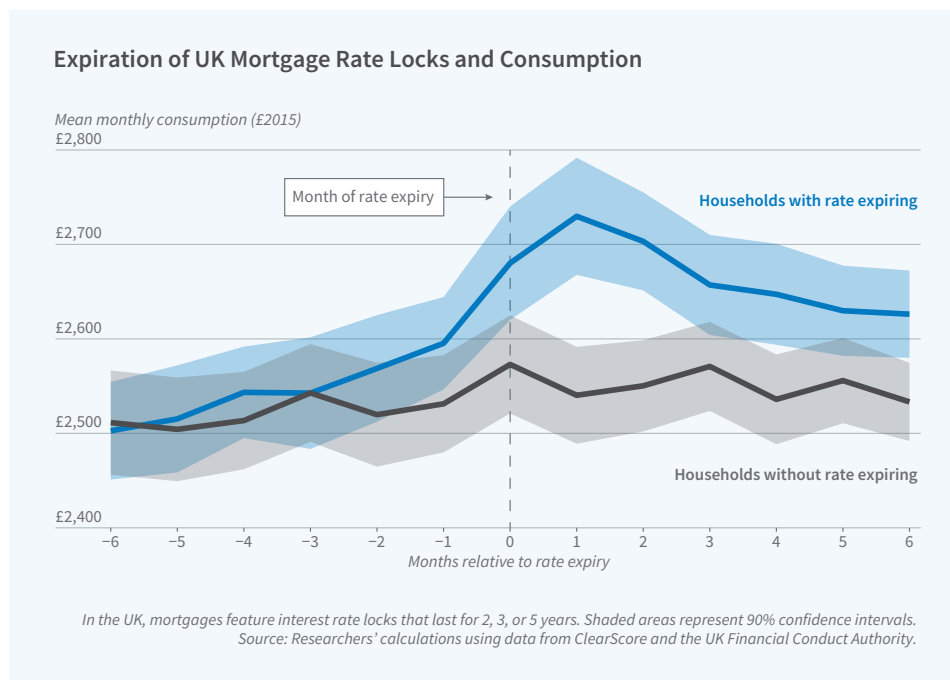
The researchers acknowledge funding from their respective institutions.

Spending Responses to Interest Rate Movements

Interest rates on most UK mortgage products are fixed for shorter periods than the interest rates on US mortgages. They typically require borrowers to refinance after two, three, or five years. When a mortgage “deal” expires, the borrower has strong financial incentives to refinance. Because deal lengths vary across households, different borrowers who are refinancing in the same month will experience different interest rate changes, depending on when their expiring deal began. In periods of interest rate decline, for example, borrowers with longer previous deals will experience larger interest rate reductions than those with shorter deals.

In [How Do Interest Rates Affect Consumption? Household Debt and the Role of Asset Prices](#) (NBER Working Paper 34911), [Angus K. Foulis](#), [Jonathon Hazell](#), [Atif R. Mian](#), and [Belinda Tracey](#) study over 6 million expiring deals in the UK mortgage market over the period 2015 to 2024. They estimate how changes in interest rates, a key element of monetary policy, affect household consumption through their effect on the cost of borrowing and through asset prices.

A 1 percentage point reduction in mortgage rates is associated with a rise in consumption of about 3 percent—equivalent to roughly 950 pounds—in the six months after deal expiry. Cash on hand, defined as the combined effect of new borrowing and lower debt service, increases by 1,800 pounds, implying a marginal propensity to consume out of rate-induced cash on hand of approximately 0.5 over six months. The researchers estimate that if all deals expired at once, a 1 percentage point drop in interest rates would raise aggregate consumption by 0.7 percent of GDP.



When UK interest rates fall, household spending rises mainly because rate-driven house price gains expand borrowing. Lower mortgage payments play a secondary role.

At the six-month horizon, new mortgage borrowing against higher home values—driven by the decline in interest rates—accounts for about two-thirds of the increase in spending, while reduced debt service accounts for the remaining third. This pattern points toward interest-rate-linked revaluation of house prices as a key driver of spending changes. The researchers confirm this by estimating the spending impact of the household debt channel separately across 360 local regions that differ in the extent to which house prices respond to rate changes.

In regions where house prices barely react to interest rates, both the borrowing and consumption responses are roughly half their average size.

In the average region, a 1 percentage point rate cut raises house prices by about 6 percent, generating a large borrowing response. Highly leveraged households, particularly those under age 35 with loan-to-value ratios above 70 percent, are especially responsive.

The researchers note that because deals expire at staggered intervals, the aggregate consumption response to a rate cut takes approximately 50 months to play out. The on-impact response of consumption to rate cuts roughly halved between 2016 and 2023 as average deal lengths increased, indicating that the lag structure of monetary policy itself has been shifting over time.

The researchers acknowledge support from the Julis-Rabinowitz Center for Public Policy and Finance at Princeton University.

How Large Language Models Are Reshaping the Book Market

The rapid diffusion of large language models (LLMs) since late 2022 has transformed book publishing, with the rate of new e-book releases on Amazon nearly tripling between 2022 and late 2025. In [AI and the Quantity and Quality of Creative Products: Have LLMs Boosted Creation of Valuable Books?](#) (NBER Working Paper 34777), [Imke Reimers](#) and [Joel Waldfogel](#) study how LLM availability has affected both volume and quality in the distribution of new books. They assemble datasets centered on Amazon's Kindle ecosystem, including a stratified random sample of over 333,000 releases representative of the roughly 10 million e-books published between 2020 and 2025, and a census of 479,000 books across eight subcategories spanning 2008 to 2025. They measure book quality primarily through the cumulative number of reader ratings each title receives—a proxy they validate against estimated sales data—adjusted to account for differences in time since publication across book vintages.

The number of new releases each month rose from approximately 100,000 during the 2020–22 period to over 300,000 by late 2025, with some categories such as Travel and Sports and Outdoors experiencing growth by a factor of more than five. This uptick coincides with ChatGPT's public deployment and rising Google search interest in LLM tools. Survey evidence indicates that nearly half of authors now use AI to assist with their work.

Average book quality has declined in the LLM era. Categories experiencing faster growth in new titles show proportionally larger declines in



The introduction of large language models was associated with a rapid increase in the number of new e-book releases and a decline in their average quality.

average quality. However, the increase in the number of releases means that the quality of books at particular absolute rank positions—for example, the 200th-best book released in a category and month—has risen. This improvement is statistically significant for books ranked outside the top 100 per category-month but not for the top 100 titles across all categories and months.

Authors who debuted in the LLM era disproportionately produce low-quality work, while authors who were active before the arrival of LLMs have increased their output, particularly in 2025, and continue to account for much of the higher-quality production.

The researchers estimate the welfare effects of the LLM-related surge in new titles by comparing a hypothetical environment in which all books are drawn from the pre-LLM quality distribution with one in which all books come from the post-LLM distribution. If the LLM era produced the same number of books as before but at its lower average quality, consumer surplus would fall by 13 percent. However, the increase in releases from 3.6 million (2020–22) to 6.7 million (2023–25) flips this result and delivers roughly 5 percent higher consumer surplus. Under a scenario reflecting the peak LLM-era release rate—a tripling of pre-LLM output—surplus would rise by roughly 10 percent.

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