The NBER Digest

NATIONAL BUREAU OF ECONOMIC RESEARCH

February 2023

INSIDE THIS ISSUE

The Tight US Labor Market: Missing Hours, Missing Workers

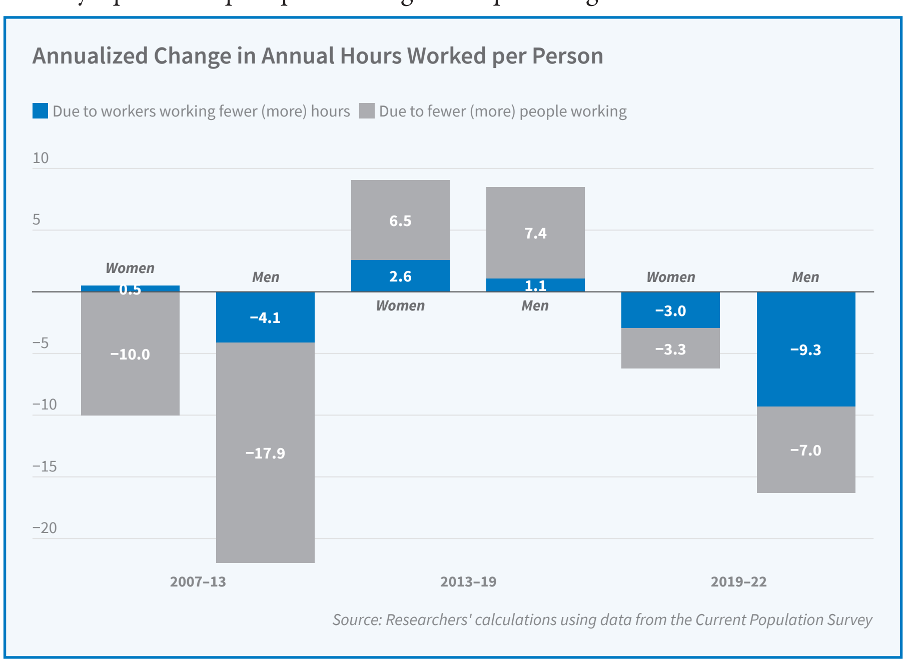
A defining feature of the US economy since 2021 has been the unusual tightness of the labor market. The unemployment rate, currently 3.5 percent, not long ago reached historic lows, while currently about 7 percent of available jobs are unfilled, a historically high level.

Labor markets can tighten if labor demand increases or labor supply contracts. In Where Are the Workers? From Great Resignation to Quiet Quitting (NBER Working Paper 30833), Dain Lee, Jinhyeok Park, and Yongseok Shin focus on recent changes in labor supply. They report that between 2019 and 2022, the total number of hours worked in the American economy declined by 3 percent. They decompose this decline into extensive-margin changes — workers leaving the labor market — and intensive-margin changes — workers reducing their hours — and break down these changes among demographic groups.

On the extensive margin, as of November 2022 the labor force participation rate was about 0.8 percentage points below its prepandemic value, reflecting a sharp drop in 2020 followed by a slow and incomplete recovery over the next two years. The decline was strongest among men without college degrees, whose participation rate is now 2 percentage points below its prepandemic level.

> Reductions in hours of work by those in the labor force, particularly men with some college or bachelor's degrees, have contributed to labor market tightness.

This is part of a longer-running deterioration in the labor force participation rate of less-educated men. The decline has been strongest among younger cohorts of men who were in their teens or 20s during the Great Recession, perhaps indicating that experiencing a recession during one's formative years can result in long-run labor market precarity. Since the Great Recession, the labor force participation rate among these cohorts of men has been consistently lower than the rates of the previous cohorts. The researchers argue that the events of the past three years reinforced pre-existing trends in labor force participation.



Meanwhile, intensive-margin decreases in hours worked have played a surprisingly important role in the decline in total hours worked. Between 2019 and 2022, there was a 33-hour decrease in annual hours worked per capita — the total number of hours worked during the year divided by population size. Fifteen hours of this decline are attributable to the drop in labor force participation, while the other 18 are due to intensive-margin hours reductions among employed workers. These large intensive-margin changes are a new phenomenon: previous changes in aggregate hours worked were driven mostly by extensive-margin adjustments.

The intensive-margin decline in hours between 2019 and 2022 has been largest among prime-age men. In contrast to the extensive-margin results, though, hours have dropped the most for more-educated men — those with some college or a bachelor's degree. Men who were previously working very long hours and earning large amounts have cut their hours the most. Among women, the decline in hours has been similar across education groups.

These hours reductions are more likely to be the result of voluntary reductions in labor supply by workers than involuntary cutbacks due to declining employer demand. Survey evidence shows a drop in workers' desired hours over this period. In addition, given the tightness of the labor market overall, workers who desire more hours could easily leave their current employer and find another job with longer hours.

— *Shakked Noy*

The Structure of UI Taxes Affects Firms' Layoff Decisions

Unemployment insurance (UI) is an important factor in the US labor market. In 2019, more than 5 million Americans received UI benefits. Employer UI taxes are experience rated, which means that when workers claim unemployment benefits, the prospective UI tax rates of the firms that laid them off increase. In Experience Rating as an Automatic Stabilizer, (NBER Working Paper 30651), Mark Duggan, Audrey Guo, and Andrew Johnston find that this tax penalty on firms reduces their propensity to lay off workers during downturns, and that it may have reduced the number of layoffs during the 2007–09 Great Recession by nearly 1 million.

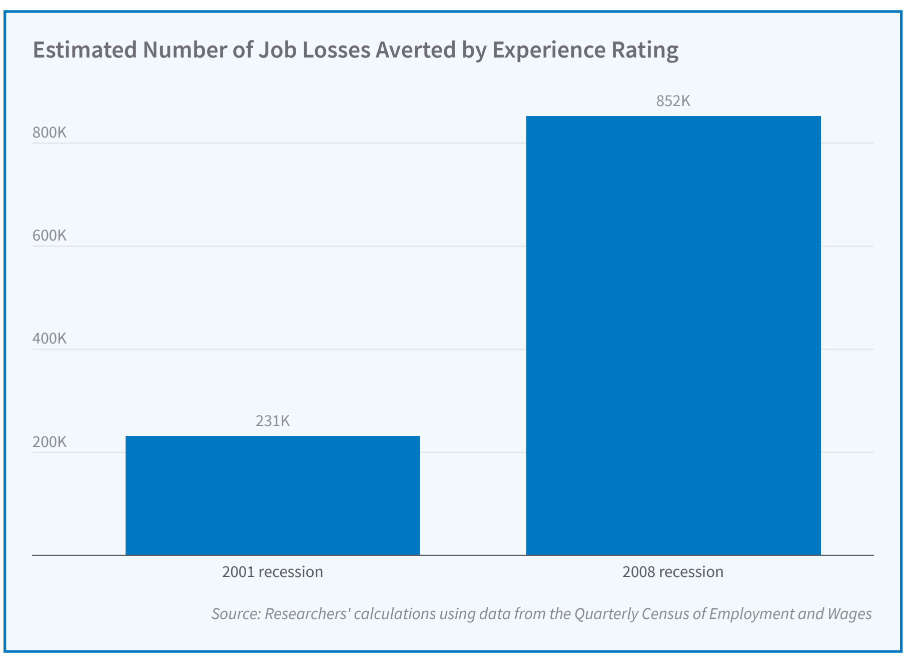
The UI program typically provides laid-off claimants with weekly payments that replace approximately half of their earnings for up to six months. These provisions — both benefit generosity and duration — vary across states and can vary through time. Firms pay taxes designed to cover the cost of their workers' benefits. In most states, the tax schedule is based on either a Benefit Ratio system or a Reserve Ratio system. An employer's Benefit Ratio is defined as the total UI benefits claimed by the firm's employees over the last three years divided by the total taxable payroll over the same period. An employer's Reserve Ratio is defined as the sum of all UI contributions minus all previous UI claims, divided by the sum of the total taxable payroll in the last three years. The tax rate the employer must pay increases linearly with the Benefit Ratio or stepwise with the Reserve Ratio. Rates of increase, and the maximum taxable wage base, also vary by state and year.

> The US system of increasing firms' unemployment insurance taxes when they lay off workers makes many firms less likely to downsize after a negative economic shock.

The researchers obtain empirical tax schedules for 2001–19 from the US Department of Labor's Form ETA 204 Experience Rating Reports, which are available for 46 US states and 86 percent of state years. They combine this with employment data at the state-year-industry level from the Quarterly Census of Employment and Wages.

The study defines experience rating as the firm's marginal tax cost in the next year of laying off 10 percent of its workers in this year. This is a lower bound on the true cost, as a change in either the Benefit or the Reserve Ratio would affect the next three years or more of claims. To calculate the expected change in the Benefit or Reserve Ratio associated with a substantial layoff, the researchers assume benefit-eligible weekly earnings of $870 — the nominal average in their sample — a constant 32 percent take-up rate, and a duration of 16 weeks of claims both of which equal the US average during the sample period.

The researchers estimate the effect of the marginal tax cost of layoffs on the extent to which employers within a state downsize their workforces in response to negative industry shocks. They define these shocks as the year-over-year percentage change of national industry employment, excluding the employment in the firm's own state and industry. They find that on average a national industry employment decline of 1 percent is associated with a 0.96 percent decline at the state-industry level. Against this backdrop, the average marginal tax cost



Source: Researchers' calculations using data from the Quarterly Census of Employment and Wages of $89 per worker lowers responsiveness to national shocks by 0.09 percentage points, or about 11 percent. Additionally, experience rating reduces downsizing during contractions, but does not reduce growth during expansions, suggesting that it increases employment over the business cycle.

Industries at high risk of layoffs — defined as those whose tax rates are within the top quartile of industry rates — downsize when needed regardless of the marginal tax cost, while for lower risk industries, experience rating lowers responsiveness to shocks by 0.15 percentage points.

— *Whitney Zhang*

Paying Indian Farmers Not to Burn Agricultural Residue

In 2015, in an attempt to combat its poor air quality, India banned the burning of agricultural residues. But bans have not worked, and pollution from fires used to clear fields after harvest has continued making the air quality worse.

In Money (Not) to Burn: Payments for Ecosystem Services to Reduce Crop Residue Burning (NBER Working Paper 30690), B. Kelsey Jack, Seema Jayachandran, Namrata Kala, and Rohini Pande test an alternative: paying farmers who forgo burning and use alternatives instead. They find that such payments can work, but only if farmers are given some of the payment before they take action to dispose of crop residues.

Every winter, farmers in North India set fire to some 8.7 million acres of farm land to clear rice stalks from their fields and prepare for wheat planting. The practice is cheap, but has proved to be a major contributor to the nation's high levels of air pollution and to associated adverse health effects. Using estimates of the impact of high levels of airborne particulates on mortality, and assuming that a human life is valued at $1 million, the researchers calculate that the mortality cost of burning one acre of rice stalks is about $7,600. An acre of rice creates some $500 in annual revenue. Net of farm production costs, profit per acre is far lower.

The researchers find that incentives are misaligned: costs of burning are spread over millions of people while benefits accrue to a relative few. Enforcement of the burning ban is patchy, and government subsidies aimed at bringing down the price to rent equipment that handles the residue without burning have been unsuccessful.

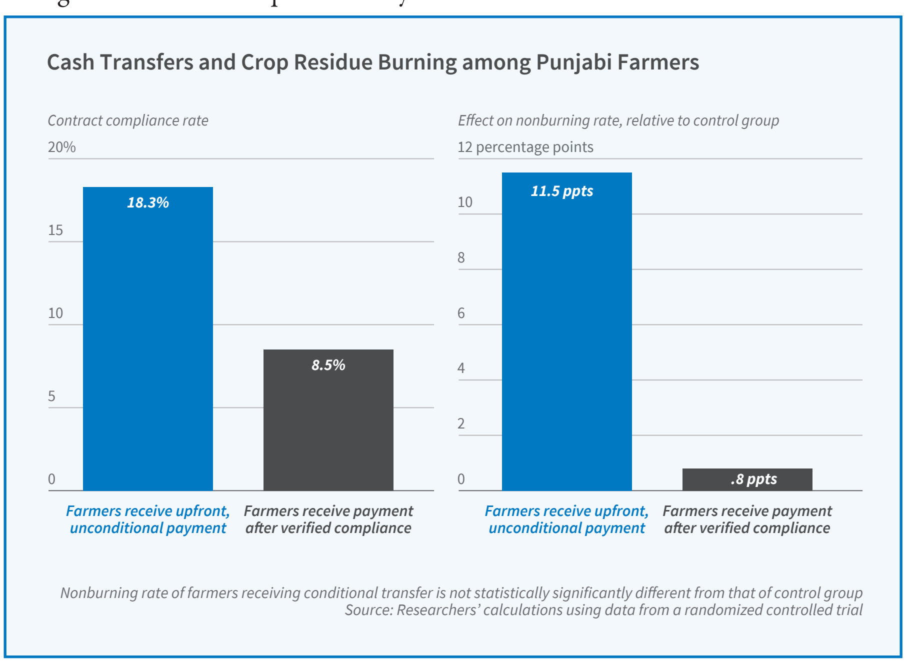
Conditional payments reduce burning of pollution-causing agricultural residues, but only if part of the payment is offered up front.

In 2019, they tested another solution — Payments for Ecosystem Services (PES) contracts, which pay farmers directly if they stop burning. They set up a PES program in 171 Punjabi villages and divided farmers into three groups: those without a contract (the control group), those with a standard contract, and those with a contract and partial payment in advance. Farmers in the third group were told explicitly that these upfront payments were unconditional, so even if they reneged on their commitment not to burn, they would only lose the final payment of the contract, not the upfront money.

This last group was the only one that reduced burning. The group with the standard contract, which received a payment if they refrained from burning, but after the fact, showed no significant difference with the control group, which had no contract. Some of the standard-contract recipients qualified for payment, but they were only the farmers who would not have burned their crop residues anyway. The likelihood that a farmer who received partial payment in advance complied with the contract was 10 percentage points above the compliance rate of those with the standard contract.

Why did farmers who had already received money upfront follow through with alternative measures, even though their final payment was smaller than payments to those with standard contracts, whose payments all came at the end? One factor appears to be trust. Those who got advance payments expressed more trust in the receipt of a future payment than those with the standard contract. Also, the upfront cash may have helped them pay for alternatives to burning. Some 70 percent of farmers said their cash on hand affected their crop residue management decisions.

Even though a substantial number of farmers took the



upfront money and continued to burn their fields, the program still cost only $34 to $50 per acre not burned — a small price compared with the avoided mortality costs or the costs of other pollution abatement programs, such as installing scrubbers on India's coal-fired power plants. Other research has estimated that it costs $400,000 in scrubber upgrades to save a life, while this study found that upfront PES costs between $4,800 and $7,200 per life saved.

— Laurent Belsie

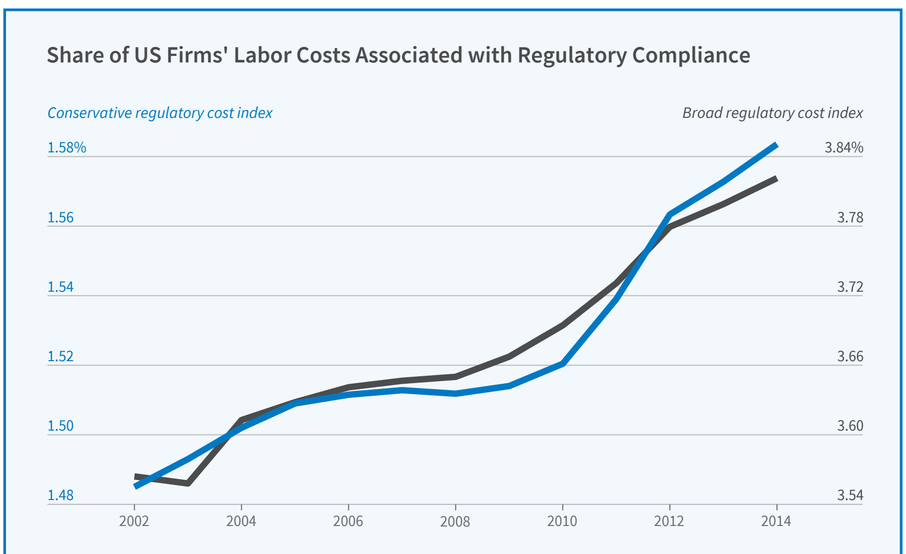
Tracking the Cost of Complying with Government Regulation

The total wage bill for firms' regulatory compliance work grew at an annual rate of about 1 percent a year from 2002 to 2014.

The average US firm spends between 1.3 and 3.3 percent of its total wage bill on regulatory compliance, estimate Francesco Trebbi and Miao Ben Zhang in The Cost of Regulatory Compliance in the United States (NBER Working Paper 30691). This wage bill grew at an annual rate of about 1 percent a year from 2002 to 2014, roughly half of the average annual GDP growth rate over the period. In 2014, the total wage bill devoted to regulatory compliance workers ranged from a conservative estimate of $78.7 billion and a broadly based estimate of $239 billion.

The researchers construct their estimates by measuring the regulation relatedness of each of the 19,636 labor tasks included in the US Department of Labor Employment and Training Administration's O*NET system, a database that describes occupations in terms of their required day-to-day knowledge, skills, tasks, and work activities. They then aggregate each occupation's regulation relatedness, weighted by spending on each occupation, for each of the 400,000 firms surveyed each year by the Occupational Employment and Wage Statistics survey, a stratified Bureau of Labor Statistics survey of all US industries.

Industry categories with greater than average regulatory expenses include transit and ground transportation at 3.9 percent of labor spending; financial services involving funds, trusts, and other investment vehicles at 3.3 percent; chemical manufacturing at 2.3 percent; and rail transportation and waste management and remediation services, both at 2.2 percent. The researchers focus only on the labor cost of regulatory compliance, omitting capital expenditure costs, lost profits created by compliance risk, and outsourced compliance costs such as accounting services. Labor costs as a share of total regulatory compliance costs, as reported by trade associations, vary from 93.9 percent for the securities industry to 68.4 percent for manufacturing.



*The conservative regulatory cost index uses stringent weights for the allocation of regulatory tasks to occupation within the firm. The broad includes corporate tax compliance and uses a less stringent definition of weights for regulatory related tasks. Source: Researcher's calculations using data from the BLS and O*Net database*

Labor costs of performing regulation-related tasks have an inverted U-shape with respect to firm size, increasing until a firm employs about 500 people and decreasing thereafter. Though the average firm in the sample spent between 1.3 and 3.3 percent of total labor costs on regulation-related tasks each year, some firms spent close to nothing, others more than 10 percent. The researchers conjecture that the heavier burden on middle-sized firms may affect the size distribution of US firms.

The researchers analyze how their estimated labor costs varied around several high-profile regulatory changes. For example, they study the deregulation of the US oil and gas industry by the Energy Policy Act of 2005, and its subsequent re-regulation by executive order after the 2010 BP Deepwater Horizon oil spill. Their estimate of oil and gas industry compliance costs tracks those of a group of other industries, their control group, closely until 2005, after which it falls sharply. After 2010, compliance costs began rising again.

The researchers found some evidence that state as well as federal policies affect regulatory labor costs. Their state-level estimates of the wage bill for compliance workers, adjusted for the industrial composition of businesses in the state, were negatively correlated with measures of each state's political inclination to vote for the Republican Party.

— Linda Gorman

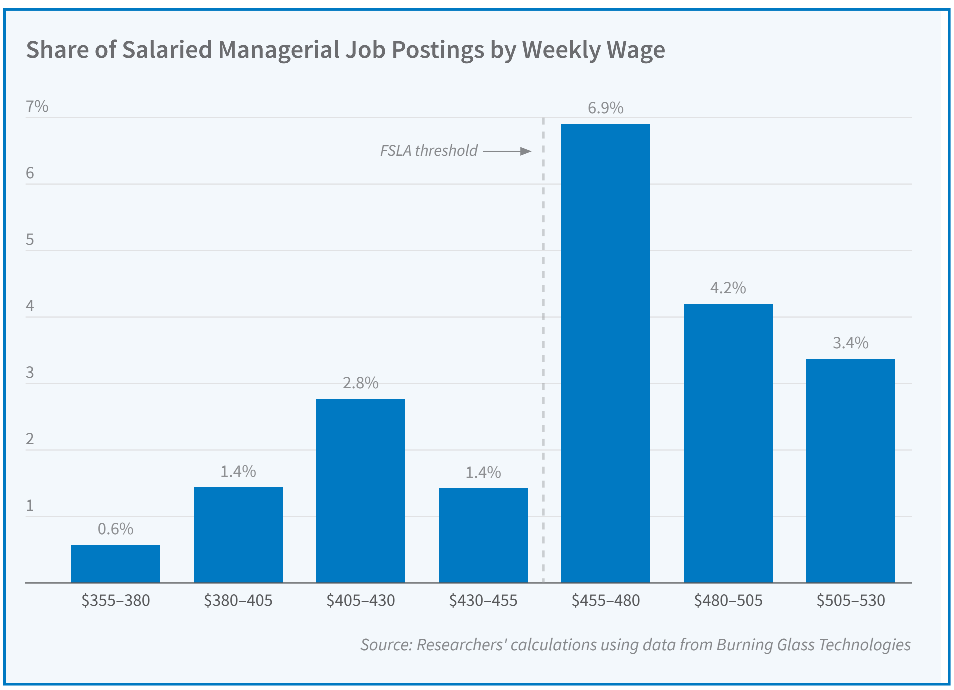
Firms Inflate Job Titles to Avoid Paying Workers Overtime

Overtime wages are a core component of labor protections for workers. In Too Many Managers: The Strategic Use of Titles to Avoid Overtime Payments (NBER Working Paper 30826), Lauren Cohen, Umit Gurun, and Naim Bugra Ozel find that some firms avoid paying overtime by giving managerial titles to employees whose jobs are equivalent to nonmanagerial positions.

Bestowing managerial titles on workers enabled firms to avoid paying overtime that would have cost $4 billion in 2019.

The Fair Labor Standards Act (FLSA), enacted in 1938, includes a set of overtime pay regulations to discourage companies from overworking their employees and to encourage additional hiring. Employees, unless they are exempt, must receive overtime pay at a rate of at least one and a half times their regular rate of pay.

The FLSA requires that for employees to be exempted from those guarantees their positions must be salaried, rather than paid hourly, must be paid at least $455 per week, and must be in positions primarily involving executive, administrative, or professional duties. All states follow these rules except for Alaska, Connecticut, California, New York, and Maine, which impose their own thresholds for the salary test.



The researchers obtain data on job postings from 2010 to 2018 from Burning Glass Technologies. They select full-time positions in the US with valid data on salary, title, employer name, and pay frequency that are posted by corporations. They remove the ground, rail, and air transportation industries and nondepository credit intermediaries because they are subject to different labor regulations.

Exploiting the fact that there is a strict salary test threshold at $455 per week, the researchers examine job postings just surrounding this regulatory threshold, finding a nearly fivefold increase in managerial job postings just at $455. [See figure]

These include postings for jobs such as "Director of First Impressions," with job duties otherwise identical to nonmanagerial workers — in this case, a front desk assistant. There is no such discrete jump at alternative thresholds or when examining hourly or daily paid positions, where the titles would not aid directly in overtime avoidance. The jump persists after controlling for education and experience requirements. The researchers estimate that 30.7 percent of managerial titles above the threshold are offered to avoid overtime.

Data from the Bureau of Labor Statistics show that in 2019 there were approximately 2.65 million salaried managers with a salary of less than $50,000. In 2018, the average number of overtime hours per week was 3.6. The researchers combine these data to estimate that in 2019 firms used managerial titles to avoid paying overtime wages on 151 million employee-hours, worth about $4 billion. For the average affected workers, this was equivalent to 13.5 percent of salary in lost overtime. In contrast, Department of Labor compliance actions in 2019 resulted in only $226 million in back wages.

Firms with greater labor market power are more likely to avoid overtime payments. The researchers construct a firm power index that accounts for union membership, the unemployment rate, the job opening rate, and right-to-work laws. The probability of observing overtime-avoiding positions in the state with the highest firm power index, Florida, is 62 percent higher than that with the lowest, Minnesota. The researchers also find statistically significant and positive results using two alternative state rankings, one based on its worker rights protection laws as measured by OXFAM America and the other an indicator of whether a state has enacted a right-to-work law. Even within the same firm, overtime avoidance is greater when a position is in a state with more power.

— Whitney Zhang

Speeding the Development and Approval of Breakthrough Drugs

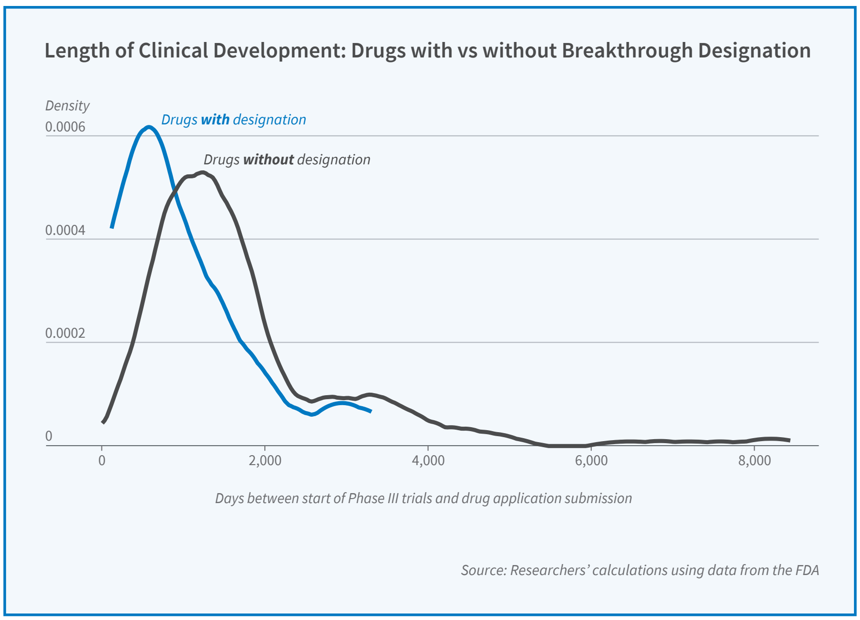
In 2012, to address rising concerns about the time required to develop vital medications, Congress passed legislation creating the Breakthrough Therapy Designation (BTD). To qualify for this designation, proposed drugs must treat serious conditions and fill unmet needs, and pharmaceutical companies must provide substantial preliminary evidence that the new drugs represent major advances over existing therapies. Firms submit their BTD request after completing Phase I or II trials — the former typically a test for safety and dosage, the latter, using a larger sample, for safety and efficacy.

In Regulatory Incentives for Innovation: The FDA's Breakthrough Therapy Designation (NBER Working Paper 30712), Amitabh Chandra, Jennifer Kao, Kathleen L. Miller, and Ariel D. Stern compare the time to approval of similar types of drugs for the periods before and after the implementation of the legislation. They find that the program shortened the clinical development time of drugs by nearly a quarter, without any evidence of reduction in safety.

Firms that create drugs that qualify for BTD receive a host of benefits designed to reduce the time needed to reach patients. Regulators offer guidance on streamlining the development process, including help in defining the target population, defining an appropriate control group in clinical research, and identifying measures of success. The Food and Drug Administration (FDA) provides feedback on drug development plans before they are formally submitted. Its scientists contribute their expertise on what went right and wrong in previous projects as well as a big-picture view that reaches from the laboratory to the factory to the pharmacy shelf.

Legislation designed to make major advances in therapeutic drugs available more quickly cut clinical development times by nearly 25 percent.

The BTD program does not reduce evidentiary requirements, but it speeds development of new drugs by making the process more efficient and facilitating reduced trial complexity. Focusing on time spent in late-stage trials, which is the most costly stage of drug development, the researchers estimate that the BTD leads to a 23 percent decline in the time spent between the start of late-stage trials and the submission of a drug application. BTD products spent an average of 2.74 years (32.9 months) in the last phase of pre-approval clinical trials. Previous estimates suggest that each additional month for late-stage trials costs $671,000, suggesting that the BTD program may save drug manufacturers $5 million.



The BTD program disproportionately accelerated development of drugs by relative newcomers, suggesting that engagement with regulators can help to close the gap between established and less-experienced firms. The researchers suggest that the program also has benefits for the FDA, because knowledge gleaned in the BTD context "could well provide the basis for better or more efficient decisions for non-BTD drugs." More generally, they conclude that the BTD program shows that strong science combined with dedicated regulatory resources can accelerate the development and commercialization of valuable new products.

— Steve Maas

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