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## Plan Selection in Medicare Part D

**I**n **Plan Selection in Medicare Part D: Evidence from Administrative Data** (NBER Working Paper No. 18166), co-authors **Florian Heiss, Adam Leive, Daniel McFadden, and Joachim Winter** analyze data on medical claims in Medicare Part D drug insurance programs. They find that fewer than 10 percent of individuals enroll in what for them would be the most cost-effective plans. This is apparently because seniors pay more attention to their out-of-pocket premiums than to the overall benefits of the dozens of drug plans available to them. Equally significant, the researchers believe that how seniors decide whether to enroll in Medicare Part D, and what plans they select, is important not only for management of the Part D program, but also is indicative of how consumers behave in real-world decision situations with a complex, ambiguous structure and high stakes. The researchers add that their findings may yield predictions for how seniors will handle plan choices in the new general health insurance exchanges that will implement the Patient Protection and Affordable Care Act of 2010.

This is one of the first papers to provide a comprehensive analysis of plan choice in the Part D market using a large random sample from

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the entire Medicare-eligible population. The data is derived from Plan D claims records for 2006–8, combined with Parts A and B claims records for 2002–8. The information includes plan choice, drug use, health conditions, out-of-pocket costs, and premiums. The authors then simulate the relevant attributes of alternative plans available to each consumer, using the administrative data on drug spending to characterize Part D enrollment decisions. This simulation predicts the beneficiaries’ out-of-pocket spending among each available stand-alone Part D plan in their regions.

The analysis of enrollment and choice among different levels of plan generosity suggests that the share of eligible consumers without drug insurance is in the range one would expect if risk reduction and the option value of avoiding late enrollment penalties in the future

are ignored, and the only criterion is whether enrollment is first-year actuarially favorable. In choosing between Silver (standard) and Gold (generic

gap coverage) plans, it appears that consumers undersubscribe to the Gold plans. This result is consistent with earlier findings that consumers pay more attention to premiums than to benefit generosity, with the result that they tend to favor low-premium standard or equivalent plans.

Relative to the benchmark of a static decision rule, similar to the Plan Finder provided by the Medicare and Medicaid administrations, which makes next year’s plan choice conditional on the drugs consumed in the current year, enrollees lost an average of about \$300 per year. While these losses are modest compared to the losses associated with not enrolling at all, they are difficult to reconcile with decision costs alone. It appears that a sizeable fraction of consumers either value plan features that are not reflected in total cost, or else do not optimize effectively.

—Matt Nesvisky

## Leveraging Behavioral Economics to Improve Educational Performance

**I**n **The Behaviorist Goes to School: Leveraging Behavioral Economics to Improve Educational Performance** (NBER Working Paper No. 18165), co-authors **Steven Levitt, John List, Susanne Neckermann, and Sally Sadoff** note that “the crux of the education problem that we face with our urban youth” is that “effort is far removed from payout of rewards, making it difficult for students to connect them in a useful way” and that “the failure to recognize this connection potentially leads to dramatic under-investment” in education.

The authors report on experiments designed to determine whether financial and non-financial rewards affect student performance on standardized diagnostic tests in reading and math. They focus on tests taken about three times a year by students in elementary and high school. Their sample includes almost 7,000 students from over 30 schools in low-performing school districts in and around Chicago. Among other things, the experiments tested whether scores improved when students were promised immediate rewards of \$20 for improving effort on the current test relative to the last test. Scores did improve, with mid-range improvement equal to 0.12 to 0.2 standard deviations, equivalent

to 5 to 6 months’ additional learning. Financial rewards of \$10 and non-financial rewards of trophies yielded mixed results.

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“... when students were promised immediate rewards of \$20 for improving effort on the current test relative to the last test, scores did improve ...”

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Both financial and non-financial rewards improved scores more robustly when they were framed as losses rather than as gains. If the reward was framed as a gain, students were told about it as they sat to take the test and were promised that they would receive it before they left if their scores improved — or, in the test of delayed rewards, a month later. If framed as a loss, students instead received the actual reward before they took the test. They were told they could keep it if they improved their score, but that they would have to give it back if they did not. Delayed rewards did not improve student scores.

Younger students seem to respond more strongly to non-financial rewards. When framed as a loss, which took the form of trophies worth about \$3, they increased the performance of younger students by 0.18-0.25 standard deviations. The authors conclude that non-financial incentives “may be a

cost-effective alternative to monetary rewards”, especially for those in grades 2 through 5. Older students only responded to financial incen-

tives framed as a loss, with performance increasing 0.12 to 0.13 standard deviations.

Sub-group results suggest that the rewards had larger, and uniformly positive, effects on math tests; reading tests improved somewhat in response to the non-financial incentives. Boys responded positively to the \$20 rewards, but there were no consistent effects among girls, leading the authors to conclude that girls may be more intrinsically motivated than boys. There was no evidence that providing rewards decreased effort on subsequent tests.

The authors conclude that “in the absence of immediate incentives, many students put forth low effort on the standardized tests that we study. These findings have important implications for policymakers because standardized assessment tests are often high-stakes for teachers and principals...but low-stakes for the individual students choosing to exert effort on the test.”

—Linda Gorman

## The Life Cycle of Plants in India and Mexico

**A**s U.S. manufacturing plants age, they become more pro-

ductive and employ more workers. But in India, old plants show

little improvement over new plants in terms of workers or

productivity. Mexico does a little better: the average 40-year-old plant employs double the workers of a young plant, but that's nowhere near the American average of eight times as many workers at a 40-year-old plant compared with a plant that is five years old or less.

These patterns hold across many manufacturing sectors in the formal as well as the informal portions of the economy, according to **Chang-Tai Hsieh** and **Pete Klenow**. In **The Life Cycle of Plants in India and Mexico** (NBER Working Paper No. 18133), they conclude that this employment gap suggests that Indian and Mexican factories aren't investing as much as their U.S. counterparts in process efficiency, quality, and in accessing foreign and domestic markets. The result is a potential reduction of 25 percent or so in aggregate manufacturing productivity for these developing nations when compared with American productivity.

Why is average plant productivity lower in poor countries? The authors argue that "a certain type of misallocation — specifically misallocation that harms large establishments — can discourage investments that raise plant productivity and thus lower the productivity of the average plant in poor countries." One reason

the authors chose Mexico and India for this study is because of their reliable manufacturing data, which allow the researchers to track the life

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"Indian and Mexican factories aren't investing as much as their U.S. counterparts in process efficiency, quality, and in accessing foreign and domestic markets."

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cycle of plants in the informal as well as the formal parts of the economy. In Mexico, this data indicate that the plant's workforce doubles by the time the plant reaches age 25, which is similar to the U.S. experience. But after 25 years, plant growth stagnates, while in the United States it continues to swell. In India, plant employment hardly grows at all: 17 of 19 two-digit industries saw average employment grow less than 20 percent for plants over 40 years old versus those less than five years old.

Why don't Indian and Mexican factory owners invest more in their plants? The authors point to several factors that discourage them from getting too big. India's labor regulations and taxes, for instance, apply to large firms but less so to smaller firms. Mexico enforces its payroll taxes on large plants more stringently than on small ones. Also, manufacturing plants are more likely to be family owned in India and Mexico and, thus, to rely on unpaid family work-

ers (in 2005–6, such unpaid labor provided 62 percent of all India's employment; in 2008, nearly 30 percent of Mexico's employment).

Moreover, the wage gap between large plants and small ones is double that in the United States, further discouraging plants from growing larger and taking on more expensive labor. The authors mention other potential factors: the need for bigger plants to supplement electric power from the grid with their own more expensive generators in India; and Mexican and Indian factories finding it difficult to buy more land, find skilled managers, and ship goods.

The result of these potential frictions to plant growth is that total factor productivity (TFP) suffers in older Mexican and Indian plants compared with their U.S. counterparts. "[L]ower life-cycle growth in Mexico and India can have important effects on aggregate TFP," the authors conclude. "Moving from the U.S. life cycle to the Indian or Mexican life cycle could plausibly produce a 25 percent drop in aggregate TFP."

— Laurent Belsie

## Who Benefits from Cheap Crude Oil in the Midwest?

Beginning in 2011, increases in crude oil production from North Dakota's shale resource and Canada's tar sands created a transportation bottleneck as the pipelines capable

of carrying oil from the Midwest to the Gulf Coast reached full capacity. This constraint caused the benchmark Midwest crude oil price to fall substantially below the "world" oil

price on the Gulf Coast, despite the fact that these two prices have been very close to one another historically.

**In The Incidence of an Oil Glut: Who Benefits from Cheap**

**Crude Oil in the Midwest?** (NBER Working Paper No. 18127), authors **Severin Borenstein** and **Ryan Kellogg** show that this relative price change has not passed through to markets for refined products: Midwest wholesale prices for gasoline and diesel have not fallen relative to those along the Gulf Coast. The authors explain that the marginal gallon of gasoline (and diesel) in the Midwest is being imported from the Gulf Coast, where it is refined using relatively expensive crude oil. In other words, while trade in crude oil between the Midwest and Gulf Coast is capacity constrained, trade in refined products is not. In fact, the Midwest is actually importing rather than exporting gasoline and diesel.

The authors' results imply that the primary beneficiaries of depressed Midwest crude oil prices have been Midwest refiners rather than Midwest consumers (Midwest and Canadian crude oil producers are, of course, bearing the costs). The authors emphasize that

this outcome does not imply that Midwest refiners are exerting market power. Instead, they are operating at or near their production

projects will relieve the Midwest crude oil export bottleneck as they come on-line, bringing the Midwest oil price closer to, if not ultimately

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“The primary beneficiaries of depressed Midwest crude oil prices have been Midwest refiners rather than Midwest consumers.”

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capacity while benefitting from the fact that the marginal refined product suppliers from refineries on the Gulf Coast are producing from more expensive crude oil.

The substantial rents accruing to Midwest refiners, and to holders of the limited Midwest crude oil export capacity, strongly suggest that the present situation is not a long-run equilibrium. In fact, several investment projects have already been announced or are underway that would increase Midwest crude oil export capacity, including construction of the southern segment of the controversial Keystone XL pipeline (the northern segment would expand capacity from the Canadian tar sands to the Midwest). These

back into equality with, the Gulf Coast price. This re-equilibration will primarily increase the Midwest crude oil price rather than decrease the Gulf Coast price because the Gulf Coast is tied to the very large world oil market, of which the Midwest is only a small part.

Because expanding Midwest crude oil export capacity will have only a minimal impact on Gulf Coast and world oil prices, U.S. consumers outside the Midwest will not experience a decline in gasoline prices. As for Midwest consumers, the authors' results imply that capacity expansions that increase the Midwest crude oil price will not increase the Midwest gasoline price.

—Lester Picker

## Multinationals and the High Cash Holdings Puzzle

**In Multinationals and the High Cash Holdings Puzzle** (NBER Working Paper No. 18120), authors **Lee Pinkowitz**, **René Stulz**, and **Rohan Williamson** find that the cash holdings of American multinational companies increased sharply in the early 2000s and have continued to be unusually high since the financial crisis. Moreover, although U.S. firms held less cash than com-

parable foreign firms in the late-1990s, they held more cash than those firms by 2010.

capitalization greater than \$5 million per year. They compare recent cash holdings with estimates of what

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“Although U.S. firms held less cash than comparable foreign firms in the late-1990s, they held more cash than those firms by 2010.”

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The authors analyze data on all non-financial and non-regulated public firms with assets and market

these holdings would have been for similar firms in the economic environment of the 1990s. The U.S. cor-

porations' cash holdings after the financial crisis were substantially greater than those of firms with similar characteristics in the late 1990s — the authors estimate the increase in cash holdings to be about 1.86 percent of assets on average in 2009–10 relative to 1998–2000.

This increase in cash holdings among U.S. firms is confined to multinational firms; domestic firms do not display this pattern. In fact, while

U.S. multinational firms had cash holdings similar to those of purely domestic firms in the late 1990s, since the crisis they have held over 3 percent more assets in cash than comparable purely domestic firms.

The authors show that the increase in cash holdings of multinational firms cannot be explained by the tax treatment of profit repatriations. Nor is there evidence that firms that become multinationals

start holding more cash after they become multinational. Instead, it appears that firms that become multinationals have attributes that lead them to hold large amounts of cash, even before they become multinationals. The authors do not find that poor investment opportunities, regulation, or poor governance can explain the high cash holdings of U.S. firms since 2008.

— Claire Brunel

## The End of Rent Control in Cambridge

In 1995, two months after voters in a state-wide referendum approved the elimination of rent-control policies in communities across Massachusetts, controls on apartment rental prices were almost entirely abolished in the city of Cambridge. In **Housing Market Spillovers: Evidence From the End of Rent Control in Cambridge, Massachusetts** (NBER Working Paper No. 18125), authors **David Autor, Christopher Palmer, and Parag Pathak** estimate that abolishing rent control added about \$1.8 billion to the value of Cambridge's housing stock between 1994 and 2004, nearly a quarter of Cambridge's total residential price appreciation in this period. Nearly \$1 billion of this increase came from the positive spillover impact of decontrol on the valuation of residential properties that were *not* previously covered by rent control.

In 1970, the city of Cambridge imposed far-reaching rent controls on residential properties built prior to 1969, placing strict caps on rent-

price increases and implementing policies that made it difficult for property owners to remove rent-

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“The end of rent control raised the overall valuation of Cambridge's housing stock by \$1.8 billion between 1994 and 2004, more than \$1 billion of which was due to spillovers to never-controlled houses.”

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controlled units from the rental stock. Significantly, residential units built after 1968 and owner-occupied homes were exempt from the new rent-control rules. In all, more than one-third of the city's total residential units were subject to rent control.

In 1994, opponents of rent-control policies in Massachusetts placed a referendum question on the November general-election ballot that asked voters whether to eliminate rent-control ordinances and laws in cities and towns across the state, including in Cambridge. The state referendum to ban rent controls narrowly passed, by a 51-to-49 percent margin.

Just prior to the elimination

of rent control in 1995, controlled units typically rented at 25 to 40 percent below the prices of nearby

uncontrolled units, a clear benefit to tenants in those units. But valuations of rent-controlled units were significantly lower than non-controlled units, and evidence indicates that ownership investments in rent-controlled units, including maintenance, upkeep and capital improvements, were lower than investments in non-controlled units.

Immediately following rent decontrol, rents at formerly controlled units in Cambridge increased steeply. Simultaneously, residential turnover rose sharply, with the sharpest increase occurring at decontrolled units as tenants relocated in the face of rising rents. Over the next several years, direct dollar investments in hous-

ing units, as measured by building-permit filings, more than doubled on an annual basis.

To estimate the effect of decontrol on real estate values, the authors exploit a wealth of before-and-after property sales and assessment data from city real estate records, valuation and sales figures, building-permit filings, and U.S. Census data. Because the density of rent-control units varied from neighborhood to neighborhood, the authors are able to track inter-neighborhood and cross-neighborhood changes in housing prices, both within Cambridge and in nearby cities and

towns that never had rent controls.

As theory would predict, the assessed values of previously controlled properties, which generally had lower valuations before the statewide referendum of 1994, increased substantially, by approximately 18 to 25 percent. More surprisingly, the authors also find a “large and significant” spillover impact from the removal of rent controls onto the valuation of never-controlled properties. Exploiting cross-neighborhood variation in the proximity of never-controlled units to previously controlled units, the authors estimate that decontrol raised the mar-

ket value of never-controlled units by 12 percent on average between 1994 and 2004.

Although the value of previously controlled units rose by proportionally more than the value of never-controlled units, the never-controlled units were both more numerous and more desirable than the decontrolled units. Consequently, more than half of the induced rise in residential real estate values — about \$1 billion — was due to positive spillovers to market value of never-controlled housing units.

—Jay Fitzgerald

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