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Medicare Part D Saves Money for Many Participants

Passed in December 2003 and operational in January of 2006, Medicare Part D subsidizes prescription drugs for the elderly in the United States by contracting with private plans to provide drug coverage. Part D enrollment is voluntary. The government pays each plan a lump sum for each enrollee that chooses it, and the private plans, not the government, negotiate drug prices.

In **The Effect of Medicare Part D on Pharmaceutical Prices and Utilization** (NBER Working Paper No. 13917), co-authors **Mark Duggan** and **Fiona Scott Morton** review Part D's performance in its first year and estimate that a branded drug sold to an elderly consumer covered by a Medicare Part D plan cost at least 24 percent less than the same drug sold to an uninsured consumer. Branded pharmaceutical prices on average rose from 2003 to 2006, but those brands with substantial sales moving from cash-paying patients to Medicare Part D patients increased much less than other brands. At least for the first year of the program, these results do not support the claim that leaving the federal government out of Part D price negotiations would cause branded drug prices to rise.

Relative price declines were concentrated in therapeutic categories in

which plans could pick and choose the favored drugs from a variety of therapeutic substitutes. Interestingly,

“A branded drug sold to an elderly consumer covered by a Medicare Part D plan cost at least 24 percent less than the same drug sold to an uninsured consumer.”

these price declines did not appear in the therapeutic categories in which there are very few substitutes for a treatment, suggesting that plans' ability to shift sales among substitute products creates price competition.

The authors conclude that, “a significant benefit of the program is the way it is organized, regardless of the subsidies.” Approximately half of Medicare recipients' prescription drug expenses were paid for out of pocket, and the movement “of Medicare recipients from cash-paying uninsured status to insured under a plan” caused the observed decline in per unit prices. The results suggest that elderly consumers would pay less for their prescriptions in a Part D plan with a zero subsidy than they would by paying cash.

The benefit arises from the way in which private plans drive use towards less expensive therapeutic substitutes. The gains from doing this apparently outweigh the “classic insurance-induced increases in pharmaceutical prices” and lead to a

reduction in overall program expenditures. These results did not suggest that Part D coverage affected either

price or utilization for Medicare recipients who already had prescription drug coverage.

Pharmaceutical sales data for branded drugs, excluding those to hospitals and long-term care facilities, came from IMS Health. Data on individual drug use, Medicare market share, and insurance status came from the Medical Expenditure Panel Survey (MEPS). The researchers compared prices and quantities prescribed in 2006 with prices and quantities prescribed in the base year of 2003. The authors caution that their results do not include the effects of any drug rebates or the effects on price or utilization for any drugs or treatments introduced after 2003. They add that the effects of Part D on the health and out-of-pocket expenditures of Medicare recipients remain an important area for future research.

—Linda Gorman

Why do Foreigners Invest in the United States?

One of today's most contentious economic debates is whether the current system of large global imbalances can continue. Some researchers suggest that this system will not persist because the United States must stabilize its external debt ratios, and part of that adjustment will involve a large depreciation of the dollar (even more than has occurred so far). Others argue that global imbalances could continue for an extended period because of factors that make U.S. assets more attractive and the persistent return differential between U.S. and foreign asset holdings. Most researchers agree that the greatest short-term vulnerability to the current system is the willingness of foreigners to continue to invest almost \$2 trillion per year into the United States at existing exchange rates and interest rates.

Over the five years from 2002 through 2006, gross capital flows into the United States totaled \$6.2 trillion. Foreigners invested an average of over \$5 billion in the United States every day, despite relatively low returns compared to investments in other countries and the widespread expectation of continued dollar depreciation. Moreover, over two-thirds of U.S. external liabilities were held by the private sector by the end of 2006. What motivates the individual decisions that drive these capital inflows, and can this massive net transfer of capital into the United States last?

In **Why Do Foreigners Invest in the United States?** (NBER Working Paper No. 13908), **Kristin Forbes** notes that foreigners have earned substantially lower returns on their U.S. investments over the past five years than U.S. investors have earned abroad, even after removing the effects of exchange rate movements and government investments. This return differential exists even within individual asset classes (equi-

ties, foreign direct investment, and to a lesser extent, bonds) and after making rough adjustments for risk.

Still, foreign investors might choose to continue investing in the United States and financing the large U.S. current account deficit for several reasons. Indeed, they may choose

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to purchase U.S. portfolio investments in order to benefit from the highly developed, liquid, and efficient U.S. financial markets, and from the strong corporate governance and institutions in the United States—although both of these perceived strengths of the United States have shown some vulnerabilities during the recent financial market turmoil. Foreigners also may invest in the United States in order to diversify risk, especially if returns in U.S. financial markets have little correlation with returns in their own country’s domestic financial markets. Or, investors outside the United States may put their money here because of their strong linkages with the United States, through trade flows or such measures of “closeness” as distance, inexpensive communications, or sharing a common language.

Forbes asks which of these factors are actually significant in determining foreign investment in the United States. She finds that a country’s financial development is consistently an important factor that affects its investment in both U.S. equity and debt markets. Specifically, countries with less developed financial markets invest a larger share of their portfolios in the United States and the magnitude of this effect decreases with income per capita. Her estimates suggest that if China’s bond market

were as well developed as the cross-country average — about the level of development in South Korea — then China’s predicted holdings of U.S. bonds would be about \$200 billion below their current level.

Countries with fewer controls on capital flows and larger trade flows

with the United States also invest more in U.S. equity and debt markets. And, return differentials are important in predicting U.S. equity (but not bond) investments, because foreigners invest more in U.S. equities if they have had relatively lower returns in their own equity markets. Finally, despite strong theoretical support, it appears that diversification motives have little impact on patterns of foreign investment in the United States.

Forbes notes that these results—and especially the primary role of a country’s financial market development in determining its investment in the United States—have three important implications. First, the results support the theoretical literature on global imbalances that emphasizes the role of U.S. financial markets. Although the exact mechanism varies across models, one key theme in recent research is that lower levels of financial market development in other countries will continue to support capital flows into the United States, thereby supporting the U.S. current account deficit and large global imbalances without major changes in asset prices. A second, related, implication is that as countries around the world continue to develop and strengthen their own financial markets, this will gradually reduce this important driver of capital flows into United States.

These adjustments would likely occur slowly, though, because the development of financial markets, especially in low-income countries, is a long process. Finally, and potentially more worrisome, because the liquid and efficient financial markets of the United States are a major impetus behind U.S. capital inflows, anything that undermines the perceived advan-

tages of U.S. equity and bond markets could present a serious risk to the sustainability of U.S. capital inflows. The U.S. sub-prime crisis and continued turmoil in U.S. financial markets already may have undermined this perceived “gold standard” of financial markets, and the risk of a sudden increase in poorly thought-out regulation may aggravate these concerns.

If countries with less developed financial markets begin to question the relative advantages of U.S. financial markets, this could lead to a more rapid adjustment in U.S. capital inflows, global imbalances, and asset prices.

— Les Picker

Gender Differences: The Role of Institutions

Although women have made significant advances in catching up economically with men, gender differences in wages and in representation in high-profile jobs remain. The psychological literature suggests that women and men may differ in ways that affect economic decisions such as their self-perception of ability. Furthermore, perceptions of competence are intimately tied to expectations, aspirations, persistence, and the preference for challenging tasks. Women may not only be less certain about their abilities but also more risk averse, and less willing to explore and test their abilities. If women and men have different perceptions about their abilities to perform in new environments, and different tendencies to act on such perceptions, then they are likely to make different choices. If women shy away from more challenging tasks, they may be under-represented relative to their actual abilities, which in turn may result in gender differences in economic outcomes.

In **Gender Differences in Seeking Challenges: The Role of Institutions** (NBER Working Paper No. 13922), authors **Muriel Niederle** and **Alexandra Yestrumskas** first ask whether *for a given ability* women and men differ in their preference to perform a more challenging task. They then study the impact of these differences on economic outcomes,

and place special emphasis on understanding the underlying causes. They also investigate which changes in institutions can affect the choices of women and men, such that those choices will reflect the participants’ performance levels rather than their gender. As such, the authors’ research

initial task corresponds to luck versus real ability, for example. Specifically, women may attribute success to luck and failure to ability, while men attribute success to ability and failure to luck.

As the authors point out, only by understanding gender differences can

“Large gender differences in the propensity to choose challenging tasks... appear to be driven by gender differences in risk aversion and in confidence about the ability to perform a new and potentially difficult task.”

is part of the growing literature on the effect of non-cognitive skills and attitudes, and how gender differences in these skills and attitudes affect economic outcomes.

Niederle and her co-author find that strong preferences for the characteristics of the task (including the feedback that participants can receive about their ability level from performing various tasks) alone cannot explain the choices of women and men. Gender differences in preferences for challenging tasks are driven by differences in certainty about one’s ability to perform in more challenging environments, or by differences in attitudes toward specific risks, or by uncertainty in general. For example, women may be more uncertain than men in their belief that they can perform at a high level. This could be driven by gender differences in beliefs about how much performance of the

policymakers start to design institutions that will accommodate both genders. Simple changes in institutions can have a big effect on the self-selection of women and men. For example, the authors predict that reducing the expectation of up-front commitment may especially help high performing women to move into harder and more challenging tasks.

Ability alone cannot explain the absence of women in male dominated fields. In natural settings, issues such as discrimination, the amount of time devoted to the profession, and the desire of women to raise children may provide some explanation for the choices of women. However, the authors examine an environment in which women and men perform equally well, and in which issues of discrimination, or time spent on the job do not have any explanatory

power. Even so, they find large gender differences in the propensity to choose challenging tasks, with men choosing the hard task on average 50

percent more often than women, for any given performance level. These differences appear to be driven by gender differences in risk aversion

and in confidence about the ability to perform a new and potentially difficult task.

— Les Picker

Macroeconomic Crises Since 1870

An economic crisis may be defined as a situation in which a nation's per capita GDP or consumption suffers a fall of at least 10 percent over a short period. For example, in the United States from 1929 to 1933, per capita GDP fell by 29 percent, while per capita consumer spending fell by 21 percent. In France, per capita GDP fell by 41 percent from 1939 to 1944, while per capita consumer spending fell by 58 percent from 1938 to 1945. Because large macroeconomic disasters are rare, determining their probability and the distribution of disaster sizes requires long time series of national-accounts data for many countries. In **Macroeconomic Crises Since 1870** (NBER Working Paper No. 13940), co-authors **Robert Barro** and **Jose Ursua** expand the scope and reliability of the Maddison data and examine patterns in the long-term GDP and consumer-spending data. Among other things, the researchers study the interplay between macroeconomic variables and rates of return on various financial assets.

The research focuses on cases with full annual time series from before 1914 and often back to 1870. Using these data, the study identifies 152 GDP crises for 36 countries and 95 consumption crises for 24 countries. The principal disaster events worldwide were World War II, World War I, the Great Depression, post-World War II crises in Latin America and Asia, and possibly the Great Influenza Epidemic of 1918–20. The estimated probability of disaster is around 3.5 percent per year, with an average size of 22 percent and an average duration of 3.5 years. Typically, GDP and consump-

tion fall concurrently, though consumption tends to fall proportionately more in wartime. For example, during both world wars, GDP increased in the United Kingdom while consumer expenditure fell sharply—the difference chiefly being attributable to the growth in military spending.

Long-term data on rates of return

“The estimated probability of disaster [a decline in national income or consumption of more than 10 percent in a year] is around 3.5 percent per year, with an average size of 22 percent and an average duration of 3.5 years. Typically, GDP and consumption fall concurrently, though consumption tends to fall proportionately more in wartime.”

for stocks, bills, and bonds come from Global Financial Data. Simple models calibrated with the new data on macroeconomic disasters turn out to be consistent with the average equity premium of around 7 percent and the average real bill rate of around 1 percent shown in the financial-returns data. This match between theory and data requires a reasonable coefficient of relative risk aversion of around 3.5. This result is robust to several variations in specification and sample, except for limiting the sample to non-war crises, a selection that eliminates most of the largest declines in personal consumer expenditure and GDP.

Barro and Ursua plan a statistical analysis that uses all the time-series data and includes estimation of long-term effects of crises on levels and growth rates of personal consumer expenditure and GDP. They will also allow for time-varying disaster probability, an extension needed to account for the high volatility of stock returns. And, they will study the bond-bill premium (empirically around 1 percent). In addi-

tion, they will expand the 24-country sample for personal consumer expenditure and the 36-country sample for GDP. Candidates for this expansion are Malaysia and Singapore (with gaps around World War II); Russia back to the pre-World War I period; Turkey (where data for the Ottoman Empire have to be added through World War

I); and Ireland (where data are missing prior to independence). The researchers are also reassessing the pre-1929 data for the United States, including the period of missing information during the Civil War years.

The authors hope to go further in measuring the division of personal consumer expenditure between durables and non-durables, and possibly government consumption as well. They also plan to construct time series for personal consumer expenditure and GDP per capita at regional levels, such as the OECD, Western Europe, Latin America, or even the “world.” Such study is valuable when countries are integrated through financial and other markets. Finally, Barro and Ursua are working on a different approach to measuring time-varying disaster probabilities, this one using U.S. data since the early 1980s on prices of stock-index options to gauge changing market perceptions of the likelihood of adverse shocks.

— Matt Nesvisky

A Black Swan in the Money Market

Following the unexpected leap in interest rates on the overnight loans between banks in early August 2007 and the subsequent turmoil in world money markets—a so-called “black swan” event, something that market participants had not seen before and therefore assumed could not exist—the Federal Reserve took several steps to stabilize the situation. In **A Black Swan in the Money Market** (NBER Working Paper No. 13943), **John Taylor** and **John Williams** demonstrate that increased counterparty risk between banks contributed to the rise in money market interest rate spreads. They find no evidence that the Fed’s liquidity measures reduced these spreads.

The Fed made several attempts to improve conditions in money markets and thereby reduce the spread between term inter-bank lending rates, such as the three-month Libor (London Inter-Bank Offer Rates), and the overnight rate. An initial step, lowering the penalty on borrowing at the discount window, and thus bringing the discount rate below the prevailing Libor, failed to encourage banks to borrow from the discount window. Four months after the crisis had begun, the Fed introduced the Term Auction Facility (TAF), which allowed banks to borrow from the Fed without using the discount window.

Because the spread narrowed between December 2007 and the end of February 2008, it appeared that the TAF was working. Soon, however, the spread began widening again, and the renewed stress in the markets necessitated a host of new Fed actions and lending facilities. Since the financial turmoil continues to this day, Taylor and Williams analyze the initial phase of the crisis, specifically the 161 trading days between August 9, 2007 and March 30, 2008. They focus on three key money market interest rates: the target for the federal funds interest

rate as set by the federal Open Market Committee, the daily effective overnight federal funds rate in the market, and the interest rate on the three-month Libor.

The “black swan” is perhaps most notable by the fact that from January through August 8, 2007, the standard deviation of difference between effective funds rate and the target was only 3 basis points, but from August 9, 2007 to March 30, 2008 the standard deviation was 20 basis points. Taylor

“The authors find no statistical relationship between the LIBOR-OIS interest rate spread and the utilization of the Term Auction Facility.”

and Williams suggest that the spreads between the three-month Libor and the Fed’s overnight federal funds rate target increased dramatically starting in August and fluctuated erratically thereafter. During the year prior to August 9, 2007, the three-month Libor spread above the target federal funds averaged only 11 basis points with a standard deviation of merely a single basis point. Similar non-volatile changes in spreads between term rates and overnight rates were apparent for other Libor maturities and for several other countries.

Among the many explanations put forward for the marked increase in the Libor spread are “counterparty risk” (bearing in mind that inter-bank lending in the Libor market or term, Fed funds is unsecured); “liquidity risk,” in which traders at one bank are reluctant to expose their institution’s funds during a period in which those funds might be needed to cover the bank’s own shortfalls; the notion that banks needed liquidity for purposes of their balance sheets in end-of-year financial reports; and expectations of future interest rate changes, especially declining rates.

To test these risk, liquidity, and expectation theories, Taylor and Williams developed a model

that examined the Libor rate, the Overnight Index Swap (OIS) rate, and the accepted bid on the Term Auction Facility (TAF). Comparing the behavior of these three activities and plotting their spreads allowed the researchers to separate out patterns of risk, liquidity, and expectations. For comparison and for supporting evidence, they also applied the same adjustment method to calculate the Libor spreads in the Euro, sterling, yen, and other currencies.

The researchers applied simple regressions to daily data to test how risk measures and liquidity measures like the Federal Reserve’s Term Auction Facility affected the Libor-OIS spread. Five sets of regressions corresponding to different risk measures all emerge with highly significant results in both one-month and three-month maturity regressions. But, in stark contrast, the authors find no relationship between the TAF and the interest rate spread.

Nor should this be especially unexpected, say Taylor and Williams. They remind us that in assessing the effects of the TAF, it is important to note that it does not increase the amount of total liquidity in the money markets. Any increase in liquidity that comes from banks borrowing from the Fed using the TAF will be offset by open market sales of securities by the Fed to keep the total supply of reserves from plummeting. The actions are essentially automatic in the sense that the Fed must sell securities to keep the federal funds rate on target. For these reasons, Taylor and Williams conclude that counterparty risk is a key factor in explaining the spread between the Libor rate and the OIS rate, and the TAF should not have an effect on the spread.

—Matt Nesvisky

Mentoring Reduces Turnover Among Teachers in New York City

Over one million new teachers in the United States were mentored between 1993 and 2003. The main goal of mentoring programs is to reduce turnover among new teachers. Yet in **Does Mentoring Reduce Turnover and Improve Skills of New Employees? Evidence From Teachers in New York City** (NBER Working Paper No. 13868), NBER researcher **Jonah Rockoff** points out that little is known about “the magnitude of the benefits they [new teachers] have received or how the impact of mentoring varies across different types of programs.”

To better understand this subject, Rockoff studies the \$40 million mentoring program designed by New York City and the New Teacher Center at the University of California at Santa Cruz. The program was developed to satisfy a state law requiring that all teachers with less than a year of teaching experience receive a “mentored experience.” Among the teachers participating in the New York City program, 97 percent continued teaching until the end of the school year, 90 percent returned the following year to

teach somewhere in New York City schools, and 80 percent returned to teach at the same school. Mentors who had taught (and worked as a mentor) in a teacher’s school raised that teacher’s propensity to return to the same school the following year. Also, having a mentor who had previously taught in the same school reduced teacher absences by 0.6 days, slightly less than the 0.7-day reduction associated with

mentors’ subject matter expertise with teachers’ subject matter did not make a difference either.

Still, mentor characteristics that had little effect on teacher rankings were significantly related to student achievement in math and reading. When standardized test scores in grades 4 through 8 were used as a measure of student achievement, and after controlling for student demographics,

“When standardized test scores in grades 4 through 8 were used as a measure of student achievement, and after controlling for student demographics, the hours of mentoring provided had positive effects on reading and math achievement.”

giving new teachers common planning time with other teachers.

Teachers’ ratings of mentors improved as their hours of mentoring increased and when the mentors and teachers were the same gender. On average, same-gender mentors received evaluations that were 0.13 standard deviations higher. However, experience in mentoring, teaching, or at the Department of Education had no observable effect on the ratings of mentors by teachers. And matching

the hours of mentoring provided had positive effects on reading and math achievement: test scores increased by 0.05 standard deviations in math and 0.04 standard deviations in reading. On the other hand, common teacher planning time had no effect on student achievement, and having a mentor with more Department of Education experience was negatively related to student achievement in both subjects.

—Linda Gorman

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