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The Impact of the Euro and Prospects for the Dollar

Will the euro replace the dollar as the leading international currency? With two-thirds of all international reserves still held in U.S. currency, the challenge of the euro appears remote. Indeed, this was the widely held view when the euro was introduced less than a decade ago. But in **Optimal Currency Shares in International Reserves: The Impact of the Euro and the Prospects for the Dollar** (NBER Working Paper No. 12333), authors **Elias Papaioannou, Richard Portes, and Gregorios Siourounis** argue that the euro's rise to major international currency status may no longer be as implausible as many believe.

The euro's growing appeal comes from several factors: the euro zone is comparable to the U.S. economy in term of GDP and trade openness; the European Central Bank has kept inflation in check; the EU experiences nothing like America's current account deficit and external debt, which apply considerable pressures on the dollar. In a 2005 survey of central banks, most respondents said they intended further diversification away from the dollar, and several have recently made public announcements along these lines.

Papaioannou and his colleagues study the composition of central banks' foreign exchange reserves to learn how changes in the invoicing of financial and international trade transactions affect the composition of reserves. They find that the choice of reference currency, currency pegs, and the currencies of foreign exchange market intervention strongly influence the composition

of reserves. All of this in turn may yield insights on other aspects of internationalization. Reserve growth in recent years has been dramatic, with emerging markets and developing countries tripling their reserves since 1998. In addition, rising prices for oil and other commodities have increased foreign

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reserves in fuel-exporting countries. These reserves come primarily from U.S. current account deficits. Even a limited shift out of dollar assets, the researchers say, could result in significant exchange rate movements—in particular, sizable dollar depreciation.

The analysts assess the impact of the euro on international reserve holdings via a dynamic mean-variance currency portfolio optimizer in a before-after event study framework. Making various assumptions about the returns to holding the five main international currencies (dollar, euro, Swiss franc, British pound, and Japanese yen), they obtain the optimal portfolio composition of central banks' foreign exchange reserves for the 11 years surrounding the introduction of the euro in 1999. They look at a theoretical "representative central bank" at the aggregate level and compare these estimated optimal shares with the actual aggregate shares reported by the International Monetary Fund. The results show an increase in the shares of both the dollar and the euro in recent years at the expense of other currencies, with the euro gradually becoming

more important, especially in the developing world.

Among their findings, Papaioannou, Portes, and Siourounis report the following: the mean-variance optimization framework yields roughly equal allocations of the four main non-dollar currencies, and the optimal

euro share is actually lower than what they observe. This suggests an increasing international role for the euro, which leads to higher reserve holdings in the European currency than optimal portfolios would show. So far, however, this increased internationalization comes primarily at the expense of the yen, Britain's pound sterling, and the Swiss franc rather than against the dollar.

In addition, in recent years the spreads on transactions in the euro have fallen sharply and have narrowed significantly for other industrial countries' currencies as well, thus making diversification away from the dollar more attractive. The researchers moreover augment the currency optimizer with constraints capturing the desire of central banks to hold sizable portions of their holdings in the currency of their external debt and in the trade invoicing currency. They perform some simulations for four emerging market countries (Brazil, Russia, India, and China) that have recently accumulated large foreign reserve assets and find larger weights for the euro than the aggregate estimate for the "representative central bank." This indicates that

the euro's challenge to the dollar might occur sooner than imagined.

Finally, the authors find that the reference currency, or the choice of risk-free asset, is the chief determinant in the optimal composition of reserves in the mean-variance framework. But in practice, where there is a managed exchange rate regime, the reference currency is naturally the currency or currencies to which a country's own currency is

pegged. This suggests a major challenge to the dollar if more countries move away from managing their exchange rates with respect to the dollar and adopt euro-based anchors or baskets in which the euro figures strongly.

The researcher's results also suggest, however, that a substantial increase in the euro's share of central bank reserves would require that more countries include the euro in their currency pegs (the composition of

debt and trade having smaller effects than the choice of reference currency) and that the scope for active central bank management of their portfolios widen by permitting them to take short positions (which becomes increasingly important with the observed trend to increased co-movement of the major currencies).

— Matt Nesvisky

Where Did All the Leisure Go?

Considering rising business productivity and the spread of labor saving household appliances, Americans today must have far more leisure than their counterparts in 1900, right? Well, maybe not. It depends on how you measure work and leisure and which sectors of the population are included in the analysis.

In *A Century of Work and Leisure* (NBER Working Paper No. 12264), **Valerie Ramey** and **Neville Francis** take a fresh look at work versus leisure trends through the twentieth century. They conclude that some 70 percent of the decline in hours worked has been offset by an increase in hours spent in school. Further, contrary to conventional wisdom, average hours spent in "home production"—that is, cooking, cleaning, caring for children, and the like—are actually slightly higher now than they were in the early part of the last century. Meanwhile, leisure per capita is approximately the same now as it was in 1900.

Some busy couples, with both spouses working, may not find these findings so surprising. But they would likely be a surprise to the famed British economist, John Maynard Keynes, who predicted in a 1930 essay—"Economic Possibilities for Our Grandchildren"—that rising productivity would result in a large increase in leisure during the next hundred years. And, he speculated that the central problem for humanity would be using its abundant leisure time in a meaningful way.

Several studies do support the Keynes' forecast. For instance, Maddison shows that hours worked per employed person in the United States have fallen from around 2,700 a year to almost 1,600 a year in the last

105 years. But Ramey and Francis regard such studies as telling only part of the story, since they omit changes in labor force participation rates and in non-leisure activities. They argue that their study involves "more

"While leisure per capita has varied over the last 105 years and has exhibited some low frequency movements, it is the same now as it was 105 years ago."

comprehensive and better measurements of hours of non-leisure time and the potential workforce."

For example, rather than using the "working age" population—that is the civilian non-institutional (not in prison or otherwise incarcerated) population aged 16 and over—Ramey and Francis use the total population in most of their study. That's because the restrictions on child labor have changed so much over the last hundred years. Children were important workers on family farms early last century; that explains why school vacations, even today, are long and in the summer. In 1910, the Census showed that 25 percent of male children aged 10 to 15 were employed.

"To the extent that the representative household cares about all of its members, interactions between different age groups may be important for understanding trends in adult leisure," Ramey and Francis add. Further, the fraction of the population aged 65 and over has risen from 4 percent in 1900 to more than 12 percent in 2000. That too has an impact on hours of leisure.

The authors also regard as relevant the hours of work of government employees (teachers, civil servants, and so on), the time spent commuting to and from work, the time spent in formal education, and the time

spent in home production. They use surveys asking individuals to rate their enjoyment of various activities and classify as leisure those with the highest enjoyment scores, including sex, playing sports, playing with or reading to

the kids, art, music, movies, sleep, reading, recreational travel, and so on—all activities that give direct enjoyment. They classify as work baby care, gardening, a second job, cooking, basic child care, care of other adults, doing homework, pet care, housework, grocery shopping, home repair, paying bills, laundry, yard work, and so on.

The authors admit that there is a "degree of imprecision" in some of their estimates, especially for the early part of the last century and for home production. For instance, they include hours worked by sole proprietors and their unpaid family members working with them. The authors assume, too, that commuting time in the early part of the twentieth century was the same as later in the century—that is, about 10 percent of total hours worked, since in those early days most people worked on Saturdays.

Hours spent on education have risen, of course, as attendance in secondary schools has become the standard. Over the century, school hours rose from 330 per year to almost 900 per year for those ages 5 to 22.

In looking at housework, the authors rely on a host of studies. They note that early in the last century, "Having clean clothes, clean dishes, a clean house, and well-cared for children was just another luxury the poor could not afford." For

the poor, many meals consisted of simple, unheated foods. Working-class families often could not afford the fuel to cook. The authors also quote Betty Friedan, writing in her 1963 book, *The Feminine Mystique*: “housewifery expands to fill the

time available.” Labor saving appliances were used to help bring about a revolution in sanitation, cleanliness, and better nutrition. Also, educated parents spend more time with their children.

The surprising conclusion here is:

“While leisure per capita has varied over the last 105 years and has exhibited some low frequency movements, it is the same now as it was 105 years ago.”

— David R. Francis

Would Higher Salaries Keep Teachers in High-Poverty Schools?

The Federal No Child Left Behind Act mandates that every classroom in the United States be led by a “highly effective” teacher. Shortages of such teachers most commonly occur in schools serving very poor students, and in subject areas such as math and science, where highly qualified teachers can easily find work in other industries. Basic economics suggests that the easiest way to eliminate a shortage in a labor market is to increase wages. Yet the concept of offering higher salaries to teachers in certain subject areas, or in the most disadvantaged schools within a district, is relatively novel in the United States. And since these policies are infrequently implemented, few if any evaluations have been conducted to determine the effectiveness of money as a tool for convincing teachers to take jobs that they would not otherwise consider.

Beginning in 2001, North Carolina amended its teacher compensation schedule to award an annual \$1,800 bonus to science, math, and special education teachers working in high poverty or academically struggling public secondary schools. The program lasted for three years. In **Would Higher Salaries Keep Teachers in High-**

Poverty Schools? Evidence from a Policy Intervention in North Carolina (NBER Working Paper No. 12285), authors **Charles Clotfelter, Elizabeth Glennie, Helen Ladd, and Jacob Vigdor** use administrative payroll data from North Carolina schools to esti-

“Teachers who received bonus payments were ten percent less likely to depart at the end of the school year than other teachers at the same school.”

mate whether the bonuses affected teachers’ decisions to quit working at a particular school. They find that the bonus program reduced turnover rates for more experienced teachers. Other studies suggest that experience is positively associated with student achievement.

Overall, the North Carolina data suggest that teachers who received bonus payments were “ten percent less likely to depart at the end of the school year” than other teachers at the same school. As a rough rule of thumb, the authors calculate that their data show that “a \$100 increase in the bonus reduces the probability of departure by approximately 1 percent.”

The response varied with certain teacher characteristics. High school teachers

were apparently unaffected by the program. Middle school teachers, who had a higher likelihood of departure than high school teachers, were strongly affected. Middle school teachers receiving a bonus payment were 27 percent less likely to leave. Math

teachers receiving the bonus were “18 percent less likely to depart the following year.”

This study probably underestimates the effects of bonuses on departure rates because teachers were not well informed about the provisions of the program, they were skeptical that the program would remain in place, and the program in fact ended prematurely. Despite these programmatic shortcomings, the authors conclude that it “provides an important example of a type of reform that deserves more attention” and that it “bodes well for programs designed to target permanent salary differentials to certain types of teachers in needy schools.”

— Linda Gorman

New Evidence on Gender Differences in Promotions and Pay

In a market economy, wages and promotion are linked because promotions often come with a wage increase. One important question is whether equally qualified men and women with similar characteristics have an equal probability of advancing their careers through promotion. Others are whether there are gender differences in the wage increases that accompany promotions, and whether any observed gender difference in promotion produces gender differences

in overall wage growth at the establishment. However, determining whether equally qualified men and women have been treated similarly can be difficult. If, on average, men and women differ in their (unobserved) preferences for schooling, the amount of time they spend on housework, their attachment to the labor force, or their working environment, then comparisons of male and female promotion or wage rates may uncover differences in both. Those differences may appear

to be the result of prejudice but may in fact be the result of individual differences in tastes and productivity.

In **New Evidence on Gender Differences in Promotion Rates: An Empirical Analysis of a Sample of New Hires** (NBER Working Paper No. 12321) co-authors **Francine Blau** and **Jed DeVaro** use data from the Multi-City Study of Urban Inequality, a large cross-sectional telephone survey of 3510 employers in Atlanta,

Boston, Detroit, and Los Angeles, conducted between 1992 and 1995. The survey asked about an establishment's most recently hired worker: was he or she promoted by the date of the survey, or expected to be promoted in the next five years; the worker's wage at the time of the survey, the worker's starting wage; and the wage the worker could expect to receive if promoted. The survey is also unique in that it allows the authors to control for the worker's job-specific performance rating, as well as nonprofit status, industry, establishment size, franchise status, and unionization. It is quite unusual to observe all these characteristics for such a broad sample of workers.

The authors analyze the extent to which reported productivity and observable characteristics account for any observed gender differences in promotions and wage growth. Without controlling for any gender differences in characteristics, the authors find that 10.6 percent of men had received promotions versus 7.6 percent of women, a statis-

tically significant gender gap in promotion rates favoring men. There were only slight, statistically insignificant, differences in wage

“Controlling for all variables, ... men's promotion rates were ... 2.2 percentage points higher than women's, ... large relative to the overall mean promotion rate of 9 percent. However, in marked contrast, ... there were essentially no gender differences in overall wage growth at the establishment.”

growth and expected wage growth between men and women, though.

The authors then control for differences in the observed characteristics of men and women, including the fact that they were not distributed equally, either in occupational categories or across industries. For example, men were more likely to be scientists, engineers, doctors, and lawyers; more likely to work in craft, construction, and transportation jobs, and as production workers and laborers; and more of the men worked in the for-profit sector. Women were more likely to be teachers, librarians, and counselors, and to work in administrative support occupations.

The additional controls slightly reduce the gender difference in promotion rates but, controlling for all variables, including worker

performance ratings, men's promotion rates were still 2.2 percentage points higher than women's. This is large relative to the overall mean promotion rate of 9 percent and the raw gender difference in promotion rates of 3 percentage points. However, in marked contrast, the authors find that after controlling for measured characteristics, promotions and expected promotions continued to yield comparable wage increases for both men and women. And, there were essentially no gender differences in overall wage growth at the establishment, with or without promotion.

— Linda Gorman

Spreading the Gains from Immigration

Because immigrants are the main economic beneficiaries from immigration and do not participate in decisions on immigration policies, the level of immigrant flows is the least developed part of globalization. To encourage the residents of rich countries to accept a higher level of immigration, the government could provide innovative economic incentives to residents. Countries with a queue of immigrants like the United States could auction off visas for immigration to the highest bidders. They could charge new immigrants a sizable fee—maybe as much as \$50,000 apiece—or add a surcharge to incomes taxes, and use these “admission fees” to benefit existing citizens and gain their support for higher levels of immigration.

In **People Flows in Globalization** (NBER Working Paper No. 12315), **Richard Freeman** writes that such “radically economic policies” may represent a possible way to ameliorate one problem arising from “globalization”: the fact that the flow of people across international borders in the form of immigration, movement of international students, business travel, and tourism is smaller

than the rising flows of trade and capital. As a result, there are huge differences in pay between the labor markets of well-to-do countries and those in poor nations for people of similar skills. This implies that policies giving workers in developing countries greater access to advanced country labor markets could raise global economic wellbeing considerably. The economic problem, though, is that immigrants—not the citizens of immigrant-receiving countries—benefit most from immigration. Imposing charges on immigrants could spread a portion of those benefits to the citizens.

As it is, if a nation restricts trade, then cries of protectionism resound. Suggest linking labor standards to trade and its protectionism in disguise, Freeman writes. Limit capital flows and the International Monetary Fund is on your back. But limiting people flows is an accepted exercise of national sovereignty. During the past few decades, most countries have reduced barriers to the trade of goods and services and liberalized financial capital markets. However, most have also sought to limit immigration, worried about

economic and cultural disruption.

In this paper, Freeman examines the causes and consequences of immigration in making his argument that larger people flows are fundamental to creating a global economy. “Greater mobility of labor across borders could raise the output and economic wellbeing of workers in developing countries more than many other policies associated with globalization,” he holds. Moreover, even with current restrictive immigration policies, the aging populations and low birth rates in advanced countries, coupled with the huge disparities in pay around the world and increased education in developing nations, are likely to lead to increased immigration in the decades ahead.

The United Nations, he notes, projected that immigrants numbered about 190 million in 2005, more than twice the 82.5 million in 1970. Two-thirds of them settled in rich countries, where 8.7 percent of the population is foreign-born. In developing nations, 1.5 percent of the population is foreign-born.

The United States is the single biggest recipient of immigrants—35 million, or 12.4

percent of the population, in 2000. Russia is next. The collapse of the Soviet Union prompted many persons of Russian ancestry to return to Russia from former states of the Soviet Union that had become independent nations. Germany is third with 7.3 million immigrants. Other major recipients of immigrants are Ukraine, Saudi Arabia, France, Australia, Canada, and India and Pakistan.

Top migrant-sending countries are China, with 35 million natives moving to other countries, India (20 million), and the Philippines (7 million). Many U.S. immigrants, particularly from Mexico, have less than a high school education. But in 2000, 45 percent of U.S.-based Ph.D. economists and 55 percent of U.S.-based Ph.D. natural scientists aged 45 or younger were foreign-born. Sixty percent of immigrants to the United Kingdom are professionals.

Further, in 2004, there were about 2 million international students. The United States is the largest single student destination, with 573,000 of them, of which one-fourth come from China and India. The World Tourism Organization estimates that there were 760 million international tourist arrivals in 2004.

Offering some comparative numbers, Freeman notes that immigrants make up some 3 percent of the global workforce and 9 percent of the workforce in advanced countries. The ratio of world exports to total world gross domestic product—that is, the total output of goods and services—was 27 percent in 2004. Foreign direct investment, a volatile flow over the years, rose to 20 percent of gross capital formation in 2000 before falling to 7.5 percent in 2004.

Wages in the richest 20 percent of countries are four to five times those in the poorest 20 percent of countries, if measured according to the purchasing power of those wages in the countries. The result, Freeman writes, gives the global economy “the appearance of

a gated wealthy community consisting of the advanced countries, surrounded by impoverished ghettos, with immigration restrictions preventing the ghetto residents from moving to where their productivity and wellbeing would be higher.”

Economic factors motivate an estimated 4 million illegal immigrants to move from poor to rich countries annually. This has cre-

“The United States is the single biggest recipient of immigrants — 35 million, or 12.4 percent of the population, in 2000.”

ated a multi-billion dollar illegal industry that helps transport them across borders. In 2000, about 8 percent of the Mexican-born population was living in the United States and 30 percent of Mexicans with formal sector jobs worked here.

U.S. data show that immigrants earn less than native-born overall, and less than native-born with the same years of schooling. These differences decline over time. But immigrants earn far more in their new country than in their home country. For example, in 2000 a Mexican with five to eight years of schooling earned \$11.20 per hour in the United States, compared to about \$1.82 an hour in areas of Mexico sending many immigrants to the United States—a six-fold difference. The immigrants benefit from the higher productivity in advanced nations resulting in part from relatively large capital spending. The 0.1 percent of India’s population living in the United States earns roughly the equivalent of 10 percent of India’s national income.

However, immigration, Freeman notes, does not provide a ready solution to the problems of retirement and pensions that face many developed economies. For example, to stabilize the ratio of the number of retired persons divided by the number of workers, the United States would need 10.8 million new immigrants per year through 2050. Post-

1995 immigrants then would make up 27 percent of the U.S. population.

After examining a number of studies, Freeman concludes that the negative impact of immigrants on the wages of native workers is “modest.” In nations that are the source of immigrants, the size of the any harm from the loss of highly skilled workers—the “brain drain”—is unclear, Freeman notes. That emi-

gration can be huge. For instance, more than half of university-educated adults from the Caribbean live in the United States. On the positive side, those source-nations benefit from the remittances of immigrants, which could amount to as much as \$160 billion a year. Freeman writes that, “empirical analysis does not reach any firm conclusion about whether emigration hurts or helps source economies.” But, he notes that the arrival of skilled immigrants in the United States could “help produce a technological edge for the country.” At the same time, it could reduce the incentive for the native-born to choose to become scientists and engineers.

Looking at what a visa for entry into the United States might be worth for a person from a country with wages only 20 percent of U.S. wages in purchasing power, Freeman calculates that the immigrant could be \$100,000 better off over a working lifetime. If the person pays \$50,000 for that visa, then a million additional immigrants would produce \$50 billion in tax receipts for use of all Americans. “Some form of redistribution of the benefits of immigration may be necessary to win support for greater immigration,” Freeman writes.

— David R. Francis

Why Some Diplomats Park Illegally

The underlying causes of corruption remain poorly understood and widely debated. There is little firm evidence relating corruption to real-world causal factors. While social norms are often mentioned as a primary contributor to corruption in both

the academic literature and the popular press, there is no evidence beyond casual cross-country studies.

In **Cultures of Corruption: Evidence From Diplomatic Parking Tickets** (NBER Working Paper No. 12312), authors

Raymond Fisman and **Edward Miguel** develop an approach to evaluating the role of social norms in corruption by studying parking violations among international diplomats living in New York City. Approximately 1700 consular personnel and their families

from 146 countries benefit from diplomatic immunity, a privilege that allowed them to avoid paying parking fines prior to November 2002. The authors examine differences in the behavior of government employees from different countries, all living and working in the same city, and all of whom can act with impunity in illegally parking their cars.

The act of parking illegally fits well with a standard definition of corruption, that is, “the abuse of entrusted power for private gain.” That definition suggests that the comparison of parking violations by diplomats from different societies serves as a plausible measure of the extent of corruption social norms or a corruption “culture.”

The authors point out that their chosen setting has a number of advantages. Most importantly, their approach avoids the problem of differential legal enforcement levels across countries, and more generally strips out enforcement effects, since there was essentially no enforcement of parking violations for diplomats during the main study period. They therefore interpret diplomats’ behavior as reflecting their underlying propensity to break rules for private gain when enforcement is not a consideration. Additionally, because U.N. diplomats are largely co-located in midtown Manhattan, the study avoids concerns of unobserved differences in parking availability across geographic settings.

The authors find that there is a strong correlation between illegal parking and existing measures of home country corruption. This finding suggests that cultural or social norms related to corruption are quite persistent: even when stationed thousands of miles

away, diplomats behave in a manner highly reminiscent of officials in the home country. Norms related to corruption are apparently deeply engrained, and factors other than legal enforcement are important determinants of corruption behavior.

The authors’ parking violation measure of corruption is strongly positively correlated with other country corruption measures.

“There is a strong correlation between illegal parking and existing measures of home country corruption. Even when stationed thousands of miles away, diplomats behave in a manner highly reminiscent of officials in the home country.”

Further, this relationship holds regardless of home region, country income, and a wide range of other controls, including measures of government employees’ salaries. This finding arguably validates the usefulness of the new measure. But, it also goes against the predictions of standard economic models of crime in situations of zero legal enforcement. Those models would predict that parking violations should be high across the board for all diplomats when enforcement is lifted. Instead, the authors find that diplomats from low corruption countries (for example, Norway) behave remarkably well even in situations where they can get away with violations, while those from high corruption countries (for example, Nigeria) commit many violations, suggesting that they bring the social norms or corruption culture of their home country with them to New York City.

A second, related finding is the strong negative relationship between affinity for the United States in the diplomat’s home country and parking violations in New York. This

finding provides real world evidence that sentiments matter in economic decision making in general, and for corruption decisions in particular. One implication of this finding is that government officials’ “feelings” towards their own nation—for instance, their extent of patriotism, national pride, or strength of national identity—could also be factors in their corruption decision within the home

country.

One important message from these empirical results is that corruption norms are sticky. This result raises the critical question of whether there are policy interventions that can modify corruption norms over time. For example, the Bloomberg administration’s enforcement efforts in New York City in 2002 were extremely successful in changing diplomats’ behaviors, and it would be useful to know whether these changes might additionally have had persistent effects on norms once individuals become habituated to rule-compliant behavior.

The authors’ methodology of inexpensively generating cross-country data could potentially be applied to other settings where comparable individuals from across countries are present in the same place for a period of concentrated activity, such as the Olympics Games, for example.

— Les Picker

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