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Estimates of the Effects of the American Recovery and Reinvestment Act

In Did the Stimulus Stimulate? Real Time Estimates of the Effects of the American Recovery and Reinvestment Act (NBER Working Paper No. 16759), **James Feyrer** and **Bruce Sacerdote** find that support programs for low-income households and infrastructure spending were highly expansionary, while grants to states for education do not appear to have created many additional jobs. Their estimates of the effect of the stimulus that exclude education spending suggest a per job cost of under \$100,000. Including education costs produces an estimate of one additional job created for every \$170,000 in stimulus spending.

Feyrer and Sacerdote note that direct evaluation of the impact of the American Recovery and Reinvestment Act (ARRA) is difficult. To overcome some of that difficulty, they focus on how state and local stimulus spending, which varied among the states and over time, affected employment. They further disaggregate spending by fed-

eral agencies into three types: agencies providing block grants to fund local government employment, including spending by the Departments of

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Education and Justice used to fund teachers and police; support to low-income families, including spending by the Departments of Agriculture, Health Education and Welfare, and Housing and Urban Development, a large component of which was food stamps, Medicaid, and rental assistance; and paying for new infrastructure projects, especially through building projects funded by the Departments of Transportation and Energy.

Feyrer and Sacerdote first examine the overall change in employment over the sample period against the overall quantity of stimulus spending at the state level. Next, they do the same at the county level. Finally, they examine

month-by-month spending at the state level and generate impulse responses of employment to the state-level spending changes. The county-level employment

and earnings are from the Quarterly Census of Employment and Wages.

The researchers conclude that, despite the somewhat mixed results, the stimulus seems to have been effective. Most interesting perhaps is how the impacts on employment appear to differ by type of spending. The low impact of transfers to the states to support education and law enforcement is consistent with the possibility that states consider those grants to be temporary and therefore do not make permanent changes based on the transfers. States instead may have used the money to lower borrowing or to limit tax increases.

— Matt Nesvisky

African Export Successes

The exports of sub-Saharan African nations include some “big hits”—that is, exports that dominate

national trade. These exports change over time in a way that can’t be easily explained by commodity prices

or other global factors, according to recent research by **William Easterly** and **Ariell Reshef**. And, although the

sub-Saharan nations use conventional measures to boost their export revenues, such as moving up the quality ladder, concentrating on comparative strengths, and liberalizing trade rules, part of their success is idiosyncratic: entrepreneurial persistence, luck, and cost shocks can lead to big hits, even where the anticipated probability of success was low.

In **African Export Successes: Surprises, Stylized Facts, and Explanations** (NBER Working Paper No. 16597), Easterly and Reshef note that in the 15-year period from 1994 to 2008, sub-Saharan Africa saw its per capita exports of goods rise an average of 13 percent per year. That average is less than China's export growth rate of 19 percent, but on a par with India, and far above Germany's 8 percent and the 4 percent rate for the United States. "Given the well known difficulties in exporting from Africa (let alone running business there), 13 percent annual growth rates of exports per capita are no small feat," the authors observe. "[I]n many dimensions African exporting is in line with the rest of the world."

Sub-Saharan Africa has a relatively low share of manufacturing exports and a much higher share of agriculture, food, fuel, ores, and metals. There is considerable variation within categories, however, with some nations able to export high-value food exclusively to Europe or to the United States. Export successes are rare, but when

nations do get a big hit, sales of that good tend to skyrocket. For example, the average share of the top export from 37 African nations is 47.6 percent of all of that nation's exports.

"...Rises and falls [in the African export revenues] are primarily attributable to changes in the quantity exported. Price changes only account for 10 percent of the changes..."

The second largest export, by comparison, accounts for only 13.7 percent of exports on average. This pattern is somewhat more extreme than that of non-African nations. The top export share among 130 non-African nations averages 27.5 percent, and the second strongest export averages 11.6 percent.

The big hits also vary widely over time. In Ghana, for example, coconuts, Brazil nuts, and cashew nuts were No. 67 on the list of top exports in 1996 but had climbed to No. 4 by 2008. Meanwhile, unwrought aluminum fell from No. 6 to No. 132 in that same 12-year period. In Ethiopia, fresh vegetable exports rose from No. 182 to No. 5, while buckwheat and other cereals fell from No. 6 to No. 229. These rises and falls are primarily attributable to changes in the quantity exported. Price changes only account for 10 percent of the changes in shares for the median country.

Foreign aid can boost exports, the authors find, but only if implemented carefully with producers and exporters in the country. For example, after

the 1994 genocide in Rwanda, USAID funded two projects to educate local business people in agribusiness. Local officials convinced the agency to figure out which efforts could improve local

incomes, and it hit upon specialty coffee. The aid projects helped to form grower coops, taught coffee-washing techniques, contacted potential buyers, and provided the initial capital to build coffee-washing stations. The result is that Rwanda has become a source for high-quality specialty coffee that is sold in the United States.

Persistent entrepreneurs, timing, and happenstance also play a role in export success. Gahaya Links, founded in 2003 by two sisters, now sells Rwandan woven baskets to Macy's and other U.S. retailers, despite the problems that typically plague handicrafts ventures in the developing world. A Canadian-trained chemical engineer in Tanzania entered the prawn business after a London-based acquaintance requested the product. The big breakthrough came, however, when he moved into catching white fish in Lake Victoria to supply a European market hungry for his product.

— Laurent Belsie

The Persistent Financial Losses of U.S. Airlines

The dismal financial record of the domestic airline market, more than 30 years after deregulation, is somewhat puzzling. In 2008 and 2009, U.S. passenger airlines reported aggregate net losses before extraordinary income and charges of \$14 billion on revenues of \$270 billion. About 76 percent of the losses were on domestic U.S. operations, which have been deregulated since the fall of 1978. From 1979 through 2009, U.S. airlines lost \$59 billion (in 2009

dollars) on domestic operations.

In **On the Persistent Financial Losses of U.S. Airlines: A**

"Two factors seem to be the major drivers of the [airline] industry's poor profit performance: ... the severe demand downturn after 9/11, [and] the large cost differential between legacy airlines and the low-cost carriers."

Preliminary Exploration (NBER Working Paper No. 16744), author **Severin Borenstein** examines some of the most common explanations for this

dismal performance, including high taxes and fuel costs, weak demand, and competition from lower-cost airlines.

His analysis suggests that high taxes have been, at most, a minor factor. Fuel cost shocks have played a role only in the last few years.

Two factors seem to be the major drivers of the industry's poor profit performance. The first is the severe demand downturn after 9/11, a reduction that left demand much weaker in 2009 than it was in 2000. The second is the large cost differential between legacy airlines and the low-cost carriers (LCC), which has persisted even as their price differentials have greatly declined. Adjusted

for average flight distance, legacy carrier costs have remained 30-to-60 percent higher than the LCCs' costs for nearly all of the deregulation era, averaging about 40 percent higher in the last decade.

Borenstein points out that the airlines' financial performance improved substantially in 2010 and that the industry seems likely to be close to break-

even on domestic operations for the year. Still, the experience of the last decade suggests that until legacy carriers can either close the cost gap with LCCs or increase the price premium they maintain, they will likely have difficulty earning consistent profits through the typical cycles in the airline business environment.

—Lester Picker

Stock Option Exercise and Gift Exchange Relationships

In **Stock Option Exercise and Gift Exchange Relationships: Evidence from a Large U.S. Company**, (NBER Working Paper No. 16814), co-authors **Peter Cappelli** and **Martin Conyon** use data from the exercise of stock options by roughly 4500 managers in a large public company between 2001 and 2007 to investigate how higher profits from the exercise of stock options can affect employee performance. In this company, the option grants were set equally for all employees within occupational categories, and the financial markets set the price at which the options were ultimately exercised. Cappelli and Conyon find a statistically significant positive relationship between the variation in

profit per share of the options sold and standard measures of subsequent job performance for individual employees.

exchange effects of a rise in the profits per share on option exercise are considerably more powerful than the incen-

“[The] effects of a rise in the profits per share on option exercise are considerably more powerful than the incentive effects of an increase in the number of options held in terms of employee job performance.”

This so-called “gift exchange relationship” is not attributable to employees with higher wages exerting more effort, and producing more, in subsequent periods. The gift exchange effect observed here exists in real jobs and lasts for a year — a much higher level of persistence than has been found in previous studies.

These results suggest that the gift

exchange effects of an increase in the number of options held in terms of employee job performance. The authors estimate that it would take a seven-fold increase in the amount of options held by the typical employee to generate the same job performance effects as a doubling of the employee's profits on exercise of stock options.

—Claire Brunel

Implications of Population Aging for Economic Growth

The share of the population aged 60 and over is projected to increase in nearly every country in the world between today and 2050. An aging population tends to lower labor-force participation and savings rates, and may slow economic growth. In **Implications of Population Aging for Economic Growth** (NBER Working Paper No. 16705), co-authors **David Bloom**, **David Canning**, and **Günther Fink** conclude that OECD countries are likely to experience lower rates of economic growth because of population

aging. In most non-OECD countries, however, declining fertility rates will

affected economic growth between 1960 and 2005. They then estimate

“If their population age structure between 1960 and 2005 had been what projections suggest it will be for the 2005 to 2050 period, the OECD countries would have grown by 2.1 percent per year rather than by 2.8 percent per year.”

cause labor-force-to-population ratios to rise: the shrinking share of young people will more than offset the aging of the population.

These researchers first study how changes in population age structure

how various countries' economies would have grown during those years if their labor force participation rates by age and sex had remained the same, but the age structure of their populations had been what we expect to pre-

vail between 2005 and 2050. They conclude that labor force participation rates would have fallen in 126 of the countries included in the United Nations' World Population Prospects, with sizeable declines in China, Singapore, and some Western European countries.

These declines would translate into moderately slower economic growth. On average, the OECD countries

would have grown by 2.1 percent per year rather than by 2.8 percent per year, while most of the developing countries would have grown 0.7 percent faster than they did. These growth figures likely over-estimate the true effects of aging, though. For example, increases in life-expectancy in the United States have been associated with a healthier life span. Thus, it is possible that Americans

will respond by working longer, or by saving more during their working life. The authors also explain that behavioral responses to an aging population, such as greater female labor force participation, and policy responses like increasing the legal age of retirement and investing more in the health of those over 60, are likely to mitigate the effects of population aging.

—Linda Gorman

Counterfeiters: Foes or Friends?

In fiscal 2009, the U.S. Customs and Border Protection seized more than \$260 million worth of counterfeit goods, with counterfeit footwear accounting for 40 percent of the total seizures. Counterfeit footwear has topped the seizure list of the customs service for four years. How does the existence of such counterfeits affect the sales of authentic products?

In **Counterfeiters: Foes or Friends?** (NBER Working Paper No. 16785), author **Yi Qian** analyzes product data from Chinese shoe companies over 1993–2004. She can study the impact of policy changes, such as the 1995 change in government enforcement efforts in monitoring footwear trademarks in China. That change had different effects on counterfeit entry for branded companies with varying degrees

of closeness to the Chinese government.

Qian finds that counterfeits have positive advertising effects for the brand

“Counterfeits...steal demand from low-end authentic products, but [have] positive spillover effects for high-end authentic products.”

of shoes they copy. However, they have negative substitution effects for the authentic products, driving buyers away from the authentic shoe to the counterfeit one. For sales of high-end authentic products, the positive advertising effect dominates the substitution effect. For sales of low-end authentic products, the negative substitution effect outweighs the advertising effect. All of the effects last for a few years before leveling off. And, these different effects for different products reinforce incentives for authentic producers to innovate and to

move upward in the quality portfolio. Finally, after the entry of counterfeiters, market shares for the higher qual-

ity products increase while those of the lower end products decline.

Qian tests these results by conducting some surveys and finds similar effects regarding the purchase intent of high-end, medium-end, and low-end branded products. Her subjects' responses suggest that counterfeits signal brand popularity, at least to some consumers. Counterfeits thus appear to steal demand from low-end authentic products, but their presence has positive spillover effects for high-end authentic products.

—Lester Picker

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