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How Large Are the U.S. Economy's Gains from Trade?

At a time when foreign trade is on the front burner of the national debate, a new study offers estimates of the economic benefits of a globally open economy.

Depending on the assumptions that are made about consumer and producer behavior, international trade raises the U.S. gross domestic product by between 2 and 8 percent, [Arnaud Costinot](#) and [Andrés Rodríguez-Clare](#) report in **The U.S. Gains from Trade: Valuation Using the Demand for Foreign Factor Services** (NBER Working Paper No. 24407). The researchers not only present new evidence on the gains from trade, they also explain why the range of estimates is so large.

There is surprisingly little direct quantitative evidence on how the U.S. economy would react if the door were shut on trade. To find a precedent, the researchers point out that one could go back to the Embargo Act of 1807, when the United States banned trade with Great Britain and France in retaliation for their repeated violations of U.S. neutrality. GDP declined sharply, but the agrarian world during the presidency of Thomas Jefferson bears

little resemblance to today's high-tech, service-oriented economy.

To analyze the impact on U.S. GDP of shutting the nation's borders to outside trade following a "textbook approach"

Comparing a counterfactual U.S. economy entirely dependent on domestic resources and one that has access to foreign factor services, international trade is estimated to raise GDP 2 to 8 percent.

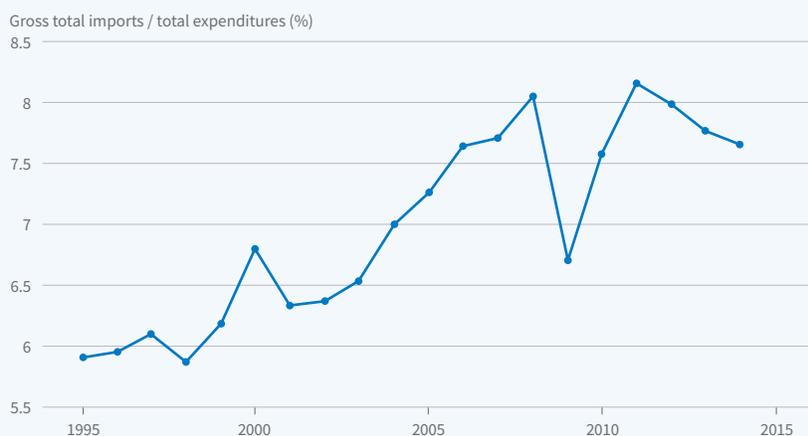
requires collecting price data on thousands of items across the world and estimating the extent to which they are substitutable for U.S.-made goods. As the researchers write, "the amount of actual information required

to implement the textbook approach is, to put it mildly, non-trivial." To simplify the analysis, they elect to focus on trade in factor services, namely the labor and capital embedded in goods purchased from

around the world. They then estimate the gains from trade by comparing the size of a counterfactual U.S. economy that depends entirely on domestic resources with one that has access to foreign factor services through international trade. This exercise raises two key questions: how large a role do imports of factor services play in the U.S. economy, and how elastic is the demand for those services?

While the dollar value of U.S. imports is large, as a percentage of national spending it is relatively small. The researchers suggest that one way to measure this percentage is to assume that the total value of all imported goods is equal to the total payments

U.S. Import Share, 1995–2014



Source: Researchers' calculations using data from the World Input-Output Database

for the foreign factors used to produce those goods. This yields a value of 8 percent of total U.S. spending in 2014. Measured in a more comprehensive way, however, U.S. imports are significantly higher. When the researchers adjust by the fact that domestic production also uses imported intermediate goods — say, German-made transmissions incorporated into U.S.-made cars — based on data in the World Input-Output Database, they conclude that the U.S. import share is 11.4 percent.

While there are different approaches to the measurement question, an even more contentious issue concerns the elasticity of demand for imports. To what extent are foreign factor services close substitutes for domestic ones? Demand is likely to be inelastic if it mainly captures imports of minerals that are only mined abroad, but elastic if it instead includes wheat that is grown in the U.S. as well as elsewhere. For many apparel companies, the demand for cheap foreign labor is inelastic; they could not sell garments

stitched in America at competitive prices.

The researchers do not offer a single estimate of the gains to the U.S. economy from international trade, but they suggest that the reasonable range falls between 2 and 8 percent of GDP. They acknowledge that while foreign trade raises the level of economic output, not everyone is a winner. Consumers enjoy lower prices, but some workers may see that benefit offset by declining wages or layoffs.

—Steve Maas

Intergenerational Effects of Disability Insurance Receipt

In 1969, two years after the introduction of disability insurance in the Netherlands, 4 percent of the Dutch working age population was receiving benefits. By the late 1980s, that had risen to 12 percent. Prompted by rising costs, the Dutch took a series of steps to reduce benefits, stiffen eligibility requirements, and transfer responsibility to individual employers. In **Intergenerational Spillovers in Disability Insurance** (NBER Working Paper No. 24296), [Gordon Dahl](#) and [Anne Gielen](#) exploit the 1993 disability insurance changes to explore how a parent’s loss of some or all disability insurance benefits affected their children’s future choices and outcomes. They study the children’s future claims for disability benefits and other social assistance programs, their labor market outcomes as adults, and their human capital investments.

Individuals in the Netherlands receive disability insurance based on the income lost from their disability. One 1993 change affected the calculation of a potential beneficiary’s “earnings capacity,” resulting in fewer individuals qualifying for insurance and lower benefits for those who

did. The changes affected some individuals but not others. On November 12, 1996, the Dutch parliament passed a motion grandfathering anyone between the ages of 45

to the children of parents who received generous disability benefits through the 1990s, the children of parents who were no longer eligible for benefits or who received

Every €1,000 decline in disability benefits to parents translated into a boost of around €5,700 in children’s future earnings.

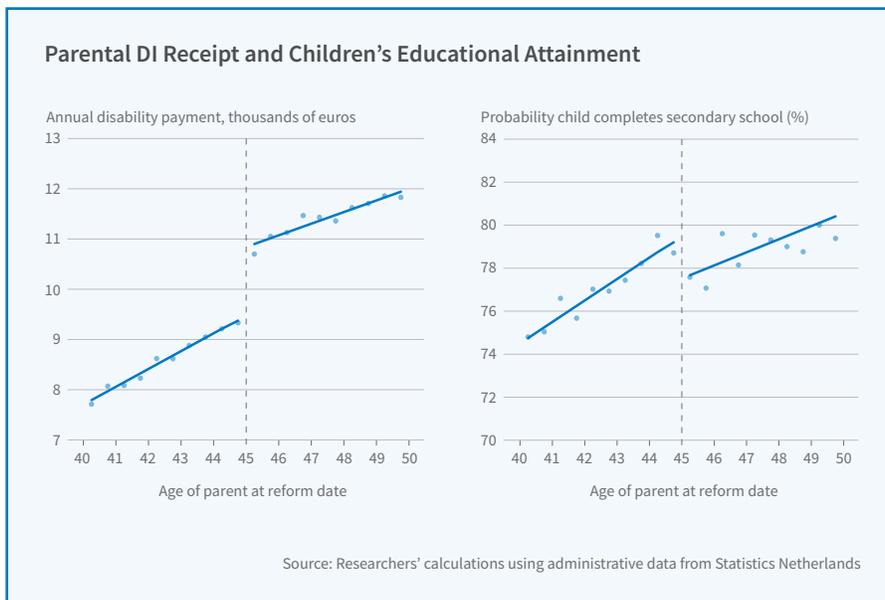
and 50 into the old, more generous rules for claiming disability insurance benefits, before the re-examinations for that age group took place. This grandfathering created a cutoff in the generosity of disability insurance based on a person’s age that the research exploits to examine how disability income receipt affects children.

The researchers find that relative

diminished benefits are less likely to make disability claims when they became adults. There is no effect on these children’s participation in other public assistance programs. In 2014, nearly 20 years after the changes, the children of parents who were subject to the reduced benefits/tougher qualification regime were 1.1 percentage points less likely to be disability insurance

claimants. Consistent with an anticipated future with less reliance on disability insurance, the children of affected parents are 2.2 percentage points more likely to finish upper secondary school.

Parental disability income receipt also affects their children’s future earnings and taxes paid. Every €1,000 euro decline in disability benefits to parents translated into a boost of around €5,700



in their children's future earnings. Tax payments by these children between 1999 and 2014 rose by roughly €2,000 — 2 percent

of the mean taxes paid. “The combination of reduced government transfers and increased tax revenue results in a fiscal gain

of €5,900 per treated parent due to child spillovers by 2014,” the researchers report.
— Alex Verkhivker

Assessing an Illinois Workplace Wellness Program

Spurred in part by incentives in the 2010 Affordable Care Act, the workplace wellness industry has more than tripled its annual revenues, to \$8 billion, in recent years. Wellness programs now cover more than 50 million American workers. But a new study of one large program finds little evidence that it paid off in lower medical expenditures or greater workforce productivity.

In **What Do Workplace Wellness Programs Do? Evidence from the Illinois Workplace Wellness Study** (NBER Working Paper No. 24229), [Damon Jones](#), [David Molitor](#), and [Julian Reif](#) examine the impact of a wellness program they designed and implemented at the University of Illinois at Urbana-Champaign.

Of 12,459 benefits-eligible employees invited to participate, 4,834 opted to do so. They were divided into a treatment group of 3,300 people who were offered the opportunity to enroll in the wellness program and to participate during regular work hours, and a randomly assigned control group of 1,534 people who were not permitted to enroll.

As an incentive to complete various steps in the program—which included biometric health screening, a health risk assessment, and various wellness activities—participants were offered rewards of between \$50 and \$350. The amounts were randomly assigned and announced at the outset.

Raising incentives, the study found, resulted in sharply diminishing returns.

Introducing a \$100 reward boosted the completion rate by 12 percentage points, from 47 percent to 59 percent; further increasing the reward to \$200 raised participation by only 4 percentage points. As a matter of policy, the researchers write, “increasing a large financial incentive to even greater levels will transfer

on health expenditures compared to \$562 a month in the control group.

The study also found evidence of self-selection: Among employees in the treatment group, those who chose to participate in the wellness program had annual medical expenditures that were \$1,574 less than those of non-

Workplace health programs have been touted as a way to reduce employee medical costs, but employees in the program studied spent \$566 a month on health care compared to \$562 a month in the control group.

large sums of money to workplace wellness program participants, but will have little effect” on levels of participation. Tying rewards to completing downstream wellness activities was more cost-effective than providing up-front incentives to undergo the initial screening.

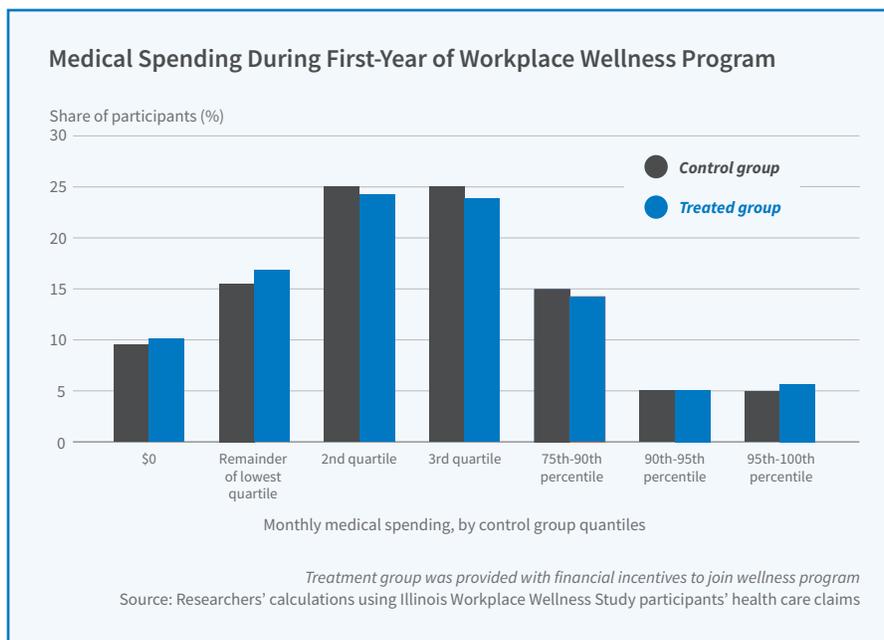
Health programs have been touted as a

participants. Participants were also more likely than the average worker to have exercised at campus recreational facilities and entered community running events.

Based on follow-up survey responses, there were only two significant differences between those enrolled in the wellness program and those in the control group. First, employees in the treatment group were more likely to report having received a health screening, suggesting that some otherwise would not have obtained one. Second, those in the treatment group were much more likely to credit management with looking out for worker health and safety.

While designed to promote healthy lifestyles, wellness programs may undermine workplace equity, the researchers caution. The

Affordable Care Act promotes wellness programs by allowing employers to offer participation incentives worth up to 30 percent of the total cost of health insurance. If healthier individuals are more likely to participate and



means of reducing employee medical costs and raising productivity by, for example, decreasing absenteeism. In the first year of this randomized study, however, employees in the wellness program spent on average \$566 a month

to benefit from these incentives, nonparticipants may wind up bearing a greater burden of the cost of health care. This is of particular concern, the researchers note, because nonparti-

cipants are more likely to be in the lower ranks of the salary distribution.

The researchers also caution that their findings are based on only a single year of expe-

rience with the wellness program, and that ongoing follow-up in coming years will lead to a more complete understanding of its effects.

— Steve Maas

The Geopolitics of International Currency Choice

If other nations believe that the United States is disengaging from international security alliances, this could lead to an increase in the interest rates on U.S. Treasury debt, according to [Barry Eichengreen](#), [Arnaud J. Mehl](#), and [Livia Chitu](#) in **Mars or Mercury? The Geopolitics of International Currency Choice** (NBER Working Paper No. 24145). They find that military alliances as well as financial considerations influence the composition of a nation’s foreign currency reserves, and suggest that if the U.S. were to withdraw from global geopolitical affairs, foreign demand for dollars might decline. This could ultimately lead to higher long-term interest rates in the U.S.

The researchers attribute the dollar’s longstanding status as the leading international currency in part to America’s vast security umbrella. The dollar premium that results makes U.S. debt more marketable overseas.

The researchers outline two leading theories about which currencies dominate international transactions: The “Mercury” hypothesis, named for the Roman god of commerce, emphasizes the role played by financial factors, such as the safety, stability, and liquidity of a currency and trading patterns among nations. The “Mars” hypothesis, named for the Roman god of war, focuses on the role of strategic and political leverage.

The Mars theory could explain why

Germany, a non-nuclear power, holds most of its foreign reserves in dollars, unlike nuclear-armed France. “Comparing nuclear weapon states and states dependent on the U.S. for their security suggests that the difference in the share of the U.S. dollar in foreign reserve holdings is on the order of 35 percentage points,” they report.

Countries that rely on the United States for military protection hold a higher fraction of their foreign exchange reserves in U.S. dollars.

Because historical data on the precise composition of various countries’ currency reserves is more accurate than contemporary data, the researchers study the foreign exchange reserves of 19 countries between

in importance. This pre-World War I era was also a time of burgeoning military alliances.

In line with the Mars hypothesis, the share of German marks in the Austro-Hungarian Empire’s reserves increased with the strengthening of the Triple Alliance, the secret pact the empire signed with Germany and Italy in 1882. Similarly, Russia made francs a larger

share of its reserve portfolio after forging an alliance with France in 1894.

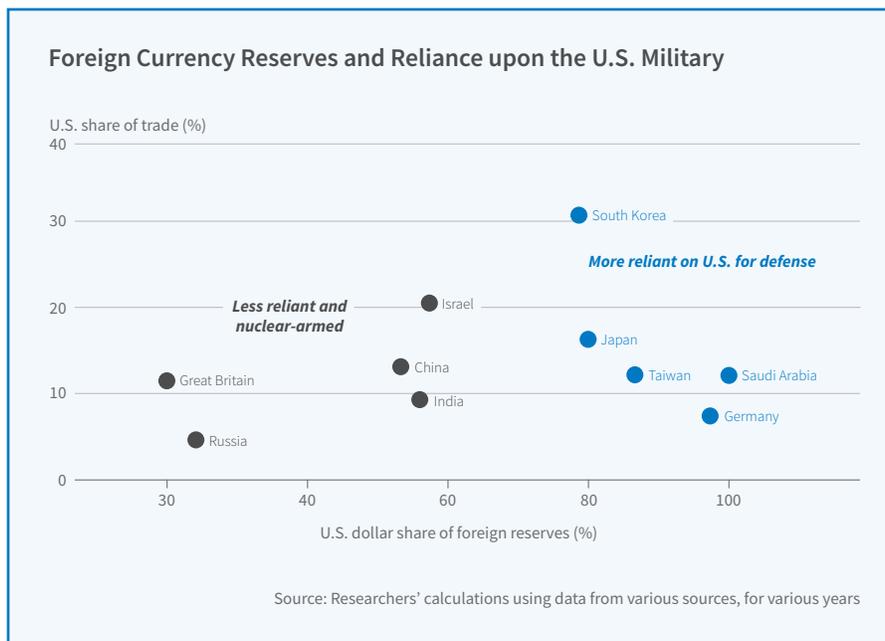
Extrapolating their findings from the pre-World War I period to the current day, the researchers suggest that if the United

States is no longer seen as a predictable guarantor of the security of its allies, then countries that are currently dependent on the U.S. for military protection could reduce the share of their reserves held in dollars by as much as 30 percentage points, while increasing the shares of such other currencies as the euro, yen, and renminbi.

The researchers estimate this would raise the long-term U.S. interest rate by 80 basis points, raising interest payments by the U.S.

Treasury by roughly \$115 billion each year given the level of public debt in late 2016. They note that this is more than many estimates of the cost of maintaining the American military’s overseas presence.

— Steve Maas



1890 and 1913, when five reserve currencies dominated. These were the English pound, the French franc, the German mark, the U.S. dollar, and the Dutch guilder. At the time, gold was still the main reserve asset, but foreign currencies were rapidly gaining

Fair Trade Certification Lifts Incomes of Coffee Communities

The fair trade movement began as an initiative of a church-based NGO in the Netherlands whose members were concerned about the impact of low coffee prices on growers and pickers. It was replicated elsewhere in Europe and North America, and expanded to cover numerous agricultural products from the developing world. Various groups coalesced into the Fair Trade Labelling Organizations International (FLO) in 1997.

In *The Effects of Fair Trade Certification: Evidence from Coffee Producers in Costa Rica* (NBER Working Paper No. 24260), [Raluca Dragusanu](#) and [Nathan Nunn](#) study the impacts of the FLO's Fair Trade Certification on coffee growers, households, and communities.

The primary benefits of certification for coffee growers arise from changes in prices. Fair Trade-certified growers are guaranteed a minimum price for their product, and the price is set high enough to cover typical costs of production, thus reducing many of the risks small producers face due to global price fluctuations. Growers also receive a premium, above the guaranteed sale price, which must be used for projects that, as the researchers write, “improve the quality of life of producers and their communities.” Producers have used the premiums to fund local schools, health care facilities, and infrastructure, to establish scholarships, and to improve production practices.

The study finds that, consistent with the program's design, Fair Trade-certified producers sell their coffee at higher prices than non-certified producers. They also

enjoy higher sales and revenues.

The study also explores the effects of certification on the incomes of growers and other households in nearby communities. Fair Trade certification produces

Costa Rican growers, coffee workers, and their neighbors all experience gains; only intermediaries' incomes are reduced.

income increases for those working in the coffee industry as well as others who are not employed in coffee production. Specifically, an increase of one standard deviation in the intensity of Fair Trade-certified growers in a given area is associated with a 3.5 percent increase in average income for households in that area.

Households employed in the coffee

Only one set of workers in the coffee industry — those who work for intermediaries — appear to experience income reductions as a result of certification. Those working in non-farm occupations such as

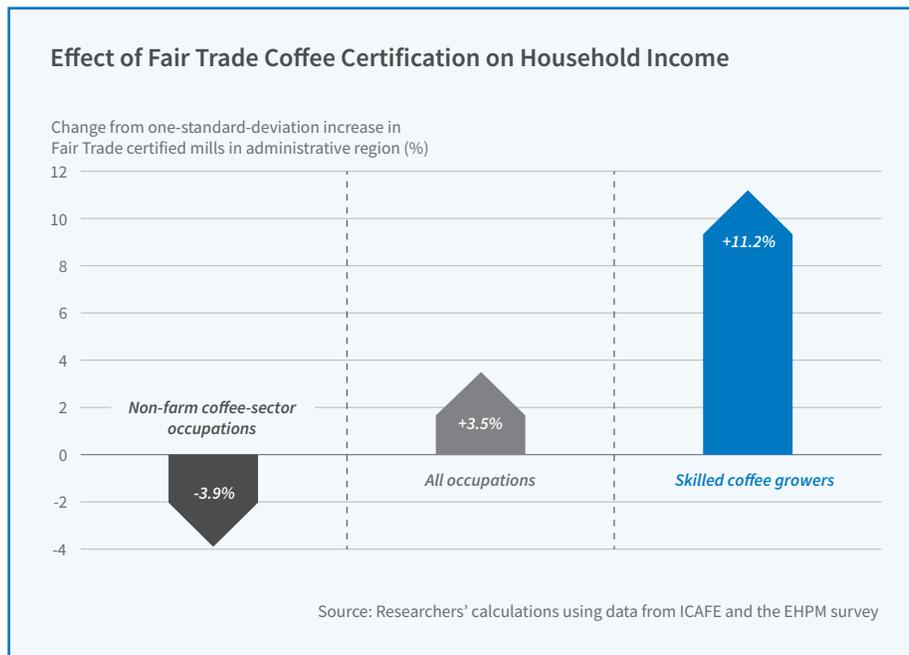
transportation, storage, and sales experience a 3.9 percent decline. The researchers attribute this to the fact that Fair Trade producers are encouraged to perform some intermediary functions themselves. Certified growers may be more likely to take their product to the cooperative mill for processing.

The non-farm group represents only 6.7 percent of those employed in the coffee sector. Additionally, the researchers point out that “[s]ince non-farm workers have incomes that are approximately 50 percent higher than the skilled farmers... [FT certification] decreases income inequality within the coffee sector by transferring rents from intermediaries to farmers.”

The study also shows that an increase in the intensity of certification in an area

produces positive spillover effects on education, likely due to the fact that cooperatives often use their price premiums for scholarships and other education investments. An increase of one standard deviation in the intensity of Fair Trade certification in an area is associated with an increase of between 2 and 5 percentage points in the probability of school enrollment among children aged 13–17.

— Dwyer Gunn



sector experience greater income increases on average, although these effects vary across subgroups. Skilled coffee growers, for example, experience an additional 7.7 percent increase in their average incomes, beyond the 3.5 percent increase that the community at large experiences, when the intensity of certification increases in an area. Unskilled workers in the coffee sector do not experience benefits beyond those felt by the larger community.

Finding the Roots of Entrepreneurship at the Dinner Table

What impact does industry knowledge passed on by a father have on a son's entrepreneurial success? In **Dinner Table Human Capital and Entrepreneurship** (NBER Working Paper No. 24198) Hans K. Hvide and Paul Oyer tease out specific benefits of exposure to industry knowledge over the course of childhood, as opposed to those that result from a father's later introduction to industry connections. They call this passed-on knowledge "dinner table human capital."

Norway, where the law requires public disclosure of incomes, was an ideal setting for the study, because income is a useful, if simple, indicator of individual economic success. For business data, the researchers drew on annual financial statements submitted to tax authorities. The data include variables like 5-digit industry code, sales, assets, number of employees, and profits for 1999–2011. They also collected data from Statistics Norway on workplace, education level, gender, income, wealth, marital status, and other variables; IQ test scores were obtained from Norwegian military records for 1984–2005.

Finally, to obtain information on start-ups, they analyzed and coded information from the founding documents firms submit to the Brønnøysundregistrene, a Norwegian government agency. These documents include start-

up year, total capitalization, and the personal identification number and ownership share of all initial owners with at least a 10 percent ownership stake.

An analysis of data on Norwegian entrepreneurs finds that many went into the industries in which their fathers worked and that they were more successful than those who entered other industries.

The researchers found that the majority of the entrepreneurs in their sample, which included those who were between 22 and 45 in 1996 and for whom relatively complete data were available, had gone into their fathers'

which did not exist when their fathers entered the workforce.

Entrepreneurs who went into their fathers' industries were more successful than

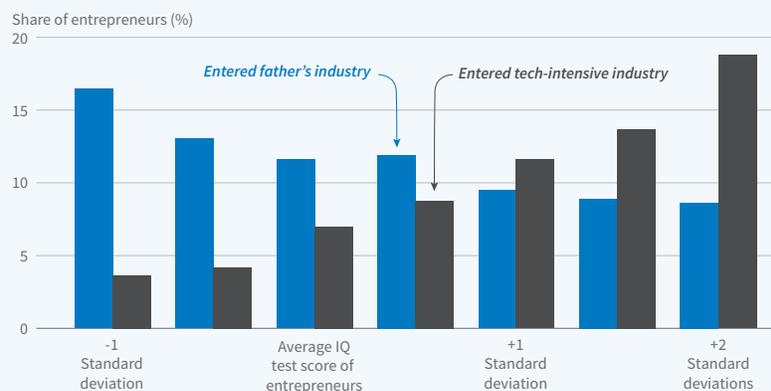
entrepreneurs who struck out into new fields. After four years, for instance, firms founded by sons in the same industry as their fathers were not only more likely to be in business, but also had more employees than firms founded by sons who chose different industries than their fathers.

To eliminate the possibility that this was simply due to intra-industry connections and introductions that fathers could provide, the researchers looked at sons whose fathers had died before they entered the workforce and found that the rate of success was nearly the same as for those whose fathers were alive when they entered the workforce. This confirmed the researchers' hypothesis that childhood exposure to industry knowledge,

whether over the dinner table or while helping out in the family business, was an even stronger contributor to entrepreneurial success than direct parental help.

—Jen Deaderick

Entrepreneurial Sector Entry by IQ Test Score



Results below -1 standard deviation were excluded as they contain a very small fraction of the sample
Source: Researchers' calculations using data from Statistics Norway, Norwegian military records, and Brønnøysundregistrene

industries, but that those with comparatively higher IQ test scores were more likely to have gone into other industries. This was due in part to those with higher scores being more likely to go into technology-related industries

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