

## IN THIS ISSUE

- Has Inequality Really Increased?
- Is Trade Good or Bad for the Environment?
- Generous Bankruptcy Rules Limit Small Firm Credit
- Taxes and Entrepreneurial Activity
- Women and Post-WWII Wages
- Government Size and Taxpayer Cheating

## Has Inequality Really Increased?

It is well documented that the gap between the richest and poorest Americans, in terms of earnings and income, has become wider over the last 25 years. But it is less well known that, despite this increase in “income inequality,” the range of consumption among individuals has changed very little. Although in terms of income the households close to the bottom or in the middle have not been able to keep up with households in the upper brackets, on average the lower income group has been able to maintain its spending habits. This is the key finding in **Does Income Inequality Lead to Consumption Inequality? Evidence and Theory** (NBER Working Paper No. 9202) by **Dirk Krueger** and **Fabrizio Perri**.

By one measure, inequality of aftertax labor income has increased by 25 percent in the 1972-98 period. Yet consumption inequality has risen less than 2 percent. What’s happened, the authors explain, is that higher-income Americans have been saving more of their income. This may be explained by an increase in income volatility in the United States: that is, a household that is prosperous in one year may have far less income in another year. So, as a precaution, the well-to-do families will save more of their income.

At the other end of the income

scale, households attempt to maintain their living standard by borrowing more with credit cards, auto loans, or other means. The lower-income families are also subject to instability in their incomes. Rather than staying in one job for decades, many workers have been changing jobs more frequently, voluntarily or involuntarily. So, some households will pile up debts for years; others may find well-paid jobs and pay off some of their debts.

Credit markets in the nation have responded to these trends by finding

“This development was the crucial factor for the divergence between income and consumption inequality in the last 25 years,” the authors conclude, and add: “...the distribution of current income might not measure well how economic well-being is distributed among households in the U.S.”

One element in this picture is that the inequality of both income and consumption between groups — say those with college education and those with high school or less — has increased, revealing that credit

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more sophisticated ways to use the savings of upper-income households to make loans to those in the middle or the bottom of the income scale, thereby mitigating the impact of income inequality on the consumption of food, clothing, housing, and so on. The ratio of aggregate consumer credit to disposable income in the last 40 years was flat until the mid-1970s, and then showed an upward trend. In effect, the rich are transferring resources to the poor — on a loan basis.

markets could not reduce consumption differences between permanently richer and permanently poorer households. But if one looks within such groups, income inequality has increased significantly while consumption inequality has actually decreased slightly, revealing an important role of credit markets in reducing consumption fluctuations in response to temporary income changes.

— David R. Francis

## Is Trade Good or Bad for the Environment?

Opponents of globalization claim that international trade harms the environment. They believe that in open economies a “race to the bottom” in environmental standards will result from governments’ fears that enhanced environmental regulation will hurt their international competitiveness. In **Is Trade Good or Bad for the Environment? Sorting out the Causality** (NBER Working Paper No. 9201), NBER Research Associates **Jeffrey Frankel** and **Andrew Rose** examine the environmental effects of openness to trade in a statistical cross-section of countries in 1995. They find that the impact of trade on at least three kinds of air pollution appears to be, if anything, beneficial, not adverse, for a given level of income. Openness, measured as the ratio of trade to income, appears to reduce air pollution. The level of statistical significance is high for Sulfur Dioxide (SO<sub>2</sub>), and moderate for Particulate Matter and Nitrogen Oxides (NO<sub>x</sub>).

Correlation need not prove causation. The observed correlation between trade and pollution could arise in other ways. It is possible that countries that are more democratic tend to be both more open to trade and more responsive to environmental concerns. Also, higher levels of income can interact with trade and the environment in all sorts of ways. This paper tries to disentangle the causality between trade and the environment by first testing for the effect of openness on the environment while controlling for income. Then the authors focus on exogenous variation in trade attributable to geography (for example distance from major trading partners), and on variation in income per capita attributable to standard growth determinants (for example population, investment, and education).

How could trade be good for the environment? Trade allows countries to attain more of what they want, including environmental protection (the authors call this proposition the gains-from-trade hypothesis). Trade might lead to international pressures to increase environmental standards, or to beneficial technological and managerial innovations. Multinational corporations tend to bring clean state-of-

at all. Similarly they are able to reject the versions of the pollution haven hypothesis that say that low-density countries or capital-intensive countries have a comparative advantage in pollution.

The authors also document the “Environmental Kuznets Curve” for the three measures of air pollution. This widely tested relationship says that growth harms the environment at low levels of income, but helps at

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the-art production techniques from higher-standard countries of origin to host countries where such standards are not yet known. Furthermore, trade economists believe that openness to trade encourages continual innovation both in technology and in management practice; such innovation likely will be applied to environmental concerns as well as to pure economic goals. In other words, Frankel and Rose suggest, environmental improvement may well accompany globalization.

Even if openness to trade does not raise air pollution worldwide, it may give rise to “pollution havens”: that is, some countries that specialize in dirtier production and export their products to others who specialize in cleaner production. In this way, the geographical distribution of pollution might change, even if the average level did not. In one version of the pollution haven hypothesis, poorer countries are predicted to have a “comparative advantage” in pollution. But Frankel and Rose test the proposition that the combination of being poor and open makes for higher levels of pollution, and they find no evidence of it

high levels. At higher levels of income per capita, growth stimulates the public’s demand for improving environmental quality, which in democratic societies is brought about through environmental regulation. Frankel and Rose estimate that SO<sub>2</sub> pollution, for example, peaks at income levels of about \$5,770 per capita, and thereafter starts to decline. All of this squares with economic theories that suggest that growth yields air and water pollution when industrialization is being introduced, but eventually results in reduced pollution as countries become prosperous enough to afford cleaning up their environments. In other words, production technology inevitably pollutes, but the rising income that results from this same production technology just as inevitably increases the demand for environmental quality.

A final finding is also familiar from studies of trade and income: globalization is good for growth. The authors find that every .01 increase in the ratio of trade to GDP raises income by 0.4 percent over the following 20 years. The effects of trade that operate via

growth — worsening pollution at first, and then reducing pollution later — may be larger than the effects of trade that operate independently of growth.

In sum, Frankel and Rose find that after an initial adverse effect in the relationship between growth and environmental damage at low levels of income, a pattern emerges showing that growth eventually has

a beneficial effect on air pollution. Still, the researchers caution that the results are less consistently positive in regard to broader measures of environmental quality. Some environmental problems such as emission of greenhouse gases are truly global and not local, they point out. A “free rider” problem prevents national governments from translating the demand for environmental

improvement into reality, even when they collectively have the economic means to do so. Thus the authors are not surprised to find statistically that trade and growth do not seem to have beneficial effects on emissions of these gases. In such cases, say Frankel and Rose, international cooperation and not just local regulation is needed.

## Generous Bankruptcy Rules Limit Small Firm Credit

Small businesses are the primary job engine in the U.S. economy. From 1990 to 1995, businesses with fewer than 500 employees accounted for 76.5 percent of net new jobs. But small businesses are, by their nature, volatile. Over 13 percent of U.S. jobs in 1995 were in firms that did not exist before 1990 and over 12 percent of jobs in 1990 were in firms that had ceased to exist by 1995. This high turnover frequently results in personal bankruptcy for the small business owners and, in turn, affects small firms’ access to credit.

In **Bankruptcy and Small Firms’ Access to Credit** (NBER Working Paper No. 9010), authors **Jeremy Berkowitz** and **Michelle White** investigate how personal bankruptcy laws affect small firms’ access to credit. When a firm is unincorporated, its debts are personal liabilities of the firm’s owner, so lending to the firm is legally equivalent to lending to its owner. If the firm fails, the owner has an incentive to file for personal bankruptcy, because the firm’s debts will then be discharged and the owner is

only obliged to use assets above an exemption level to repay creditors. That exemption level is regulated by individual states and may take the form of owner-occupied housing exemptions (homesteading exemption), equity in cars, cash holdings, and goods, such as furniture and

rates on those loans are higher.

Small corporations are also subject to credit restrictions. When a firm is incorporated, limited liability implies that the owner is not legally responsible for the firm’s debts. However, lenders to small corporations often require that the

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tools. The higher the exemption level, the greater is the incentive to file for bankruptcy.

Using data from the 1993 National Survey of Small Business Finance (NSSBF), the authors show that the supply of credit falls, and the demand for credit rises, when non-corporate firms are located in states with higher bankruptcy exemptions. If small firms are located in states with unlimited rather than low homestead exemptions, for example, they are more likely to be denied credit, they receive smaller loans, and interest

owner guarantee the loan and also may require that the owner give the lender a second mortgage on his/her house. This wipes out the owner’s limited liability for purposes of the particular loan and makes small corporate firms into corporate/non-corporate hybrids. Thus, personal bankruptcy law may apply both to non-corporate firms and to small corporate firms. The authors find that lenders, therefore, often disregard a small firm’s organizational status in making loan decisions and primarily consider size.

— Les Picker

## Taxes and Entrepreneurial Activity

**I**n **Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S.** (NBER Working Paper No. 9015), authors **Julie Berry Cullen** and **Roger Gordon** explore how taxes affect the decision to start a new business. Individuals can choose how much they work for themselves or work for someone else. Even if this choice does not affect their pretax earnings, it can well affect their tax liabilities. If business income is treated more favorably than earnings, then the tax system will encourage business activity.

Differences in the tax treatment of profits versus losses also can have strong effects on the incentives to choose a more risky occupation. For example, under a progressive tax schedule, profits will push the entrepreneur into higher tax brackets while losses will have the opposite effect. This implies that profits will be subject to a higher tax rate than the rate against which any losses can be deducted, making risk-taking less attractive. Similarly, profits from a partnership or proprietorship are subject to the payroll tax, but losses from such a business are not deductible under the payroll tax, again implying that entrepreneurs will keep fewer of their profits than of their losses. In contrast to these two mechanisms, the option to incorporate when combined per-

sonal income and payroll taxes become high enough makes risk-taking more attractive by reducing the tax rate on profits while leaving the treatment of losses unchanged. Finally, while small business normally finds it difficult to sell equity to outside investors, forcing the entrepreneur to bear substantial risks, it does implicitly share risks with the government, for example, by saving taxes when the business has losses.

The authors estimate the effects of taxes on entrepreneurial activity

data. The results imply, for example, that a drop in personal tax rates in each bracket by 5 percentage points would lead to over a 20 percent fall in entrepreneurial activity. Allowing non-corporate firms a tax rebate for any losses beyond those sufficient to reduce their taxable income to zero, as under a negative income tax, is forecast to generate a 50 percent increase in entrepreneurial activity. Reform of the payroll tax, enabling losses to be deductible just as profits are taxable, also should increase entrepreneurial activity.

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“Replacing the current personal and corporate income taxes with a 20 percent flat tax should virtually triple the amount of entrepreneurial activity.”

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using an IRS dataset containing over two million individual tax returns spanning twenty-two years from 1964 to 1993. After eliminating people over 65, those who were listed as dependents on other people's returns, and people who filed jointly, the authors sorted the returns into six groups based on an individual's potential wages. Their estimates were made from random samples drawn from each of the six groups.

Each of the tax effects just described shows up clearly in the

More dramatically, replacing the current personal and corporate income taxes with a 20 percent flat tax should virtually triple the amount of entrepreneurial activity, even with the remaining distortions under the payroll tax and the lack of tax rebates when taxable income becomes negative. Cullen and Gordon also find that a low unemployment rate and low real interest rates may also stimulate entrepreneurial activity.

— Linda Gorman

## Women and Post-WWII Wages

**I**n *Women, War, and Wages: The Effect of Female Labor Supply on the Wage Structure at Mid-Century* (NBER Working Paper No. 9013), authors **Daron Acemoglu, David Autor, and David Lyle** study the effect of women's work on wages, looking at the period before and after WWII. The authors focus on the growth of female employment from 1940 to shortly after the war, in 1950. In 1940, only 28 percent of women were working; by 1945, this figure exceeded 34 percent. In fact, the 1940s saw the largest proportional rise in female labor during the entire twentieth century. Although more than half of the women drawn into the workforce by the war left at the end of the decade, a significant number remained. The focus of the Acemoglu, Autor and Lyle study is the increase in female labor supply caused by the WWII mobilization.

To isolate the mobilization-induced labor supply shift, the authors exploit the fact that the fraction of males serving in the war was not uniform across states. For example, in Massachusetts, Oregon, and Utah, almost 55 percent of males between the ages of 18 and 44 left civilian work to serve in the war. In Georgia, the Dakotas, and the Carolinas, this number ranged between 40 and 45 percent. The state differences in war mobilization actually reflect a variety of factors. The Selective Service's guidelines for deferments were based on marital status, fatherhood, essential skills for civilian war production, and temporary medical disabilities, but left considerable discretion to the local boards. Because of the importance of maintaining a strong food supply to support the war, an

important consideration for deferment was farm employment. States with a high percentage of farmers had substantially lower mobilization rates, and this explains a considerable share of the state variation in mobilization rates.

The authors show that in states with greater war mobilization of men, women worked more after the war and in 1950, but not in 1940. This differential does not appear to be explained by other cross-state differences or possible demand factors, and is not present in the 1940

earnings inequality between male college and high school graduates (that is, it lowered what a male high school graduate was paid relative to a college graduate) but reduced earnings inequality between male graduates of high school versus eighth-grade graduates. The authors' results demonstrate a closer degree of substitutability between males and females in the labor force than has been suggested by previous economic analyses. Contrary to common belief, women do not substitute most closely for the least educated

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“Increases in female labor supply decreased both female and male wages, but had a stronger effect on women's wages.”

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data — nor does a similar trend recur in the decade of the 1950s. The authors “interpret these differentials as labor supply shifts induced by the War.” Acemoglu, Autor, and Lyle believe these cross-state changes in female employment were caused by greater participation of women during the war years, with some of those women staying on. War changed women's preferences, opportunities, and information about available work.

Using the cross-state changes in women's employment caused by the mobilization, the authors show that increases in female labor supply decreased both female and male wages, but had a stronger effect on women's wages. The impact of women working on male earnings was not uniform across male education levels, however: greater female labor participation led to increased

males, but rather for male high school graduates — or at least that was the case at mid-century.

Because rising female labor force participation raised inequality substantially in the top half of the male wage distribution and reduced it only slightly in the bottom half, the authors' estimates suggest that its net effect on wage inequality was positive (that is, more inequality). However, the authors explain that education levels and characteristics of women who increased their labor supply during the 1940s differ substantially from those women increasing their labor supply today. The experience of the WWII era therefore provides an intriguing but imperfect guide to the effect of female labor supply on male earnings inequality in recent decades.

— Marie Bussing-Burks

## Government Size and Taxpayer Cheating

Economists have long recognized the critical role that citizens' trust in each other and their institutions plays in influencing economic performance. In high-trust societies, individuals need to spend fewer resources to protect themselves from being exploited in economic transactions. But the importance of trust also extends to the relationship between citizens and their government, in the sense that voluntary compliance with tax laws facilitates a large government but may be eroded as the tax burden gets larger.

In **Trust in Public Finance** (NBER Working Paper No. 9187), NBER Research Associate **Joel Slemrod** uses data on trust and trustworthiness taken from the 1990 World Values Survey to inves-

tigate the relationship across countries between the size of government and the extent of tax cheating. He finds that there is less tax cheating in countries that exhibit more trustworthiness among citizens. How-

comply with the tax laws.

Slemrod further finds that there is more economic prosperity and more government involvement in more trusting societies. He also uncovers a positive association be-

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“Tax cheating becomes more acceptable to citizens as government grows.”

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ever, holding constant the level of such trustworthiness, tax cheating becomes more acceptable to citizens as government grows. Although a trusting citizenry allows a government to grow, the tax burden needed to sustain a bigger government erodes taxpayers' willingness to

tween the size of the government and prosperity, at least until the level of government spending reaches 31 to 38 percent of GDP. Beyond that, the effect of the government's size is negative.

— Les Picker

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