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Globalization Reduces Inequality in China

Does globalization worsen income inequality or reduce it? In recent years, this simple yet stubborn question has spawned countless studies examining the link between economic openness and income gaps. However, these analyses typically use cross-country regressions and encounter two key problems. First, data on relevant indicators — such as national income-distribution measures — are often not compatible internationally because of differences in the definition of the variables and data collection methods. Second, researchers often have a hard time accounting for variations in legal systems, political institutions, and culture that may affect economic growth and income inequality but may not be directly measurable. Indeed, some of these variables may interact with openness in affecting inequality and growth. As a result, evidence on the impact of globalization on inequality remains ambiguous.

In **Globalization and Inequality: Evidence from Within China** (NBER Working Paper No. 8611), co-authors **Shang-Jin Wei** and **Yi Wu** seek to overcome these obstacles by studying the connections between openness and inequality within a single country, where data disparities as well as institutional and cultural differences are less likely. Wei and Wu examine data for about 100 Chinese cities between 1988 and 1993, focusing on the gap between urban and rural incomes as a measure of income inequality. (They limit the study to cities that encompass urban areas plus adjacent rural counties.) Total income inequality in China can be decomposed into inequality between urban and rural areas, inequality

within urban areas, and inequality within rural areas. A number of other studies have shown that the first component — the inequality between urban and rural incomes — explains 75-80 percent of the overall inequality in China in the last two decades.

It is sometimes asserted, based on China's aggregate statistics, that it is an example in which greater openness has led to an increase in inequality. Wei and Wu suggest that this is wrong because other factors, such as inflation, could account for the increase in inequality. A within-country study such as theirs can hold constant

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these nationwide factors. Wei and Wu find that “those cities that have had a greater increase in the trade-to-GDP ratio have also tended to witness a reduction, rather than an increase, in the urban-rural income inequality.” In other words, openness to the global economy is associated with a reduction, not a worsening, of income disparities.

China is indeed a good case study: First, China offers “a quasi-natural experiment on the consequences of embracing globalization.” Because of Deng Xiao-Ping's 1978 decision to open the Chinese economy to the rest of the world, the country's overall trade as a percentage of GDP skyrocketed from 8.5 percent in 1977 to 36.5 percent 22 years later. Second, China's size allows Wei and Wu to amass data from a large number of intra-national observations. This means that it would be more difficult to

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implement a similar study on economies such as Argentina, Bangladesh, or Costa Rica, three countries that also have increased their openness dramatically in the last two decades.

In addition to its economic lessons, China has geographic features that provide a methodological advantage. China is semi-landlocked with a coast on its Eastern and Southeastern sides. The differences across Chinese cities in terms of participation in international trade are, to a large extent, attributable to their varying distance from a major seaport. This is confirmed by the data. Thus, the

Chinese geography offers a plausible “instrumental variable” for local exposure to globalization. It would be more difficult to carry out a similar study on economies such as the United States or Indonesia whose access points to international trade are more diffused.

Through what channels has China's trade openness helped rural residents to narrow their income gap relative to the urban residents? Wei and Wu hypothesize that globalization has offered an opportunity for rural areas to industrialize. More specifically, the industrial firms in rural areas of China (often referred to as “township-and-village enterprises,” or TVEs) have a better chance to emerge, expand, and succeed in more open areas. As a consequence, the residents in these areas catch up with their urban counterparts faster.

— Carlos Lozada

Does Social Security Redistribute to Low Income Groups?

Because the Social Security benefit formula replaces a greater fraction of the lifetime earnings of low earners than of high earners, the U.S. Social Security system is generally thought to be progressive. However, in **Redistribution in the Current U.S. Social Security System** (NBER Working Paper No. 8625), NBER Faculty Research Fellow **Jeffrey Liebman** shows that much of the redistribution in the U.S. Social Security system is related to factors other than lifetime income. Total income-related transfers from Social Security are relatively modest.

The pattern of redistribution that occurs through Social Security is complicated because lifetime taxes and benefits are influenced by the different mortality rates of people in different demographic groups, by differences in marital status, and by variations in the earnings levels of secondary earners in married couples, among other factors. Thus the income-related redistribution that occurs because of the progressive benefit formula is partially offset by the longer life expectancies of higher income individuals and by the larger spouse-and-survivor benefits received by the spouses of higher earners.

In his study, Liebman examines the distribution of internal rates of return, net transfers, and lifetime net tax rates from Social Security that would have accrued to people born from 1925-9 if the present Social Security rules had been in place for their entire lives. His simulation is based on matching the 1990 and 1991 Surveys of Income and Program Participation with Social Security administrative earnings and benefits records.

Liebman finds that within this group, Social Security provides net transfers equal to just 13 percent of Social Security benefits paid (when taxes and benefits are discounted at the sample's 1.29 percent rate of return). Because much of this 13 percent redistribution is related to

non-income factors, the annual income-related transfers from Social Security are only 5-9 percent of Social Security benefits paid, or \$19-34 billion at 2001 aggregate benefits levels. Using a higher discount rate than 1.29 percent, Social Security appears to be more redistributive on some measures and less so on others.

Moreover, the range of transfers received at a given level of lifetime income is very wide. Liebman shows that one in five individuals in the top

demographic groups with short life expectancies to groups with long life expectancies. Therefore, several billion additional dollars of transfers would be necessary to maintain the current level of redistribution.

Second, if no explicit steps are taken in a PRA-based plan to redistribute income to groups with low life expectancies, then certain demographic groups with low life expectancies could end up doing substantially worse than under the current system.

“One in five individuals in the top 20 percent of the lifetime income distribution receive greater net transfers than the average for people in the bottom 20 percent of the income distribution.”

20 percent of the lifetime income distribution receive greater net transfers than the average for people in the bottom 20 percent of the income distribution.

A number of proposed Social Security reforms would increase the link between workers' Social Security contributions and their retirement income by supplementing or replacing the current system with defined-contribution personal retirement accounts (PRAs). These proposals have led to concerns that some of the redistributive and poverty-reducing components of the system would be lost.

Liebman suggests that his results have two implications for such Social Security reform. First, they suggest the magnitude of redistribution that a PRA-based plan would need to achieve in order to maintain the current level of redistribution from high-earners to low-earners. A mixed plan in which PRAs are responsible for about one-third of the retirement income from Social Security would require the equivalent of \$7 to \$10 billion per year in transfers. However, most PRA plans would mandate that retirees convert at least part of their account balances into annuities and thus would redistribute from

For example, blacks and high school dropouts currently receive rates of return from Social Security that are roughly the same as the population average, because the progressive benefit formula offsets the impact of their relatively high mortality rates. If a PRA-based plan required individuals to convert their account balances into annuities at a single price for everyone in the population, then mortality would have the same effect on benefit payments as in the current system, but there would be no progressive benefit formula to offset it. Providing explicit redistribution as part of the individual accounts would be one way to ensure that these groups are not made worse off by Social Security reform. Valid comparisons between the current system and possible alternatives, Liebman argues, must take into account the actual pattern of redistribution under current Social Security rules. However, income redistribution is not the only potential benefit that Social Security provides for low-income families. Some of the other benefits — such as the inflation-protected annuity and the absence of market risk — may be particularly valuable to low-income families.

— Andrew Balls

Why do Death Rates Decline?

During the twentieth century, mortality rates declined quite rapidly in the United States and in all developed countries. In 1900, the annual mortality rate was one in 42 Americans. In 1998, on an age-adjusted basis, the rate had dropped to one in 125 people. That's a cumulative decline of 67 percent. In **Changes in the Age Distribution of Mortality Over the 20th Century** (NBER Working Paper No. 8556), co-authors **David Cutler** and **Ellen Meara** explore how we achieved such gains in health: that is, which innovations or policies contributed most to these gains.

Except for a 10-year period between 1955 and 1965 when the mortality rate was essentially flat, mortality rates have declined at the relatively constant rate of approximately 1 to 2 percent per year since 1900. That mortality reduction used to be concentrated at younger ages, but then became increasingly concentrated among the aged. In the first four decades of the twentieth century, 80 percent of life expectancy improvements resulted from reduced mortality for those below age 45, the bulk of these for infants and children. In the next two decades, life expectancy improvements were split relatively evenly by age group. In the latter four decades of the century, about two-thirds of life expectancy improvements resulted from mortality reductions for those over age 45.

During the first half of the century, changes in the ability to avoid and withstand infectious diseases were the prime factors in reducing mortality. Infectious diseases were the leading cause of death in 1900, accounting for 32 percent of deaths. Pneumonia and influenza were the biggest killers. Therefore, improved

nutrition and public health measures, particularly important for the young, were vastly more important in this period than medical interventions. Better nutrition allowed people to avoid contracting disease and to withstand disease once contracted; public health measures reduced the spread of disease. During this period, reduced infant mortality contributed 4.5 years to overall improvements in life expectancy; reduced child mortality contributed nearly as much, and reduced mortality among young adults added about 3.5 years.

Between 1940 and 1960, infectious diseases as a cause of death continued to decline. But more of this decline was attributable to med-

are attributed to medical care, including high tech medical treatment, and not to social or environmental improvements. Smoking cessation and better diets also are factors: per capita consumption of cigarettes rose from essentially zero in 1900 to more than 4,000 per year per capita in 1960, or over two packs per smoker per day. Since then, per capita consumption has fallen by more than 50 percent. These trends affect death from heart disease and from smoking-sensitive cancers with a 10 to 20-year lag.

For several important causes of death, rising incomes and a variety of social programs have accompanied significant reductions in mortality.

“Since 1960, mortality reductions have been associated with two newer factors: the frequent conquest of cardiovascular disease in the elderly and the prevention of death caused by low birth weight in infants.”

ical factors, such as the use of penicillin, sulfa drugs (discovered in 1935), and other antibiotics. These help the elderly as well as the young, thereby reducing mortality across the age spectrum. By 1960, 70 percent of infants could be expected to survive to age 65.

Since 1960, mortality reductions have been associated with two newer factors: the frequent conquest of cardiovascular disease in the elderly and the prevention of death caused by low birth weight in infants. Traditional killers such as pneumonia in the young also have continued to decline, but mortality from these causes was already so low that further improvements did not add greatly to overall longevity.

Increasingly, mortality reductions

Higher incomes make possible the use of expensive medical technology and are correlated with less smoking than lower incomes. Medicare increases the access of the elderly to medical care while Medicaid does the same for the poor. A large increase in the incomes of the elderly stemming from pre-Social Security social programs and the phase-in of the Social Security system has coincided with suicide rates for that group dropping 56 percent since 1930.

Finally, the authors make the broad point that dramatic swings in the ratio of non-white to white infant deaths over the century suggest that a variety of factors influence health differentially for the different races.

— David R. Francis

Measuring the Stress of Financial Traders

In **The Psychophysiology of Real-Time Financial Risk Processing** (NBER Working Paper No. 8508), NBER Research Associate **Andrew Lo** and coauthor **Dmitry Repin** marry the biomedical and the social sciences by investigating the role that emotion plays in the high-stakes and high-pressure world of professional securities traders, individuals who, by their training and inclination, are presumably among the most rational decisionmakers in the economy.

Proponents of what is alternately called behavioral economics or behavioral finance maintain that investors often are guided by irrational feelings such as overconfidence, overreaction, herd mentality, loss aversion, fear, greed, or simply optimism and pessimism. At the same time, a competing view is that despite the pressures engendered by minute-to-minute transaction opportunities, professional traders function purely on the basis of intellect and rational analysis.

Recent research conducted in both the cognitive sciences and in financial economics suggests that emotions, in fact, play a significant role in the thinking process. Lo and Repin set out to test this notion. They measure and analyze data arising from autonomic nervous system responses of ten professional traders — foreign exchange and interest-rate derivatives traders employed by a major Boston financial institution — as they make decisions in real time during live trading sessions. The traders fall into two groups: five who are considered highly experienced and five who have low or moderate experience.

Each trader was “wired” with six electronic sensors attached to the subject’s face, hands, and arms that continuously monitored and recorded the trader’s physiological characteristics such as skin conductance, heart rate, respiration, facial and forearm muscular activity, and body

temperature. The sensors were connected to a small control unit on each subject’s belt, and from each control unit, a fiber-optic connection led to a laptop computer that analyzed the real-time physiological data using biofeedback software while simultaneously recording corresponding

cal variables associated with the autonomic nervous system are clearly correlated with market events. Although the physiological responses of experienced and inexperienced traders show some interesting differences, even the most highly experienced subjects exhibit significant

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real-time financial data on which the traders based their decisions.

These monitoring devices, similar to ones used in cognitive studies of decisionmaking by automobile drivers and student pilots in flight-simulators, did not interfere in any way with the traders’ normal activities. The monitors tracked the subjects’ physiological responses before, during, and after three kinds of “market events”: deviations, trend reversals, and periods of increased market volatility. Such events are known to generate heightened attention and awareness among even the most experienced traders.

The market data used in this study consisted of prices and bid/offer spreads in 15 key financial instruments: 13 foreign currencies and two futures contracts. The authors analyze both physiological and market data to address three objectives: to identify particular types of events that seem to yield statistically different autonomic responses from “control” periods (periods containing no events of any kind); to identify differences in autonomic responses between particular traders or groups of traders based on trading experience or other characteristics; and to identify differences in autonomic response associated with differences in the particular financial instruments traded.

The results show that physiologi-

cal responses during market events. Such patterns, say Lo and Repin, strongly suggest that emotional responses are a significant factor in the real-time processing of financial risks, even among the most rational investors in the economy.

These findings support other studies that point to the significance of cognitive-emotional interactions and the genesis of what, for the lack of a more precise term, we call “intuition.” Experts’ judgments, the researchers maintain, are often based on this subconscious process of intuition, and not necessarily purely on explicit analytical processing.

In fact, the data suggest that the most successful traders often seem to function without the ability (or need) to articulate the reasoning behind their decisionmaking. A reasonable conjecture, say Lo and Repin, is that emotional mechanisms are at least partly responsible for the ability to form intuitive judgments and for those judgments to be incorporated into rational decisionmaking. Such a conclusion, they add, may not be as puzzling as it seems.

According to cognitive scientists, emotion is the basis for a reward-and-punishment system that facilitates the natural selection of evolutionarily advantageous behavior. From an evolutionary perspective, emotion is a powerful adaptation that dramatically improves the efficiency

with which animals learn from their environment and their past.

In this respect, it would appear that emotion is a significant determinant of the evolutionary fitness of financial traders. In short, since

unsuccessful traders are generally “eliminated” from the population after a certain level of losses, the authors conjecture that the presence of emotion in the financial community is, in a Darwinian sense, desir-

able. Lo and Repin believe their findings are promising enough to warrant further investigation on a larger scale and with a more refined set of experiments and tools.

— Matt Nesvisky

Aging and Housing Equity

Although home equity is an important component of most families’ net worth at retirement, NBER Research Associates **Steven Venti** and **David Wise** find that retirees generally do not use that equity to pay their living costs in retirement. In **Aging and Housing Equity: Another Look** (NBER Working Paper No. 8608) they observe that, in the absence of a large shock like a spouse’s death or entry into a nursing home, home equity remains generally stable throughout retirement. Even when a shock occurs, large drops in home equity are “the exception rather than the rule.”

The authors use survey data from the Health and Retirement Study (HRS), the Asset and Health Dynamics Among the Oldest Old (AHEAD), and the Survey of Income and Program Participation (SIPP). The SIPP data cover a large number of homeowners, aged 26 to 80, over the years 1984 to 1995. These data allow groups of households to be followed over time.

Although two-person households are more likely to own a home than one-person households, Venti and Wise find no apparent decline in home ownership in either group through age 70. For example, at age 26 between 15 and 20 percent of one-person households and 50 percent of two-person households own a home. By age 70, over 60 percent of one-person households and over 80 percent of two-person house-

holds own a home. Overall, the fraction of homeowners changes little after age 70.

The AHEAD data suggest that 97 percent of two-person homeowner households continued to own a home two to three years later, as long as the household still had two members. A household member’s death decreased the ownership rate to about 89 percent, while admission to a nursing home decreased it to 75

homeowner households in the AHEAD sample had a 1.5 percent probability leaving the ranks of homeowners each year. The probability of giving up home ownership for one-person households was 4 percent. If a household member died or entered a nursing home, the probability of discontinuing ownership was 21 percent.

Overall, the home equity for the older people in the AHEAD sample

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percent. In the absence of any shock, 91 percent of continuing one-person homeowner households remained homeowners two to three years later. Even after a household member was admitted to a nursing home, 40 percent of one-person households continued to own a home.

Home equity appears to increase moderately between ages 70 and 75. The authors’ simulations of changes in home equity based on the available data suggest that although “income-poor and house-rich families are more likely to reduce equity when they move, and house-poor and income rich families are more likely to increase” it, families that move and purchase another home on average tend to increase equity. Absent any shocks, two-person

declined by 1.76 percent per year. Almost all of this decline was accounted for by households that experienced a death or a nursing home admission. While the annual rate of decline in home equity for continuing two-person households was just 0.11 percent, the annual rate of decline in home equity of two-person households in which a member died or entered a nursing home was 7.8 percent.

These results suggest that retired people primarily consider their houses a place to live. While they may use home equity as an emergency fund in catastrophic circumstances, this is the exception rather than the rule. In general, home equity is not used to finance post-retirement living.

— Linda Gorman

Immigrant and Native Responses to Welfare Reform

Approximately 13.5 million legal immigrants, along with some 5 million illegal immigrants, came to the United States between 1981 and 1996, rivaling only the wave of immigration that occurred between 1900 and 1920. These immigrants were less educated than their predecessors and were more likely to use Aid to Families with Dependent Children (AFDC) and other welfare programs than were immigrants who arrived in the 1970s. They also participated in welfare programs more than native citizens did. This situation led to widespread concern that new immigrants were a fiscal drag on the economy, consuming more than they were producing. It created a backlash that culminated in the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996, which denied legal immigrants arriving after passage of the law receipt of most federally funded benefits.

In **Immigrant and Native Responses to Welfare Reform** (NBER Working Paper No. 8541), authors **Robert Kaestner** and **Neeraj Kaushal** compare the effect of PRWORA on the employment,

hours of work, and marriage rates of three groups of low-educated women: foreign-born citizens, foreign-born non-citizens, and native-born citizens. Because some states created locally-funded programs to insure that all legal immigrants, including

attachment to the labor market. TANF had a larger effect on the least educated native-born women. Among foreign-born non-citizens, TANF had a larger effect on more recent arrivals. The authors also find that there is no evidence of the much

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those arriving after passage of PRWORA, remained eligible for cash assistance benefits similar to federal benefits under the Temporary Assistance to Needy Families (TANF) program, the authors also compare the response of foreign-born non-citizens between states. In that way, they test whether the immigrant provisions of PRWORA had a “chilling” effect on immigrant program participation and employment.

The authors find that PRWORA encouraged native-born citizens and foreign-born non-citizens to increase their employment and their

publicized “chilling” effect, which anticipated that qualified welfare applicants might be frightened off by the debate and controversy surrounding welfare reform. Instead, actual eligibility for benefits is the more critical determinant of the behavioral response to welfare reform.

TANF and AFDC waivers had no effect on the marriage decisions of native-born and foreign-born citizens. TANF *was* associated with a decrease in the marriage rates of foreign-born non-citizens.

— Les Picker



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