The rise in exports from China has been one of the most significant events in international trade in recent decades. This trend has accelerated since that country’s entry into the World Trade Organization (WTO) in 2001. Even before that date, by a vote of the U.S. Congress China received the low-tariff, most-favored-nation status associated with WTO membership each year. But with WTO membership, Chinese firms experienced a reduction in the uncertainty associated with the outcome of that vote. This contributed importantly to the surge in exports to the United States, according to studies by Justin Pierce and Peter Schott and by Kyle Handley and Nuno Limão; their hypothesis is supported by empirical work by Ling Feng, Zhiyuan Li, and Deborah Swenson. Pierce and Schott observe that the surge in Chinese exports to the United States coincides with a substantial decline in U.S. manufacturing employment. Handley and Limão find that the welfare gain for consumers due to this increase in Chinese imports is of the same order of magnitude as the U.S. gain from new imports in the preceding decade. These initial findings highlight the dual role that Chinese imports play for the United States: on the one hand, they create import competition with associated labor-market dislocation; on the other, they benefit U.S. consumers.

The first of these roles is explored in a series of papers by David Autor, David Dorn, and Gordon Hanson. They analyze the impact of Chinese import competition between 1990 and 2007 on local U.S. labor markets, exploiting geographic differences in import exposure that are due to initial differences in industry specialization. Higher exposure increases unemployment, lowers labor force participation,
and reduces wages. [See Figure 1, at right] At the aggregate level, a conservative estimate is that the import surge accounts for one-quarter of the decline in U.S. manufacturing employment. The regional concentration in the decline in manufacturing employment is inconsistent with some alternative explanations of this phenomenon, notably the possibility of a systemic technology shock. The trade effects on unemployment are confirmed by examining worker-level evidence. More recently, in joint work with Daron Acemoglu and Brendan Price, these authors find that the import surge from China also contributed to unusually slow employment growth in the United States following the global financial crisis and the Great Recession.

While these papers have explored the impact of import competition from China, they do not incorporate the consumer gains or the export opportunities created by expanded Chinese exports. The first attempt to put the surge in Chinese imports into a general equilibrium context is that of Lorenzo Caliendo, Maximiliano Dowrick, and Fernando Parro. Their computable general equilibrium model incorporates labor mobility frictions and dislocation costs. They find that growing Chinese import competition resulted in a 0.6 percentage point reduction in manufacturing’s share of total employment, or approximately one million jobs lost, which is about 6.4 percent of manufacturing employment not explained by a secular trend. At the same time, the China shock increased U.S. welfare by 0.2 percent in the short run and 6.7 percent in the long run, with very heterogeneous effects across labor markets. Despite the fact that employment impacts and labor market dislocation are much stronger in some areas, the consumer gains and export opportunities mean that nearly all regions experience net benefits from rising Chinese imports.

This work has inspired much additional research on the China shock. In the United States, Arvath Ebenstein, Ann Harrison, andumbo C. Yoffie analyze the impact of globalization at the occupational level and find that offshoring to low-wage countries and imports from China have a greater impact than does offshoring. In Germany, analysis of the Global Value Chain database and Bureau’s Related Party Trade database, they show that global value chain activity is highly concentrated in a small number of countries, including China. This is not surprising, since the firm must choose zero, one, or two more countries to which to outsource. Popular literature on the China shock extends these results to the firm-level. They find that a shock to sourcing by U.S. firms from China can lead to enhanced demand for local inputs, too, as these firms grow. In other work, Antràs and Davin Chor analyze offshoring using a properties model of the firm. They consider a continuum of production stages, where at each stage a final goods producer contracts with a distinct supplier for a customized, stage-specific component. They show that the incentive to integrate suppliers varies systematically with the relative position—upstream versus downstream—at which the supplier enters the production process and that the interaction between integration and “downstreamness” depends crucially on the elasticity of demand faced by the final goods producer. Using the U.S. Census Bureau’s Related Party Trade database, they find empirical evidence broadly supportive of these predictions. In work with co-authors Laura Alfaro and Paola Conconi, they provide further evidence supporting this theory of offshoring and its implications for the production activities of firms operating in more than 100 countries.

These papers build on work by Antràs and Chor, and other co-authors lead to the group, and another 20 individuals with secondary affiliation. Research within the group covers a wide range of topics, such as the linkage of wage inequality and multilateral economic cooperation. The next NBER Reporter article on the ITI program was in 2011; this article’s focus is on research during 2012–15. The linkage of wage inequality and global supply chains is studied in a
The entry of China into the WTO in 2001 was a major event in the world economy. This entry was seen as not only an important one — a reduction in the trade costs between countries. But importantly, the paper of Caliendo, Dvorkin, and Paro cited previously models the export surge from China as arising from a positive technology shock that increased the productivity of an effective U.S. tariff cut. That is also the case for the research of Chang-Tai Hsieh and Ralph Ossa dealing with the impact of China’s export growth on the rest of the world. The reason that an effective tariff cut is not used in the models is twofold. First, as noted, the U.S. tariff cut received by China when it entered the WTO in 2001 was actually a reduction in the risk of having non-WTO tariffs applied, since most-favored-nation tariffs had been approved in previous years.

Setting aside this issue, there is a second reason why we do not use a tariff cut to explain China’s export surge. Suppose that we model the Chinese economy and the rest of the world as being composed of heterogeneous firms with a Pareto distribution of productivities competing under monopolistic competition, as suggested by Melitz-Cheney model. Then, let us introduce an iceberg trade cost — the assumption that trade costs rise with the distance between a proxy for border costs. It turns out that a reduction in the iceberg trade cost has no impact on the entry of firms into the monopolistically competitive sector. For this reason, it would be difficult to calibrate the large export surge from China as arising from a reduction in trade costs. Furthermore, in this setting, the gains from trade resulting from a reduction in trade costs are much the same as in an autarky model, since the number of firms is fixed by assumption, or as in a monopolistic competition model with homogeneous firms. For these reasons, Costinot, Arkolakis, Costinot, and Andréis Rodríguez-Clare conclude that new models such as these have not contributed much, at least so far, to measuring the welfare gains from trade. That conclusion led to a strong response from Costinot et al., which takes out Melitz and Redding in ‘New Trade Models, New Trade Implications’. The research led to ongoing research dealing with the gains from trade. Melitz and Redding explore how gains are affected when the distribution of firm productivities takes on an unbounded Pareto distribution, with an upper bound to the highest productivity available. In that case, a change in trade costs indeed leads to entries and exits by firms that influence the gains from trade. Melitz and Redding, and also Thomas Chaney and Ossa, further consider a model of sequential production, whereby a reduction in trade costs feeds back into domestic productivity, leading to greater gains from trade. Ania Fernandez, Peter Klenow, Sergii Meleshchuk, Martha Denisse Pierola, and Rodriguez-Clare use data from the World Bank’s Dynamic Database and find that the productivity distribution cannot be an unbounded Pareto.

My own work extends the discussion of truncated Pareto by allowing for a wide range of preference beyond the constant elasticity of substitution, called the ‘quadratic mean of order r’ preferences. Again, entry by firms responds to changes in trade costs. The average markup charged by firms and the variety of goods available to consumers also change. Therefore, increased trade has pro-competitive and variety effects. Using a truncated Pareto distribution in this way avoids the result of Arkolakis, Costinot, Davidson, and Rodriguez-Clare, who also allow for potentially iceberg trade costs and induce any positive, pro-competitive effect of trade. David Weinstein and I have measured the pro-competitive effect and the iceberg transport cost for U.S. firms in their treatment of tariffs. But because they focus on tariffs that are charged on the variances of product costs, the only difference is the iceberg transportation cost is that tariffs generate revenue that is redistributed to consumers. In contrast, Caliendo, John Romalis, Alan Taylor, and I allow tariffs to be applied to total import revenue, inclusive of the markup earned by the exporting firm.

A tariff is then equivalent to a tax on both costs and on profits. We find a quite pronounced impact of the Uruguay Round on U.S. sugar duties from 1890 to 1930. Douglas Irwin finds a striking asymmetry: a tariff reduction is immediately passed through to consumer prices with no impact on the import price, whereas about 40 percent of a tariff increase is passed through to consumer prices and 60 percent is borne by foreign exporters. A comprehensive examination of historical tariff negotiations that will give rise to new data is being undertaken by Kyle Bagwell, Robert Staiger, and Ali Yurukoglu. They have access to recently declassified data that was not part of the Uruguay Round. We also use data from the U.S. ITI program is the gravity equation, which explains trade between countries as arising from a positive technology shock. These data give us an extended version of the equation and its estimation to which the elasticity of trade flows with respect to total import revenue, inclusive of the markups, as well as expanding variety. By releasing tariffs applied, since an effective tariff cut is not used in the models is twofold. First, as noted, the U.S. tariff cut received by China when it entered the WTO in 2001 was actually a reduction in the risk of having non-WTO tariffs applied, since most-favored-nation tariffs had been approved in previous years.

Setting aside this issue, there is a second reason why we do not use a tariff cut to explain China’s export surge. Suppose that we model the Chinese economy and the rest of the world as being composed of heterogeneous firms with a Pareto distribution of productivities competing under monopolistic competition, as suggested by Melitz-Cheney model. Then, let us introduce an iceberg trade cost — the assumption that trade costs rise with the distance between a proxy for border costs. It turns out that a reduction in the iceberg trade cost has no impact on the entry of firms into the monopolistically competitive sector. For this reason, it would be difficult to calibrate the large export surge from China as arising from a reduction in trade costs. Furthermore, in this setting, the gains from trade resulting from a reduction in trade costs are much the same as in an autarky model, since the number of firms is fixed by assumption, or as in a monopolistic competition model with homogeneous firms. For these reasons, Costinot, Arkolakis, Costinot, and Andréis Rodríguez-Clare conclude that new models such as these have not contributed much, at least so far, to measuring the welfare gains from trade. That conclusion led to a strong response from Costinot et al., which takes out Melitz and Redding in ‘New Trade Models, New Trade Implications’. The research led to ongoing research dealing with the gains from trade. Melitz and Redding explore how gains are affected when the distribution of firm productivities takes on an unbounded Pareto distribution, with an upper bound to the highest productivity available. In that case, a change in trade costs indeed leads to entries and exits by firms that influence the gains from trade. Melitz and Redding, and also Thomas Chaney and Ossa, further consider a model of sequential production, whereby a reduction in trade costs feeds back into domestic productivity, leading to greater gains from trade. Ania Fernandez, Peter Klenow, Sergii Meleshchuk, Martha Denisse Pierola, and Rodriguez-Clare use data from the World Bank’s Dynamic Database and find that the productivity distribution cannot be an unbounded Pareto.

My own work extends the discussion of truncated Pareto by allowing for a wide range of preference beyond the constant elasticity of substitution, called the ‘quadratic mean of order r’ preferences. Again, entry by firms responds to changes in trade costs. The average markup charged by firms and the variety of goods available to consumers also change. Therefore, increased trade has pro-competitive and variety effects. Using a truncated Pareto distribution in this way avoids the result of Arkolakis, Costinot, Davidson, and Rodriguez-Clare, who also allow for potentially iceberg trade costs and induce any positive, pro-competitive effect of trade. David Weinstein and I have measured the pro-competitive effect and the iceberg transport cost for U.S. firms in their treatment of tariffs. But because they focus on tariffs that are charged on the variances of product costs, the only difference is the iceberg transportation cost is that tariffs generate revenue that is redistributed to consumers. In contrast, Caliendo, John Romalis, Alan Taylor, and I allow tariffs to be applied to total import revenue, inclusive of the markup earned by the exporting firm.

However, a reduction in input tariffs leads to a sizable increase in markups as firms absorb the fall in marginal costs with little change in prices.

We conclude this section by noting that historical data remains a rich source for exploration of the effects of tariff changes. Examining the change in the U.S. sugar duties from 1890 to 1930, Douglas Irwin finds a striking asymmetry: a tariff reduction is immediately passed through to consumer prices with no impact on the import price, whereas about 40 percent of a tariff increase is passed through to consumer prices and 60 percent is borne by foreign exporters. A comprehensive examination of historical tariff negotiations that will give rise to new data is being undertaken by Kyle Bagwell, Robert Staiger, and Ali Yurukoglu. They have access to recently declassified data that was not part of the Uruguay Round. We also use data from the U.S. ITI program is the gravity equation, which explains trade between countries as arising from a positive technology shock. These data give us an extended version of the equation and its estimation to which the elasticity of trade flows with respect to total import revenue, inclusive of the markups, as well as expanding variety. By releasing tariffs applied, since an effective tariff cut is not used in the models is twofold. First, as noted, the U.S. tariff cut received by China when it entered the WTO in 2001 was actually a reduction in the risk of having non-WTO tariffs applied, since most-favored-nation tariffs had been approved in previous years.

Setting aside this issue, there is a second reason why we do not use a tariff cut to explain China’s export surge. Suppose that we model the Chinese economy and the rest of the world as being composed of heterogeneous firms with a Pareto distribution of productivities competing under monopolistic competition, as suggested by Melitz-Cheney model. Then, let us introduce an iceberg trade cost — the assumption that trade costs rise with the distance between a proxy for border costs. It turns out that a reduction in the iceberg trade cost has no impact on the entry of firms into the monopolistically competitive sector. For this reason, it would be difficult to calibrate the large export surge from China as arising from a reduction in trade costs. Furthermore, in this setting, the gains from trade resulting from a reduction in trade costs are much the same as in an autarky model, since the number of firms is fixed by assumption, or as in a monopolistic competition model with homogeneous firms. For these reasons, Costinot, Arkolakis, Costinot, and Andréis Rodríguez-Clare conclude that new models such as these have not contributed much, at least so far, to measuring the welfare gains from trade. That conclusion led to a strong response from Costinot et al., which takes out Melitz and Redding in ‘New Trade Models, New Trade Implications’. The research led to ongoing research dealing with the gains from trade. Melitz and Redding explore how gains are affected when the distribution of firm productivities takes on an unbounded Pareto distribution, with an upper bound to the highest productivity available. In that case, a change in trade costs indeed leads to entries and exits by firms that influence the gains from trade. Melitz and Redding, and also Thomas Chaney and Ossa, further consider a model of sequential production, whereby a reduction in trade costs feeds back into domestic productivity, leading to greater gains from trade. Ania Fernandez, Peter Klenow, Sergii Meleshchuk, Martha Denisse Pierola, and Rodriguez-Clare use data from the World Bank’s Dynamic Database and find that the productivity distribution cannot be an unbounded Pareto.

My own work extends the discussion of truncated Pareto by allowing for a wide range of preference beyond the constant elasticity of substitution, called the ‘quadratic mean of order r’ preferences. Again, entry by firms responds to changes in trade costs. The average markup charged by firms and the variety of goods available to consumers also change. Therefore, increased trade has pro-competitive and variety effects. Using a truncated Pareto distribution in this way avoids the result of Arkolakis, Costinot, Davidson, and Rodriguez-Clare, who also allow for potentially iceberg trade costs and induce any positive, pro-competitive effect of trade. David Weinstein and I have measured the pro-competitive effect and the iceberg transport cost for U.S. firms in their treatment of tariffs. But because they focus on tariffs that are charged on the variances of product costs, the only difference is the iceberg transportation cost is that tariffs generate revenue that is redistributed to consumers. In contrast, Caliendo, John Romalis, Alan Taylor, and I allow tariffs to be applied to total import revenue, inclusive of the markup earned by the exporting firm.
The spatial distribution of economic activity is surveyed by Redding and Mathew Turner. Finally, a new model of the impact of climate change on economic activity is presented by Tingyun Liu, Donaldson and Smith, and Esteban Rossi-Hansberg. They examine spatial linkages between goods markets through the lens of substituting factor markets through commuting and migration. The latter are subject to heterogeneous moving costs between regions. They find that without these costs, commuting flows cannot be explained by only considering conventional variables such as the difference between regions in their size or wages. There are many "natural experiments" that can be used to test spatial models. Andrew Bernard, Anders Muenster, and Yuiko Sato use the opening in Japan of a high-speed bullet train (Shinkansen) line that lowered the cost of passenger travel but left shipping costs unchanged. They find that the gains from cooperative setting immigration to cities or to other countries, as temperature reduces the probability of migration. They find that the actual response of migrants to changes within a number of countries is studied by Cristina Cattaneo and Giovanni Peri. They find that in middle-income countries, migration represents an important margin of adjustment, with gains towards cities or other countries as temperature warms. This mechanism does not seem to work in poorer countries, where higher temperatures reduce the probability of migration to cities or to other countries, consistent with the presence of severe liquidity constraints. This research suggests that the results from multi-country general equilibrium models may be very sensitive to the way in which different margins of substitution operate — substitution between crops, between regions, and between countries. Understanding those margins of substitution and the costs associated with them is an important ongoing direction of research in the ITI program. Moreover, we are working on the efficacy with which different margins of substitution operate — substitution between crops, between regions, and between countries.
My recent research has focused on measuring the ways that the Affordable Care Act (ACA) affects the delivery of health services, labor market outcomes, and population health and well-being. Most of my work relies on quasi-experimental research designs that exploit differences in the ways states have implemented parts of the ACA, or ways that the law affects different subpopulations.

The ACA is a massive law that overhauls many parts of the U.S. health economy. The insurance expansions at the heart of the legislation only occurred in 2014, and studies of the early effects of these changes are only now starting to emerge. However, other aspects of the law came into play much earlier, and I have focused on those changes. In particular, my co-authors and I have examined the 2010 young-adult provision that requires private insurers to allow dependents to remain on their parents’ policies until the age of 26 and has several interesting findings.

First, the effect of the law on young adults’ insurance coverage was quite dramatic. Almost immediately, this provision increased parental employer coverage of young adults by more than 40 percent—slightly more than 2 million young adults. This expansion also altered health care utilization among young adults. Using young adults’ use of inpatient health care and slightly more than 40 percent — slightly more than parental employer coverage of young adults.

My work on the young-adult expansion explores a quasi-experimental design. The key idea is that even though this provision was implemented nationally, it only affected 19- to 25-year-olds. To help control for trends and other sources of bias, my colleagues and I compare the time series of outcomes among the 19- to 25-year-olds with the time series in a comparison group of young adults slightly outside that age range and therefore unaffected by the policy change. This approach tests the assumption that, absent the policy change, the younger and older adults would have followed similar time trends in outcomes. For most outcomes, the assumption appears plausible based on pre-policy trends and the age-based difference-in-difference comparison is now the standard approach in a sizable literature on the ACA young-adult provision.

Take Up and Crowd Out

In a series of papers with Yia Akosu Antwi, Aaron Carroll, Bradley Heim, Ithai Lurie, Jie Ma, Asako S. Motry, and Benjamin D. Sommers, I examine the extent to which pre-existing private coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage, whereas in the case of the young-adults reform associated with ACA, private parental coverage mostly displaced other sources of private coverage.

Health Care Utilization

Even though young adults are not frequent users of health care—generally, they are at greater risk than the general population of needing certain types of care, such as mental health care. We examine trends in the percentage of young adults using different forms of insurance to test the implications of the young-adult provision on use of care, using administrative hospital claims data, and find that the increase in parental coverage led to a decrease in the number of uninsured.

Aside from takeup, a pressing question in health insurance expansion has been the extent to which pre-existing forms of insurance are crowded out. We find that the increase in parental coverage drew almost equally from the uninsured and the otherwise-insured populations. Prior research shows that substitution between different forms of coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage in the same market. We find evidence consistent with a reverse crowd-out effect, by which, following implementation of the young-adult provision, private insurance replaced Medicaid to a certain extent. In ongoing work with the same data, we examine the percentage of births financed by private insurance increased following the expansion, leading to large reductions in the number of uninsured.

Figure 1

The Young-Adult Mandate

In a series of papers with Yia Akosu Antwi, Aaron Carroll, Bradley Heim, Ithai Lurie, Jie Ma, Asako S. Motry, and Benjamin D. Sommers, I examine the extent to which pre-existing private coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage, whereas in the case of the young-adults reform associated with ACA, private parental coverage mostly displaced other sources of private coverage.

Mortality Coverage After Young-Adult Mandate

In a series of papers with Yia Akosu Antwi, Aaron Carroll, Bradley Heim, Ithai Lurie, Jie Ma, Asako S. Motry, and Benjamin D. Sommers, I examine the extent to which pre-existing private coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage, whereas in the case of the young-adults reform associated with ACA, private parental coverage mostly displaced other sources of private coverage.

Take Up and Crowd Out

In a series of papers with Yia Akosu Antwi, Aaron Carroll, Bradley Heim, Ithai Lurie, Jie Ma, Asako S. Motry, and Benjamin D. Sommers, I examine the extent to which pre-existing private coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage, whereas in the case of the young-adults reform associated with ACA, private parental coverage mostly displaced other sources of private coverage.

Mortality Coverage After Young-Adult Mandate

In a series of papers with Yia Akosu Antwi, Aaron Carroll, Bradley Heim, Ithai Lurie, Jie Ma, Asako S. Motry, and Benjamin D. Sommers, I examine the extent to which pre-existing private coverage was present during the Children’s Health Insurance Program (CHIP) expansion. In the CHIP case, however, concern focused on whether public coverage displaced private coverage, whereas in the case of the young-adults reform associated with ACA, private parental coverage mostly displaced other sources of private coverage.
Anyone looking at recent financial headlines could have been forgiven for thinking that the international monetary system is in dire straits. The People’s Bank of China faces severe private capital outflows, a result of the yuan’s appreciation in tandem with the U.S. dollar and the slowing of the Chinese economy. The Bank of Japan is battling persistent deflation by trying to depreciate the yen. The European Central Bank has clearly telegraphed that it would welcome further depreciation of the euro. In the United States, notwithstanding a modest “lift-off” in December 2015, the Federal Reserve is confronted with a global slowdown and a rising dollar. Policy discussions explicitly mention the possibility of investment inflows in the future. Talk of “currency wars” abounds.

To understand the current environment, it is helpful to step back and consider the international monetary system circa 1960, during the Bretton Woods era.

The International Monetary System... 

Back in those days, the international monetary system was relatively simple. Market economies pegged their currencies to the U.S. dollar. In turn, the United States maintained the value of its dollar at $35 per ounce of gold. With the assistance of the International Monetary Fund, countries could obtain liquidity to deal with “temporary” imbalances, but it was incumbent upon them to implement a fiscal and monetary policy mix that would be consistent with a stable dollar parity, or, infrequently, to request an adjustment in their exchange rate.

The United States faced no such constraint. The requirement to maintain the $35 an ounce parity had minimal bite on U.S. monetary authorities, as long as foreign central banks were willing, or could be convinced, to support the dollar. By design then, the system was asymmetric and dependent on the U.S., a situation that reflected the country’s economic and political strengths in the immediate aftermath of World War II.

Not everyone was happy about this state of affairs. Some objected to the special role of the dollar. In 1965, France famously requested the conversion of its dollar reserves into gold, while its minister of finance commented loudly about the United States’ “exorbitant privilege.”

The Bretton Woods regime allowed the U.S. to acquire valuable foreign assets, so the argument went, because the dollar reserves required to maintain the dollar parity of foreign countries amounted to “sell-side” dollar-denominated loans to the U.S.

Others worried about the long-term sustainability of the system. As the world economy grew rapidly in the 1950s and 1960s, so did the global demand for dollar exchange balances, a result of the yuan’s appreciation in tandem with the U.S. dollar and the slowing of the Chinese economy. The Bank of Japan is battling persistent deflation by trying to depreciate the yen. The European Central Bank has clearly telegraphed that it would welcome further depreciation of the euro. In the United States, notwithstanding a modest “lift-off” in December 2015, the Federal Reserve is confronted with a global slowdown and a rising dollar. Policy discussions explicitly mention the possibility of investment inflows in the future. Talk of “currency wars” abounds.

To understand the current environment, it is helpful to step back and consider the international monetary system circa 1960, during the Bretton Woods era.

The International Monetary System... 

Back in those days, the international monetary system was relatively simple. Market economies pegged their currencies to the U.S. dollar. In turn, the United States maintained the value of its dollar at $35 per ounce of gold. With the assistance of the International Monetary Fund, countries could obtain liquidity to deal with “temporary” imbalances, but it was incumbent upon them to implement a fiscal and monetary policy mix that would be consistent with a stable dollar parity, or, infrequently, to request an adjustment in their exchange rate.

The United States faced no such constraint. The requirement to maintain the $35 an ounce parity had minimal bite on U.S. monetary authorities, as long as foreign central banks were willing, or could be convinced, to support the dollar. By design then, the system was asymmetric and dependent on the U.S., a situation that reflected the country’s economic and political strengths in the immediate aftermath of World War II. Not everyone was happy about this state of affairs. Some objected to the special role of the dollar. In 1965, France famously requested the conversion of its dollar reserves into gold, while its minister of finance commented loudly about the United States’ “exorbitant privilege.”

The Bretton Woods regime allowed the U.S. to acquire valuable foreign assets, so the argument went, because the dollar reserves required to maintain the dollar parity of foreign countries amounted to “sell-side” dollar-denominated loans to the U.S.

Others worried about the long-term sustainability of the system. As the world economy grew rapidly in the 1950s and 1960s, so did the global demand for dollar exchange balances, a result of the yuan’s appreciation in tandem with the U.S. dollar and the slowing of the Chinese economy. The Bank of Japan is battling persistent deflation by trying to depreciate the yen. The European Central Bank has clearly telegraphed that it would welcome further depreciation of the euro. In the United States, notwithstanding a modest “lift-off” in December 2015, the Federal Reserve is confronted with a global slowdown and a rising dollar. Policy discussions explicitly mention the possibility of investment inflows in the future. Talk of “currency wars” abounds.

To understand the current environment, it is helpful to step back and consider the international monetary system circa 1960, during the Bretton Woods era.

The International Monetary System... 

Back in those days, the international monetary system was relatively simple. Market economies pegged their currencies to the U.S. dollar. In turn, the United States maintained the value of its dollar at $35 per ounce of gold. With the assistance of the International Monetary Fund, countries could obtain liquidity to deal with “temporary” imbalances, but it was incumbent upon them to implement a fiscal and monetary policy mix that would be consistent with a stable dollar parity, or, infrequently, to request an adjustment in their exchange rate.

The United States faced no such constraint. The requirement to maintain the $35 an ounce parity had minimal bite on U.S. monetary authorities, as long as foreign central banks were willing, or could be convinced, to support the dollar. By design then, the system was asymmetric and dependent on the U.S., a situation that reflected the country’s economic and political strengths in the immediate after-
symmetrical: no more “exorbitant privilege” for the U.S. since other countries would not be forced to hold low-interest dollar reserves to maintain their dollar exchange rate; no asymmetry in external adjustment between the U.S. and the rest of the world at all; and rates would now adjust freely; and no Triffin dilemma since dollar liquidity would be decoupled from gold supply.

Yet, recent research illustrates that the era of floating rates shares many of the same structural features as the Bretton Woods regime. Consider the question of the “exorbitant privilege,” defined as the excess return on U.S. gross external assets relative to U.S. gross external liabilities. Hélène Rey and I set out to measure this excess return using disaggregated data on the U.S. Net International Investment Position and its balance of payments. These calculations are often done given the coarseness of the historical data, but they all point in the same direction: The U.S. earns a significant excess return over time. As financial globalization increases, the changing composition of financial flows and positions will provide an increasingly distorted picture of the change in a country’s external position.9

Consider next the question of external adjustment. The U.S. still faces a very different process than most other countries. For instance, Rey and I found that a deterioration in the U.S. current account deficit or of its net international investment position is often followed by a predictable depreciation of the country’s currency and/or of its financial assets. This depreciation may subsequently improve the U.S. trade balance along the usual channels, but it also improves the return on U.S. financial assets held abroad, thereby making the U.S. even more relatively rich.10 Most other countries don’t seem to enjoy a similar advantage.11 These findings help us understand why markets take the somewhat benign view of persistent U.S. current account deficits since the 1980s. [See Figure 2.]

What accounts for this risk premium? In my work with Ricardo Caballero and Emmanuel Farhi, we argue that it reflects a superior capacity of the U.S. to supply “safe” assets—assets that will deliver stable returns even in global downturns. To illustrate, consider a world consisting of only two regions, the U.S. (U) and the rest of the world (R). The regions may vary in their capacity to produce safe assets because of differences in the soundness of their fiscal policy or in their levels of financial development. They may also differ in their demand for these assets because of demographic differences, financial frictions, and/or differences in preferences for saving.9

In such a world, the U.S. is a natural net supplier of these assets. If the two regions were forced to live in financial autarky, unable to borrow from, or lend to, one another, the price of safe assets would be higher in R, and their return lower. If the two regions integrate financially, capital will flow from R to U, as R investors are eager to purchase U’s safe assets. From the perspective of U, two different things happen. It runs a current account deficit (foreign capital flows in), and interest rates decrease. By the same logic, R’s financial assets offer a higher autarky return. Then U would also want to invest in these risky assets. The paradox of capital’s two faces: financial flows and positions would resemble the one we observe in the data with the U.S. investing in foreign risky assets, issuing safe assets, and earning a risk premium.12 This line of research successfully accounts for the simultaneous deterioration in U.S. current account balances [Figure 2], the secular decline in real interest rates [Figure 3], and the increased leverage of the U.S. external portfolio since the 1980s. [See Figure 4.]

In recent theoretical work, Caballero, Farhi, and I show that the safe-asset scarcity matters at the ZLB, from a benign phenomenon that depresses risk-free rates to a malign one where interest rates cannot equilibrate asset markets any longer, leading to a global recession. The reason is that the decline in output reduces net-asset demand more than asset supply.7 Hence our analysis predicts the emergence of potentially persistent global liquidity traps, a situation that actually exists in most of the advanced economies today.

Our theoretical model features nominal rigidities, so that the ZLB matters, and a non-Ricardian setting, so that heterogeneity in asset returns leads to interest rate effects. We use this framework to address two questions. First, we ask: What is the role of capital flows at the ZLB? We reply, that everything else equal, capital flows propagate recessions from one country to another. Countries with more severe asset scarcity under financial autarky will experience milder recessions when integrated, and will run current account surpluses. In effect, current account surpluses help spread liquidity traps globally.

Next we ask: What is the role of exchange rates? Here, our theoretical analysis delivers an important result: At the ZLB, exchange rates follow pure interest-rate targets, as is the case at the ZLB.10 In our environment, this indeterminacy has real consequences. Different values of the nominal exchange rate translate into different values of the real exchange rate, and therefore affect the relative demand for domestic versus foreign goods. Our theoretical framework provides a powerful way to think about the current lively debate on currency wars.

With the global financial crisis and its aftermath, we have entered a new phase in the relationship between safe asset imbalances and capital flows. The crisis triggered a sharp contraction in safe-asset supply and a surge in global demand as households and the non-financial corporate sector attempted to de-leverage. These shocks further depressed equilibrium real interest rates, pushing policy rates throughout the developed world to the Zero Lower Bound (ZLB).11

In recent theoretical work, Caballero, Farhi, and I showed that the safe-asset scarcity matters at the ZLB, from a benign phenomenon that depresses risk-free rates to a malign one where interest rates cannot equilibrate asset markets any longer, leading to a global recession. The reason is that the decline in output reduces net-asset demand more than asset supply.12 Hence our analysis predicts the emergence of potentially persistent global liquidity traps, a situation that actually exists in most of the advanced economies today.
these countries. The second indicates that these safe-asset suppliers are more likely to hit the ZLB in the first place and experience a recession. Either way, safe-asset suppliers should bear a larger share of the burden. Yet, because issuance of safe assets anywhere, public or private, is beneficial everywhere, the global provision of safe assets may remain inadequate.

Recent research illustrates that the fundamental structure of the international monetary system may largely transcend formal exchange-rate arrangements, with U.S. dollar assets at the center. Going forward, this raises a number of important questions which current research is exploring. First, a recent and influential framework of how different safe assets can coexist and current discussions on global safety nets.


5 Finally, a body of empirical evidence suggests that both the defense of safe assets and the interest rates may fuel leverage boom and bust cycles. The vulnerability of emerging and advanced economies alike to these crises has been amply demonstrated in the past. At the country level, the empirical evidence suggests that self-insurance via official reserve (safe asset) accumulation is an effective line of defense against leveraged booms. But what is optimal at the level of an individual country may be inefficient at a global level if it fuels further safe-asset scarcity and depresses global interest rates. This question is central to current discussions on global safety nets.
Scientific Teamwork

Joshua Gans and Fiona Murray

Team performance in many settings has long challenged economic thinking. Even when monetary incentives are present, it is hard to structure incentives to overcome moral hazard and other issues of free riding, especially when team tasks interact with one another. This is especially true for scientific teams, where the challenges are multiplied: The rewards tend to be non-monetary and thus principals — to the extent they even exist — face additional complexity in structuring those rewards. To add to the challenges, in recent decades science has become more complex and the knowledge frontier is now harder to expand than ever. This manifests itself in many changes, among the most important being a change in the life cycle of scientific careers and an increase in the prevalence and size of research teams.

Along with our coauthor Michael Bikard, we have looked at the choices scientific teams make, both in terms of how they form and in how they signal to the outside world the contributions of individual team members.

Who Gets What?

When entrepreneurs found startups, they agree on a division of equity between themselves and investors. Regardless of the ultimate value of the venture, the division of shares determines what each party owns. When teams form a scientific collaboration, one could imagine the same thing occurring. Two collaborators put their names on a paper and then whatever the paper’s scientific value, credit would be divided equally between them.

However, even while equity allows for a defensive and legally binding split of future profits, things are not so simple with scientific output. For starters, the total value created by a publication is not necessarily fixed and independent of the number of authors (say, in terms of citations and impact). The total value to the career prospects of authors from a two-author publication may be more than twice what they would receive had they produced two single-author publications, even of the same quality. Likewise, the value of the publication may be much greater for a team of younger scientists than for an older, more-established group of collaborators. In other words, there is nothing to stop “the market” — a shorthand for the complex process that determines the incremental value of a new paper on the professional standing of its authors — from assigning a higher value to publication’s value to one or more than one output of scientific teams.

The composition of teams also matters in the market for scientific attribution. The team split, which may look at who is part of the team and be influenced in assigning credit by their prior reputations and skills. Thus while attribution may split evenly among authors, it may also be unevenly distributed by outside observers. The great sociologist of science Robert Merton noted that often a Matthew effect arose in that those scientists who had the better reputation upon entering a collaboration would seem to receive a disproportionate share of the benefits from collaborative output.

These issues of attribution introduce a number of complexities. For instance, it is difficult to envisage an economic equilibrium in which a scientist actually contributes less to a project and yet is persistently rewarded more because the market misjudges his contribution on the basis of priority rather than its actual contribution to the project. The equilibrium should eliminate the misjudging. If disproportionate rewards persist, it is possible that there is an efficiency explanation for this outcome.

How To Organize?

It was with such challenges in mind that we examined the choice of potential collaborators regarding team production. Do two collaborators team up or go on their own way? A first approach imagined an imaginary distinction between collaborators akin to that which arises in lab settings in the natural sciences. A project was, initially, controlled by a pioneer scientist who could improve the project by dictating the contribution of a junior scientist (or postdoc or graduate student). Like any good outsourcing arrangement, the pioneer would happily pay for value. Thus, if the junior scientist contributed enough to outweigh any lost share in value accruals relating to the pioneer, then the pioneer would enter into the arrangement.

Of course, the total output of the collaboration could also take another form. The pioneer might publish interim results while the junior scientist might publish separately his or her own follow-on results. The entire corpus would add the same increment to the knowledge frontier as an integrated collaboration. The difference lies in how the contributions of each party would be valued in the market for scientific attribution.

The most significant thing we found in our analysis of the organizational choices made by scientists was that if “the market” designated who gets what share in a co-authored work, it would favor an attribution rule that did not sum to more than one. Why? Because any other attribution rule would lead to scientists choosing to co-author rather than publish separately when it was otherwise less efficient to do so. In other words, when a full range of organizational choices is considered, the market for attribution may not freely reward all contributors, but rather must allocate attribution sparsely so as not to overly distort the decision to collaborate rather than to work separately on a scientific project.

Are Teams Optimal?

If economists had the luxury of designing attribution incentives, they might seek to structure those incentives so that type of attribution shares would be optimal. In reality, there is no central designer and who gets what is resolved by norms—and evolving norms at that. So what norms have evolved and how might we measure them?

That was the question we explored with Bikard.1 We analyzed a unique dataset of the annual research activity of 661 MIT faculty scientists over three decades and examined their choices of whether to collaborate or not. The idea was that by observing their publication outcomes, we could infer, in any given year, a particular scientist’s portfolio of collaboration choices. If, in turn, we assumed that the scientist’s portfolio was maximizing the total value of citations less the costs, if any, associated with collaborating, we might be able to understand whether their choices were optimal.

The figure at left illustrates our findings. It shows that if scientists were (i) maximizing the total attributed number of citations their output generated per year and (ii) attributed a share $1/n$ of the credit for papers with n authors, then any collaboration with more than three authors would be, on average, sub-optimal for them. This suggests that the scientists were facing large costs in terms of time wasted and drawn from other projects when they were part of large teams.

Our data show that scientists made continual “mistakes” in engaging in large team collaborations. We therefore had to ask if their revealed collaboration choices were consistent with the best attribution rule. For example, if the best fit for $b$ that would explain the behavior as optimal was $b = 1/3$. In other words, scientists in our MIT sample appeared to behave as if the attribution rule allocated $1/n$ share of the total value of a publication to each collaborator. Importantly, with this rule, the sum of the attribution shares would exceed one. This suggests

---

1. Gans holds a B.A. and M.A. in chemistry from Merton College, University of Oxford, and an M.S. in engineering sciences and a Ph.D. in applied sciences from Harvard University.

Murray’s work evaluates how policies and programs shape the commercialization of science, and how they can positively impact the role of women in entrepreneurship. She is also interested in the organizational economics of science and in how changes in science funding shape the ways in which laboratories and inter-lab collaborations are structured.

Murray has done extensive work with entrepreneurs, governments, large corporations, philanthropies designing and evaluating policies and programs that shape vibrant innovation ecosystems, such as prizes, competitions, accelerators, patent licensing rules, and proof of concept funding.

that the prevailing norms were encouraging collaboration disproportionately to individual publication.

What Drives Attribution?

We know from our own experience in evaluating our peers that the process of dividing credit for joint work is not formulaic. In particular, when we are presented with the work of a team, we try to parse the contributions of individual members.

In another collaborative paper, we explore this process by considering again a pioneer and a follow-on scientist. Both can contribute to a project. However, it is the pioneer who determines the prevailing sharing arrangements. When both actually contribute, this increases the likelihood that the project is of high quality. Indeed, we assume that to get very high quality you need both scientists to make a substantive contribution. In this event, the market knows what is going on and so divides attribution between the authors.

Things get trickier if the project is good but not of the highest quality. In that situation, by looking at the output alone, you need both scientists to make a substantive contribution, this increases the likelihood that the project is of high quality. Indeed, we assume that to get very high quality you need both scientists to make a substantive contribution. In this event, the market knows what is going on and so divides attribution between the authors.

Our principal purpose in this paper is not to consider whether to invite another researcher to become a coauthor or, rather, when to do so. One degree of flexibility pioneer scientists have—if they lead their own labs with some autonomy—is that they can employ junior scientists but can poten- tially separate that working relationship from the credit or formal attribution that junior scientists receive. Senior scientists might wait until they see their own contribution and that of the junior scientist before inviting the junior scientist to be a coauthor. The senior scientist may never choose to do this, but suppose, perhaps to send a signal to others in their lab, that they commit to putting a junior scientist on the paper only if the junior’s contribution is significant.

While this arrangement might seem precocious for the junior scientist, it facilitates division of the market. The market is designed to avoid the ‘market’ for scientific attribution understanding that the junior scientist is only a coauthor on the paper if the junior made a signifi- cant contribution, then in the ambiguous range where it would otherwise be hard to tell who was the main contributor, “the marker” can now tell. What is more, this all adds up to maximal incentives for the junior scientist to put effort into generating a significant contribution. The junior scientists are better off for this.

We show that, of all the organizational arrangements that could have been chosen, leaving the decision of whether to credit the junior scientist until the end is Pareto optimal.

Conclusion

The research presented here is an initial foray into understanding how the choices of scientific teams are shaped by market assessments of individual performance. It is part of a broader agenda that we think of as the organizational economics of science. By demonstrating that such market assessments are likely to be important, it presents initial insights but also conjectures about what “the market” is. That remains an open theoretical and empirical question. Our work yields some insights but in many respects only highlights the reality that understanding scientific work—in academia and in industry—will require much more research, both theoretical and empirical.


Productivity and Misallocation

Chang-Tai Hsieh and Pete Klenow

The starting point of a large body of recent research on economic growth is the notion that differences in aggregate total factor productivity (TFP) may not be driven solely by technology but rather in part by allocative efficiency. The key building block of this literature is the idea that firms differ, and we do not necessarily want all the resources to be allocated to one firm. For example, suppose that there are a number of firms in a country and the output $Y_i$ of each firm is given by a standard production function $Y_i = \bar{A}_i(K_i, L_i)$, where $K_i$ is the firm’s capital stock (equipment and structures), $L_i$ is the firm’s labor input (skilled-weighted hours worked by its employees), $F$ is the production function which combines capital and labor, and $A_i$ is residual productivity.

If each firm produces different products, we do not want not all the inputs allocated to the firm with the highest $A_i$, as we value having access to a variety of differentiated products. Instead, what we want is for resources to be allocated across firms to equalize the revenue productivity of the firm, or $P_i A_i$. Resources are misallocated when revenue productivity differs between firms. Reallocation increases aggregate TFP and generates growth when resources flow to firms with high revenue productivity.

Micro-data from manufacturing censuses suggest substantial gaps in revenue productivity across firms within India and China.1 These gaps are also present in U.S. data, but are much smaller. Figure 1 plots the dispersion of revenue productivity in the three countries. In India and China, revenue productivity of firms in the 90th percentile exceeds that of firms in the 10th percentile by a factor of five. In the U.S., the equivalent gap in revenue productivity is a factor of three. These gaps in revenue productivity between firms may contribute to substantial gaps in aggregate TFP. In a standard model, aggregate TFP would increase by 43 percent in the U.S., 115 percent in China in 1998, and by 127 percent in India in 1994 if resources were to be reallocated to equalize revenue productivity across firms.

We now have a large body of evidence on gaps in revenue productivity at the micro-level, largely thanks to the detailed, firm-level data available for a growing number of countries. A project spearheaded by Santiago Levy at the Inter-American Development Bank provides detailed evidence on these gaps for a large number of countries in Latin America.2 There is similar evidence from microeconomic data for a number of countries in Europe.3 These studies find wide gaps in revenue productivity, consistent with substantial misallocation.

The literature has largely focused on measuring the static effects of firm-level gaps in revenue productivity, but the dynamic effects of resource misallocation are likely to have also important dynamic effects. If more-efficient establish-
**Pete Klenow** is codirector with Mark Gertler of the NBER’s Economic Fluctuations and Growth Program. He is the Landau Professor of Economics at Stanford University, and the Gordon and Betty Moore Fellow at the Stanford Institute for Economic Policy Research.

Before joining the Stanford faculty, he was a senior econo-

mist at the Federal Reserve Bank of Minneapolis and an assistant and associate professor at the University of Chicago’s Booth School of Business. He is currently an associate editor of the Quarterly Journal of Economics and Econometrica, and a fellow of the Econometric Society. He serves on the boards of the American Economic Review. He is a member of the American Academy of Arts and Sciences, and a fellow of the Econometric Society. He serves as a panelist on the IGM Booth Economic Experts Panel, and a reg-

ular visiting scholar at the Federal Reserve Bank of Minneapolis and San Francisco. He is currently a Special Sworn Status researcher at the U.S. Census Bureau, and has previously had Intergovernmental Personnel Act assignments at the U.S. Bureau of Labor Statistics.

Klenow’s research uses micro data (on prices and productivity, for example) to try to shed light on macro questions such as the causes of growth and development.

---

**FIRM AGE AND NUMBER OF EMPLOYEES**

<table>
<thead>
<tr>
<th>U.S. firms grow faster than firms in Mexico and India</th>
<th>Employment, employment to letter age ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Graph showing data]</td>
<td>[Graph showing data]</td>
</tr>
</tbody>
</table>

**The Presence of a Large Informal Sector**

This is an important feature of many poor countries. Take retail trade. Modern retail firms account for 67 percent of retail employment in the U.S. The equivalent numbers are only 21 percent in Brazil, 15 percent in El Salvador, 23 percent in Mexico, 15 percent in the Philippines, and 19 percent in Thailand.14 In all these countries, labor productivity in modern establishments is significantly higher than in infor-

mal retail stores. The labor productivity of modern retailers is three times higher than that of informal retailers in Brazil, four times higher in El Salvador, three- and-a-half times higher in Mexico, six times higher in the Philippines, and four times higher in Thailand.

The pervasiveness and low produc-

tivity of the informal sector is also seen in manufacturing in India and Mexico. Informal manufacturing establishments in India, defined as establishments that are not formally registered, accounted for 80 percent of total Indian manufac-

turing employment in 2005. In Mexico, almost all manufacturing establishments are formal in the sense of being form-

ally registered, but if we define inform-

al firms as those which are not paying Social Security taxes—either legally by only employing unpaid family workers or illegally by explicitly not paying the required social security tax—informal establishments accounted for 30 percent of total Mexican manufacturing employment in 2008. Informal establish-

ments in India and Mexico are sig-

nificantly smaller than formal estab-

lishments.

Figure 3 plots the distribution of establishment size in India and Mexico for infor-

mal and formal establishments.

The typical infor-

mal establishment employs four workers in India and about 10 workers in Mexico, while formal establish-

ments have 20 workers in India and about 50 in Mexico.

All of this suggests that a proximate reason poor countries are poor is that modern formal firms find it difficult to obtain resources and/or capture mar-

ket share. We still have a very limited understanding, however, of the exact forces behind the prevalence of infor-

mal and unproductive establishments. The Inter-American Development Bank, and Levy in particular, have argued that the patterns of informal-ty, at least in Latin America, are due to the nature of the tax systems and social-

protection programs. 15 A glance at the World Bank Doing Business indicators suggests that high costs of doing busi-

ness may also be a factor.

---

**Social Forces May Distort The Allocation of Talent across Occupations and Firms**

These forces may reflect the leg-

acy of gender and race discrimina-

tion in the U.S., caste discrimina-

tion based on economic and ethnic background in some Latin American countries, or the effect of second-generation man-

agers in family firms in many coun-

tries.16 In the U.S., for example, the fraction of white women who work in high-skilled occupations—lawyers, doctors, engi-

neers, scientists, architects, and so on—was probably much higher than that of informal retailers in Brazil, six times higher in El Salvador, three-

times higher in Mexico, and four times higher in El Salvador, three- and-a-half times higher in Mexico, six times higher in the Philippines, and four times higher in Thailand.

The Inter-American Development Bank, and Levy in particular, have argued that the patterns of informal-

ity, at least in Latin America, are due to the nature of the tax systems and social-

protection programs. 15 A glance at the World Bank Doing Business indicators suggests that high costs of doing busi-

ness may also be a factor.

---


1484. Return to Text


Association for his lifetime contributions to the field of human resources and the employment relationship.

Arvind Krishnamurthy and Annette Vissing-Jorgensen received the Swiss Finance Institute outstanding paper award for their paper on “The Impact of Treasury Supply on Financial Sector Lending and Stability.”

Edward E. Leamer was honored by the Berkeley Initiative for Transparency in the Social Sciences, which awarded the first Leamer-Rosenthal Prizes for Open Social Sciences. The prizes are named in part to recognize his work on sensitivity analysis and the resulting challenges facing social science research transparency.

Roo Lee was elected the 2016 International Population Association Laureate for outstanding contributions to many subfields of demography.

Steve Leblond received the Shanghai Thousand Talent for Foreign Experts award from the Shanghai municipal government.

Brigitte Madrian received the 2015 Retirement Income Industry Sector Lending and Stability.”

Emiliano Cetorelli was honored by the Economic Journal: Applied Economics for his paper on “The Transitional Costs of Sectoral Reallocation: Evidence from the Clean Air Act and the Workforce.”

Michael Weisbach received the Fama-DFA prize for the best paper in capital markets and asset pricing published in the Journal of Financial Economics, for his paper on “Limited Partner Performance and the Maturity of Private Equity Fund Flows.”


Vahagn Galstyan, Philip Lane, and Rogelio Mercado, Trinity College Dublin, and Caroline Michegan, OECD, “The Holders and Issuers of International Portfolio Securities”


Takashi Kano of Hitotsubashi University chose these papers to discuss:

• Gianluca Benigno, London School of Economics, “Contagious Sudden Stops”
• Hiro Ito, Portland State University, and Masahiro Kawai, University of Tokyo, “Trade Invoicing in the Japanese Yen and the Deutsche Mark in the 1980s and 90s: Lessons for Renminbi Internationalization”


Vahagn Galstyan, Philip Lane, and Rogelio Mercado, Trinity College Dublin, and Caroline Michegan, OECD, “The Holders and Issuers of International Portfolio Securities”


Takashi Kano and Kenji Wada, Hitotsubashi University, “The First Arrow Hitting the Currency Target: A Long-Run Risk Perspective”

Matteo Cacciatori, HEC Montréal; Fabio Ghironi, University of Washington and NBER; and Yurim Lee, University of Washington, “Financial Market Integration, Exchange Rate Policy, and the Dynamics of Business and Employment in Korea”

Summaries of these papers are at: http://www.nber.org/confer/2015/TRIO15/summary.html
On December 18–20, the NBER, India’s National Council for Applied Economic Research (NCAER), and the Indian Council for Research on International Economic Relations (ICRIER) sponsored a meeting in Neemrana, India, that included NBER researchers and economists from Indian universities, research institutions, and government departments.

NBER participants, listed in the order of their presentations, were: Martin Feldstein of Harvard University, Anne Krueger and John Lipsky of Johns Hopkins University, Stephen P. Zeldes of Columbia University, Richard Portes of London Business School, Sebnem Kaleni-Ozcan of the University of Maryland, Helène Rey of London Business School, Ravi Bansal of Duke University, Gita Gopinath of Harvard University, Nobuhiro Kiyotaki of Princeton University, Varadarajan V. Chari of the University of Minnesota, Esther Dufo of MIT, Ryan Kellogg of the University of Michigan, Edward L. Glaeser of Harvard University, Matthew Kahn of the University of Southern California, Justin McCrary of the University of California, Berkeley, Robert W. Staiger of Dartmouth College, Abhijit Banerjee of MIT, and Karthik Muralidharan of the University of California, San Diego.

The topics discussed included: India and the world economy; global economic governance; international finance; monetary policy and exchange rate management issues; environmental regulation and climate change; urban economics and sustainability; international trade, manufacturing investment climate, and jobs; and education and skill development.

Economics of Digitization

An NBER Conference on the “Economics of Digitization” took place in Palo Alto on March 4. Research Associates Shane Greenstein of Northwestern University, Josh Lerner of Harvard University, and Scott Stern of MIT organized the program. These researchers’ papers were presented and discussed:

- Garrett A. Johnson, University of Rochester; Randall A. Lewis, Netflix; and Elmar I. Nubbemeyer, Google, “Ghost Ads: Improving the Economics of Measuring Ad Effectiveness”
- Timothy F. Bresnahan, Stanford University and NBER, and Xing Li and Pai-Ling Yin, Stanford University, “paying Incumbents and Customers to Enter an Industry: Buying Downloadsl”
- Alexander White, Tsinghua University, and Glen Wey, Microsoft Research, New England, “Insulated Platform Competition”
- Bo Cowgill, Columbia University, “Human Bias and Machine Learning: Evidence from Resume Screening”
- Mitchell Hoffman, University of Toronto; Lisa B. Kahn, Yale University and NBER; and Danielle Li, Harvard University, “Discretion in Hiring” (NBER Working Paper No. 21709)
- Jean-François Houde and Katja Seim, University of Pennsylvania and NBER, and Peter W. Newberry, Pennsylvania State University, “Sales Tax, E-commerce, and Amazon’s Fulfillment Center Network”
- Sree Ramaswamy, McKinsey Global Institute, “Digital America: A Tale of the Haves and Have-Mores”

Summaries of these papers are at: [http://www.nber.org/conf/2016/EoDx16/summary.html](http://www.nber.org/conf/2016/EoDx16/summary.html)
An NBER meeting on the economics of national security, directed by NBER President Emeritus Martin Feldstein of Harvard University and Research Associate Eli Berman of University of California, San Diego, was held in Cambridge on February 11. These researchers’ papers were presented and discussed:

- Benjamin Crost, University of Illinois at Urbana-Champaign; Claire Duquennois, University of California, Berkeley; Joseph Felter, Stanford University; and Daniel I. Rees, University of Colorado, Denver, “Climate Change, Agricultural Production and Civil Conflict: Evidence from the Philippines”

- Mathieu Coutenier and Veronica Preoto, University of Geneva, and Dominic Rohner and Mathias Thoenig, University of Lausanne, “The Violent Legacy of Victimization: Post-Conflict Evidence on Asylum Seekers, Crimes, and Public Policy in Switzerland”

- Vera Mironova, Harvard University; Sam Whitt, High Point University; and Loubna Mrie, Syrian researcher, “Grievances in Civil War Participation: Micro-Level Evidence from Syria”

- Samuel A. Bazzi and Matthew Gudgeon, Boston University, “Local Government Proliferation, Diversity, and Conflict”

- Brian Duncan and Hani Mansour, University of Colorado, Denver, and Bryson Rintala, U.S. Air Force Academy, “Weighing the Military Option: The Effects of Wartime Conditions on Career Pathways”

- Ryan Brown and Andrea P. Velásquez, University of Colorado, Denver; Verónica Montalva, Duke University; Duncan Thomas, Duke University and NBER, “Impact of Violent Crime on Risk Aversion: Evidence from the Mexican Drug War”

- Alex Imas, Carnegie Mellon University; Michael A. Kuhn, University of Oregon; and Vera Mironova, “A History of Violence: Field Evidence on Trauma, Discounting, and Present Bias”

Summaries of these papers are at: [http://www.nber.org/confer/2016/IOS16/summary.html](http://www.nber.org/confer/2016/IOS16/summary.html)

**National Security**

The NBER’s Working Group on Entrepreneurship met in Durham, NC, on February 12. Research Associates David T. Robinson and Manuel Adelino of Duke University organized the meeting. These papers were discussed:


- Adriana D. Kugler, Georgetown University and NBER; Maurice Kugler, IMPAQ International LLC; Juan Saavedra, University of Southern California; and Luis Omar Herrera Prada, Inter-American Development Bank, “Long Term Direct and Spillover Effects of Job Training: Experimental Evidence from Colombia” (NBER Working Paper No. 21607)

- Sarena Goodman, Federal Reserve Board, and Adam Ison, Department of the Treasury, “Un-Fortunate Sons: Effects of the Vietnam Draft Lottery on the Next Generation’s Labor Market”

- Eunice Han, Wellesley College, “The Myth of Unions’ Overprotection of Bad Teachers: Evidence from the District-Teacher Matched Panel Data on Teacher Turnover”

- Alberto Abadie, Harvard University and NBER; Susan Athey and Guido Imbens, Stanford University and NBER; and Jeffrey Wooldridge, Michigan State University, “Clustering as a Design Problem”

- Sebastian Calóncito, University of Miami, and Jeffrey Smith, University of Michigan and NBER, “The Women of the National Supported Work Demonstration”

Summaries of these papers are at: [http://www.nber.org/confer/2016/LSs16/summary.html](http://www.nber.org/confer/2016/LSs16/summary.html)

**Entrepreneurship and Economic Growth**

The NBER’s Working Group on Entrepreneurship met in Durham, NC, on February 12. Research Associates David T. Robinson and Manuel Adelino of Duke University organized the meeting. These papers were discussed:

- Can Tian, Shanghai University of Finance and Economics, “Cyclical Patterns of Business Entry and Exit Dynamics in the U.S. Economy”

- Yong Suk Lee, Stanford University, “Entrepreneurship, Small Businesses, and Economic Growth in Cities”

- Brian Baugh and Hooon Suk Park, Ohio State University, and Izhak Ben-David, Ohio State University and NBER, “Can Taxes Shape an Industry? Evidence from the Implementation of the ‘Amazon Tax’”

- Titan M. Alon, Northwestern University; David W. Berger, Northwestern University and NBER; and Robert C. Dent and Benjamin Pugsley, Federal Reserve Bank of New York, “Older and Slower: The Startup Deficit’s Lasting Effects on Productivity Growth”


- Mark Curtis, Wake Forest University, and Ryan Decker, Federal Reserve Board, “Entrepreneurship and State Policy”

- Konrad B. Burchardi, Stockholm University; Thomas Chaney, Toulouse School of Economics; and Tarek A. Hassan, University of Chicago and NBER, “Migrants, Ancestors, and Investments” (NBER Working Paper No. 21847)
Economic Fluctuations and Growth

An NBER meeting on economic growth, organized by Research Associate Ariel Burstein of the University of California, Los Angeles, and Faculty Research Fellow Nancy Qian of Yale University, was held in San Francisco on February 18. These researchers' papers were presented and discussed:

- David de la Croix, Université catholique de Louvain; Matthias Doepke, Northwestern University and NBER; and Joel Mokyr, Northwestern University, "Clans, Guilds, and Markets: Apprenticeship Institutions and Growth in the Pre-Industrial Economy"
- Pablo Fajgelbaum, University of California, Los Angeles, and NBER; Eduardo Morales, Princeton University and NBER; Juan Carlos Suárez Serrato, Duke University and NBER; and Owen M. Zidar, University of Chicago and NBER, "Statutory and Corporate Tax Revenues in the United States: A Survey" (NBER Working Paper No. 21760)
- Lutz Hendricks, University of North Carolina at Chapel Hill, and Todd Schoellman, Arizona State University, "Human Capital and Development Accounting: New Evidence from Wage Gains at Migration"
- Daron Acemoglu, MIT and NBER; Suresh Naidu, Columbia University and NBER; Pascual Restrepo, MIT; and James A. Robinson, University of Chicago and NBER, "Democracy Does Cause Growth" (NBER Working Paper No. 20004)

Summaries of these papers are at: http://www.nber.org/confer/2016/EGCw16/summary.html

Law and Economics

The NBER's Program on Law and Economics, directed by Christine Jolls of Yale University, met in Cambridge on March 4. These papers were discussed:

- Sumit Agarwal, National University of Singapore; Souphala Chomsisengphet, Department of the Treasury; Neale Mahoney, University of Chicago and NBER; and Johannes Stroebel, New York University and NBER, "Do Banks Pass Through Credit Expansions to Consumers Who Want to Borrow?" (NBER Working Paper No. 21567)
- Dongya Koh, University of Arkansas; Raul Santacaulidia-Llopis, Washington University in St. Louis; and Yu Zheng, City University of Hong Kong, "Labor Share Decline and Intellectual Property Products Capital"
- Pedro Bordalo, Royal Holloway, University of London; Nicola Gennaioli, Bocconi University; and Andrei Shleifer, Harvard University and NBER, "Diagnostic Expectations and Credit Cycles"

Summaries of these papers are at: http://www.nber.org/confer/2016/LEs16/summary.html

Economic Growth

The NBER meeting on economic growth, organized by Research Associate Ariel Burstein of the University of California, Los Angeles, and Faculty Research Fellow Nancy Qian of Yale University, was held in San Francisco on February 18. These researchers' papers were presented and discussed:

- Jean-Noel Barrot, MIT, and Ramana Nanda, Harvard University and NBER, "Labor Market Effects of Financing Frictions"
- Sabrina T. Howell, New York University, "Very Early Venture Finance: An Evaluation of Pitch Competitions"

Summaries of these papers are at: http://www.nber.org/confer/2016/EEGs16/summary.html

Economic Fluctuations and Growth

The NBER's Program on Economic Fluctuations and Growth met in San Francisco on February 19. Research Associates Ellen McGrattan of the University of Minnesota and Giorgio Primiceri of Northwestern University organized the meeting. These researchers' papers were presented and discussed:

- David de la Croix, Université catholique de Louvain; Matthias Doepke, Northwestern University and NBER; and Joel Mokyr, Northwestern University, "Clans, Guilds, and Markets: Apprenticeship Institutions and Growth in the Pre-Industrial Economy"
- Pablo Fajgelbaum, University of California, Los Angeles, and NBER; Eduardo Morales, Princeton University and NBER; Juan Carlos Suárez Serrato, Duke University and NBER; and Owen M. Zidar, University of Chicago and NBER, "Statutory and Corporate Tax Revenues in the United States: A Survey" (NBER Working Paper No. 21760)
- Lutz Hendricks, University of North Carolina at Chapel Hill, and Todd Schoellman, Arizona State University, "Human Capital and Development Accounting: New Evidence from Wage Gains at Migration"
- Daron Acemoglu, MIT and NBER; Suresh Naidu, Columbia University and NBER; Pascual Restrepo, MIT; and James A. Robinson, University of Chicago and NBER, "Democracy Does Cause Growth" (NBER Working Paper No. 20004)

Summaries of these papers are at: http://www.nber.org/confer/2016/EGCw16/summary.html
Monetary Economics

The NBER’s Program on Monetary Economics met in New York on March 4. Faculty Research Fellows Olivier Coibion of the University of Texas at Austin and Eric T. Swanson of the University of California, Irvine, organized the meeting. These researchers’ papers were presented and discussed:

- Sydney C. Ludvigson, New York University and NBER; Sai Ma, New York University; and Serena Ng, Columbia University, “Uncertainty and Business Cycles: Exogenous Impulse or Endogenous Response?” (NBER Working Paper No. 21803)

- Stefania Albanesi, Ohio State University; Giacomo De Giorgi, Federal Reserve Bank of New York; Jaromir Nosal, Boston College; and Matthew Ploenzke, Harvard University, “Credit Growth and the Financial Crisis: A New Narrative”

- Marco Di Maggio, Columbia University, and Amir Kermani and Christopher Palmer, University of California, Berkeley, “Unconventional Monetary Policy and the Allocation of Credit”


- Richard Crump, Stefano Eusepi, Andrea Tambalotti, and Giorgio Topa, Federal Reserve Bank of New York, “Subjective Intertemporal Substitution”

- Gabriel Chodorow-Reich, Harvard University and NBER, and Johannes Wieland, University of California, San Diego, and NBER, “Secular Labor Reallocation and Business Cycles” (NBER Working Paper No. 21864)

Summaries of these papers are at: http://www.nber.org/conf/2016/DAEs16/summary.html

Development of the American Economy

The NBER’s Program on the Development of the American Economy, directed by Claudia Goldin of Harvard University, met in Cambridge on March 5. These papers were discussed:

- Marcella Alsan, Stanford University and NBER, and Marianne H. Wanamaker, University of Tennessee and NBER, “Tuskegee and the Health of Black Men”

- Katherine Eriksson, University of California, Davis, and NBER, and Greg Niemesh, Miami University, “The Impact of Migration on Infant Health: Evidence from the Great Migration”


- Michael D. Bordto, Rutgers University and NBER, and Arunima Sinha, Fordham University, “A Lesson from the Great Depression that the Fed Might have Learned: A Comparison of the 1932 Open Market Purchases with Quantitative Easing”


Summaries of these papers are at: http://www.nber.org/conf/2016/DAEs16/summary.html

Bureau Books

Innovation Policy and the Economy, Volume 16

Edited by Josh Lerner and Scott Stern

Cloth $60.

The papers in the sixteenth annual volume of the National Bureau of Economic Research (NBER) Innovation Policy group offer insights into the changing landscape of innovation by highlighting recent developments in the financing of innovation and entrepreneurship and in the economics of innovation and intellectual property.

The first chapter, by Ramana Nanda and Matthew Rhodes-Kropf, explores the process of experimentation in the context of financing of technology start-ups by venture capitalists. The second, by Yael Hochberg, also analyzes the role of entrepreneurial experimentation by systematically examining the rise of start-up accelerators. The third chapter, by Heidi Williams, studies the relationship between the strength of intellectual property rights and innovation. The fourth paper, by Fiona Scott Morton and Carl Shapiro, discusses recent changes to the patent system and whether they align the rewards from intellectual property with the marginal contributions made by innovators and other stakeholders. The final chapter, by Kevin Boudreau and Karim Lakhani, focuses on the potential use of field innovation experiments and contests to inform innovation policy and management. Together, these essays continue to highlight the importance of economic theory and empirical analysis in innovation policy research.

Josh Lerner is Chair of the Entrepreneurial Management Unit and the Jacob H. Schiff Professor of Investment Banking at Harvard Business School. He is an NBER research associate and codirector of the NBER’s Productivity, Innovation, and Entrepreneurship Program. Scott Stern is the David Sarnoff Professor of Management and Chair of the Technological Innovation, Entrepreneurship, and Strategic Management Group at the MIT Sloan School of Management. He is an NBER research associate and director of the NBER’s Innovation Policy Working Group.