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## Manmade Scarcity Drives Up Housing Prices

House prices in many communities, especially in urban areas on the East and West coasts, have soared in recent decades. Across the nation, real housing prices have risen relatively modestly since 1950, by less than 2 percent a year. As for the more rapid rise in real prices in the last several years, some blame low mortgage interest rates resulting from the Federal Reserve's easy monetary policy, which made homes affordable to more and more Americans.

The key underlying reason for rising house prices, though, is supply, according to economists **Edward Glaeser**, **Joseph Gyourko**, and **Raven Saks**. Since 1970, homebuilders have faced increasing difficulty in obtaining regulatory approval for the construction of new homes. Local residents — more educated, more affluent — have had a greater ability to block new projects should they be deemed harmful to their own interests, for example to the value of their homes. As a result, cities have changed from “urban growth machines to homeowners’ cooperatives,” the authors write in **Why Have Housing Prices Gone Up?** (NBER Working Paper No. 11129).

Looking at 316 metropolitan areas of the continental United States, the authors note that the average home price has increased 1.7 percent faster than general inflation

annually from \$59,575 in 1950 (in 2000 dollars) to \$138,601 in 2000. More notable is a growing variance in prices. Average prices rose 72 percent since 1970, but the spread of prices (measured by the standard deviation) across metropolitan areas increased 247 percent as contractors had difficulty finding suitable building lots in what are regarded as hot housing markets.

the authors calculate. In high-price housing areas, quality growth is even less important.

What has happened is that fewer homes are being built relative to the existing stock of houses. In a sample of 120 metropolitan areas, the housing stock climbed 40 percent in the 1950s; in the 1990s, housing stock rose only 14 percent. The 1990s average change for the 120

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Construction costs do not explain the price surge or the greater variance, the authors note. Since 1970, the after-inflation cost of building a house has declined slightly on a nationwide basis. Even in booming markets, construction-cost increases have been modest. Real construction costs between 1970 and 2000 rose a mere 4.6 percent in the San Francisco area and 6.6 percent in Boston. In those same three decades, house prices rose 270 percent in the San Francisco area and 127 percent in the Boston area.

Moreover, improvement in the quality of houses accounts for only about one quarter of the average increase in average housing values,

areas was double that in booming markets as San Francisco, New York, and Los Angeles where it is more difficult getting land approved for development.

As evidence of this difficulty, the authors note that the physical cost of building a home as a percentage of the home price has diminished over time. In 1970 and earlier, structure costs represented about 90 percent of the value of a home in most areas. But since 1980, the cost of land and obtaining regulatory approval has shrunk the importance of building costs as a factor in house prices. For instance, along a swath of the east coast roughly approximated by Amtrak's

Northeast Corridor, the non-structure component of house value exceeded 40 percent by 1990. By 2000, this pattern had spread to 27 metropolitan areas. In the San Francisco area, an outlier among metropolitan areas, structure costs probably represent no more than 30 percent of house value.

The evidence, the authors write, points toward a man-made scarcity of housing in the sense that the housing supply has been constrained by government regulation as opposed to fundamental geographic limitations, especially in the last two

or three decades. They see evidence that judges and local government officials have become increasingly sympathetic to community and environmental concerns with new housing developments. Zoning has become more restrictive. Permitting has declined by an estimated 37 percentage points between 1960 and today. Bribery or other methods for persuading officials to permit developments have probably become less effective than in the 1960s, though there is little evidence either supporting or refuting this thesis. The fraction of Americans owning their own

homes has risen in the past 40 years from 59 percent to 68 percent, giving homeowners more political clout. Rising education levels and learning from other political battles, such as the civil rights movement, have made community members more adept at using courts and the press to battle against developments. And, as afforded by rising incomes, there is a rising preference for living in low-density communities where crime rates can be lower and civic amenities better.

— David R. Francis

## Junk Food Availability in Schools Raises Obesity

Researchers and public health officials are currently at a loss to explain the rapid rise in weight problems among children and adolescents that began in the 1980s. Concerns about the long-term health consequences of overweight have ignited a debate about school policies that make junk food available to students in school. While the revenues generated by in-school junk food sales fund a wide variety of discretionary school programs, some school district officials consider the link between junk food and overweight intuitively plausible. They have instituted policies to ban or reduce access to junk food despite the fact that little is known about whether access to junk foods in school really does contribute to obesity.

In **Reading, Writing and Raisinets: Are School Finances Contributing to Children's Obesity?** (NBER Working Paper No. 11177), co-authors **Patricia Anderson** and **Kristin Butcher** combine data from

several sources to examine both the effect of financial pressure on school food policies and whether these school food policies help create overweight adolescents. They find that schools that are under financial pressure are more likely to make junk food available to their students, to have “pouring rights” contracts, and to allow food and beverage advertis-

eral, “a 10 percentage point increase in the proportion of schools with junk food is correlated with about a 1 percent higher BMI for the average student.”

The authors caution that their results do not imply that every student who can buy junk food at school will suffer from overweight. The effect of junk food availability is

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“Schools that are under financial pressure are more likely to make junk food available to their students.”

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ing to students. By using measures that capture financial pressure to predict the fraction of schools in a county with these particular food policies, they then estimate the effect of the fraction of schools in a county with these food policies on adolescent body mass index (BMI).

They find that it is the actual availability of junk food, rather than advertising or pouring rights, that is associated with weight gain. In gen-

statistically different for adolescents whose parents are overweight. Access to junk food in school has no effect on the 44 percent of students whose parents have normal weights. For those with an overweight parent, who may have a genetic susceptibility to weight gain, a 10 percent increase in the proportion of schools that make junk food available increases BMI by more than 2 percent.

Though junk food at school

may pose a health risk to some students susceptible to obesity, existing junk food policies help generate funds for programs that benefit all students, Anderson and Butcher note. They further point out that the

substitute foods allowed by official policies banning junk food and soda often allow products, like fruit juice, that contain just as many calories. The authors recommend that officials considering a change in school

food policies weigh the health costs borne by the fraction of students susceptible to obesity against the benefits conferred by the programs funded by in-school junk food sales.

— Linda Gorman

## Interactions of U.S. and European Financial Markets

One of the hallmarks of economic globalization is the growing integration of financial markets, both within and across countries. Yet, while it has become a truism that what happens in markets abroad matters for markets at home, and vice versa, the extent and complexity of global financial integration remains hard to identify and to quantify.

In **Stocks, Bonds, Money Markets, and Exchange Rates: Measuring International Financial Transmission** (NBER Working Paper No. 11166), the key argument of co-authors **Michael Ehrmann**, **Marcel Fratzscher**, and **Roberto Rigobon** is that one needs to model all relevant financial assets simultaneously, domestically as well as internationally, in order to measure accurately and to fully understand the extent of financial linkages. The main limitation the literature has faced in measuring the propagation channels of financial linkages has been that asset prices are simultaneously determined. Ehrmann, Fratzscher, and Rigobon estimate the propagation of shocks using a novel technique that allows them to take into account the contemporaneous financial transmission within as well as between the two largest economies in the world – the United States and the euro area. The empirical model concentrates on daily

returns over a 16-year period of 1989-2004 for seven asset prices: short-term interest rates, bond yields and equity market returns in both economies, as well as the exchange rate.

The authors discover notable differences in the interplay of domestic financial markets between the two economies. U.S. short-term rates react to developments in U.S. equity markets, with an increase in

domestic short rates.

Another interesting result relates to differences in the reaction of U.S. and European exchange rates to movements in domestic interest rates. A 100 basis-point increase in U.S. short rates leads to a 1.7 percent appreciation of the U.S. dollar, whereas an equally sized increase in European short-term rates produces a much larger appreciation, 5.7 per-

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“Shocks to U.S. short-term interest rates exert a substantial influence on euro area bond yields and equity markets, and in fact explain as much as 10 percent of overall euro area bond market movements.”

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equity returns leading to higher short-term rates. In the euro area, by contrast, there is no significant relationship between equity markets and short-term interest rates. The authors note that this finding is “arguably quite intuitive,” because it implies that “U.S. monetary policy is more responsive to equity markets than the monetary authorities in the euro area.” Furthermore, there is evidence for a much larger response of stock markets to changes in monetary policy in Europe. Equity prices fall by around 0.75 percent in the United States, and by more than 2 percent in the euro area in response to a 100-basis point increase in

cent, in the European exchange rate. “One possible explanation for such a difference is that the euro area economy is a more open one compared to the United States,” the authors argue, “although the difference in the point estimate is nevertheless striking.”

Looking at international transmission, the results of the work by Ehrmann, Fratzscher, and Rigobon underline the importance of international spillovers, both within asset classes and across financial markets. Although the strongest international transmission of shocks takes place within asset classes, they find evidence that international cross-mar-

ket spillovers are significant, both statistically and economically. For instance, shocks to U.S. short-term interest rates exert a substantial influence on euro area bond yields and equity markets, and in fact explain as much as 10 percent of overall euro area bond market movements. But the transmission of shocks also runs in the opposite direction as, in particular, short-term interest rates of the euro area have a significant impact on U.S. bond and equity markets. The paper shows furthermore that in almost all cases the direct transmission of financial shocks within asset classes is magnified sub-

stantially, mostly by more than 50 percent, via indirect spillovers through other asset prices.

Finally, the authors conclude that an important share of the behavior of financial markets is explained by foreign asset prices. On average, about 26 percent of movements in European financial assets are attributable to developments in U.S. financial markets, while about 8 percent of U.S. financial market shifts are caused by European developments. The larger importance of U.S. markets is found particularly for equity markets; for instance, movements in U.S. stock prices trigger

corresponding change in the euro area, with more than 50 percent of the U.S. market developments being reflected in euro area stock prices. By contrast, European equities have an insignificant impact on their American counterparts. “This confirms the central role that U.S. equity markets play in world stock markets,” the authors note. The authors make the interesting observation that transnational financial links became stronger after the creation of the European monetary union in 1999, although evidence on that point is “only suggestive.”

— Carlos Lozada

## New Hospital Residents and Increased Mortality

Nearly all managers must deal with the consequences of employee turnover within their organizations. Turnover appears in multiple forms. Many firms face a continuous stream of *individual turnover* in which employees leave and are replaced by new workers at various points throughout the year. In such settings, there is no one particular time during the year when managers are required to train and orient a large portion of their workforces.

In contrast, other firms bring on new employees in large numbers at discrete points in the year. For example, law and consulting firms tend to start most of their new employees in late summer or early fall. These new employees must all be trained and integrated into the firm at one time. In the law and consulting examples, the potential negative effects of the large inflow of new workers may be buffered by the fact that firms do not face the simultaneous exit of large portions of their experienced workers. Rather,

departures occur in a roughly continuous manner throughout the year.

In **Cohort Turnover and Productivity: The July Phenomenon in Teaching Hospitals** (NBER Working Paper No. 11182), authors **Robert Huckman** and **Jason Barro** investigate a third form of turnover, the extreme, though not uncommon, scenario that they term *cohort turnover*. This type of turnover involves the simultaneous exit of a large number of experienced employees and a similarly sized entry of new workers. Cohort turnover raises concerns about adverse effects on productivity attributable to factors such as operational disruption or the loss of the tacit knowledge held by departing workers.

The authors consider cohort turnover among house staffs (that is, residents and fellows) in teaching hospitals. This turnover leads to a significant lack of continuity and a discrete reduction in the average experience of the labor force at teaching hospitals every summer. In

addition, this changeover may disrupt established teams of doctors and other caregivers within hospitals. Either of these effects may have potentially troubling consequences for the two determinants of hospital productivity — resource utilization and clinical quality. This “July phenomenon” is often mentioned in the lore of medical professionals.

Using data on all patient admissions from a large, multi-state sample of American hospitals over a five-year period, the authors find that both minor and major teaching hospitals experience a significant increase in resource utilization — measured by average length of stay (LOS) — immediately following the July turnover, and that the effect appears to last for several months. They also find that teaching hospitals with medium teaching intensity experience a significant increase in patient mortality over the same period. The confluence of increased resource utilization and increased mortality (in other words, decreased



quality) during the July-August period implies that this cohort turnover reduces medical productivity.

Nevertheless, those hospitals with the highest teaching intensities (the greatest reliance on residents for the provision of care) seem to avoid the disruption of the July phenomenon with respect to average mortality rates. The authors' preliminary evidence suggests that higher supervision levels play a role in mitigating the impact of the July turnover in major teaching facilities.

The magnitude of the estimated effects is substantial and appears to last for roughly six months. The average LOS for the average, major teaching hospital increases by roughly 2 percent following the July turnover and remains between 1 percent and 2 percent higher throughout the final six months of the calendar year. Similarly, the average, major teaching

hospital experiences an increase in risk-adjusted mortality of roughly 4 percent in the July-August period. This effect also remains at levels between 2 percent and 4 percent for the last six months of the calendar year. For the average major teaching hospital, this translates into between

States. The authors do not estimate the social cost of this increase in mortality.

Beyond their findings with respect to the July phenomenon, the authors offer empirical support for the contention that cohort turnover has negative implications for pro-

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“The average, major teaching hospital experiences an increase in risk-adjusted mortality of roughly 4 percent in the July-August period.”

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7.8 and 13.8 “accelerated” deaths (that is, deaths that occur earlier than they would have in the absence of the July turnover) per year. Based on a total of roughly 200 major teaching hospitals in the United States, the July phenomenon is thus associated with roughly 1,500 to 2,750 accelerated deaths per year in the United

ductivity *on average*, although these effects do not increase linearly with the intensity of turnover. Their initial evidence suggests that supervision can mitigate this negative effect. Even if firms are not able to reduce their levels of turnover, they may be able to manage its effects.

— Les Picker

## Intellectual Property Rights and International Technology Transfer

The promotion of stronger intellectual property rights (IPR) protection that has occurred over the past two decades has had its critics. Some economists maintain that this trend is economically harmful to developing countries, which must transfer rents to multinational patent holders in the more advanced countries, especially the United States. Advocates maintain instead that strengthening IPR protection promotes more innovation globally, thereby generating economic growth. Even if the bulk of this innovation occurs in the advanced countries, these proponents maintain, stronger IPR protection will accelerate the transfer of technology among nations, resulting in mutual benefits.

In **Do Stronger Intellectual**

**Property Rights Increase International Technology Transfer? Empirical Evidence from U.S. Firm-Level Data** (NBER Working Paper No. 11516), co-authors **Lee Branstetter, Raymond Fisman,** and **C. Fritz Foley** use affiliate-level data on U.S. multinational firms and aggregate patent data to test whether legal reforms, especially those in line with the minimum global standard for IPR as established in the mid-1990s by the World Trade Organization, increase the transfer of technology to multinational affiliates in reforming countries. One of the presumed benefits of increased protection of intellectual property rights (IPR) is that it encourages foreign firms to produce and market technologically advanced products.

When a firm transfers advanced technology to an affiliate, it usually has to instruct local engineers and other local skilled workers in key elements of the technology. Some of these elements may have been withheld from the firm's patents in order to prevent infringement. In a weak IPR environment, multinationals would have little recourse if these local workers took that valuable knowledge to a local rival, combining the patented and unpatented technologies to compete with their former employer. But when working in a strong IPR environment with good patent protection, a firm can deploy strategically sensitive technology outside its home country with a reasonable sense of security because it has the legal means to prosecute

patent infringement.

The NBER researchers find that where patent protection has been strengthened, royalty payments increase for the use or sale of intangible assets made by affiliates to parent corporations, which reflect the value of technology transfer. This increase is concentrated among the affiliates of firms that make extensive use of U.S. patents prior to reform. Investment in research and development by affiliates, which is usually viewed as a complement to technology of imports from the parent, also increases after IPR reform as do both the level and growth rate of non-resident patenting. These increases collectively suggest that at least one component of growth in licensing flows is associated with the introduction of new technology following patent reforms. The researchers find no corresponding reaction in resident patent filings. Taken together, the results provide evidence that strengthening IPR protection results in real increases in technology transfer within multinational corporations.

Branstetter, Fisman, and Foley

assert that their study draws on richer data than other researchers have used: firm and affiliate-level data for multinationals operating in multiple countries allowed them to deal more

effectively with matters of causality and identification. As a result, they were able to offer the strongest evidence to date for the notion that stronger IPR protection encourages at least one kind of international technology transfer.

“The results provide evidence that strengthening IPR protection results in real increases in technology transfer within multinational corporations.”

The researchers’ data were drawn from annual and quarterly surveys conducted between 1982 and 1999 by the U.S. Commerce Department’s Bureau of Economic Analysis. Branstetter, Fisman and Foley also track and analyze data amassed by the U.S. Patent and Trademark Office, by the World Intellectual Property Rights Organization, and by other sources. Ultimately they studied 16 countries with sufficient data to allow esti-

mates of the impact of strengthened IPR protection. Such reform included the expansion in the range of goods eligible for patent protection, expansion of the effective scope and length of patent protection, and improved administration and enforcement of the patent system.

Branstetter, Fisman, and Foley acknowledge that their analysis “does not consider the impact of reforms on locally owned firms that may be displaced after reforms nor does it examine the effects of reforms on the pace of innovation in non-reforming countries. However,” they add, “given the limited evidence that IPR reform spurs domestic innovation, increases in technology transfer are likely to be a necessary condition for IPR reform to increase welfare in reforming countries.”

— Matt Nesvisky

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