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The Region

Daron Acemoglu

The Importance of Teaching Teachers

Disappearance of Large Manufacturing

Recession Impact on Old & Young

Research Digest: Do Newspapers Matter?

Essay Contest Germany's *Kurzarbeit* Work Program

The Importance of Teaching Teachers

Effective teacher training on economics and finance is invaluable to implementation of Fed policy

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This fall I have the honor of hosting and speaking to economics and personal finance teachers at a significant event—the 50th anniversary celebration of the Minnesota Council on Economic Education (MCEE). I always look forward to public events like this, in part because they help me meet an important responsibility—communicating clearly about the substance and logic of Federal Reserve System policy decisions. But speaking with teachers and the MCEE will be especially rewarding to me, because they are the unsung but vital allies in the Federal Reserve System's efforts to communicate about policy.

Effective policy implementation requires public support and, therefore, public understanding. Public understanding of policy decisions, in turn, requires clear communication between policymakers and the public. In my view, the bulk of the responsibility for clear communication falls on policymakers themselves. With this in mind, I have strongly supported Federal Reserve System initiatives toward greater transparency about our decisions and the logic behind them, and in my speeches and articles I try to clearly outline my own thinking about policy.

Although policymakers have the primary responsibility for effectively communicating their decisions, the task becomes easier when the general public has a basic grasp of economic and financial principles. In my frequent dialogues with audiences in the Ninth Federal Reserve District, I am often impressed by their interest in and understanding of policy issues. Their perceptiveness bolsters my belief in the importance and possibility of clear communication about policy. Everyone benefits from a better public understanding of basic economic concepts. It helps policymakers in their efforts to successfully convey policy decisions, and it allows voters to more effectively hold policymakers accountable.

These benefits should not be taken for granted, however. They are the result of an effective system of general education that relies on elementary, secondary and college teachers to provide training in economics, personal finance and related social sciences. With that in mind, I want to express my sincere appreciation not only to the instructors who teach these concepts, but especially, in the context of the MCEE's 50th anniversary, to those who support and prepare them to teach.

More broad than deep

The objective of general economic and personal finance education is more broad than deep. In particular, it need not aim at preparing students to be professional economists, even though some of them will follow that path. I know this from experience. Despite having little exposure to economics instruction until I was a college undergraduate, I was not disadvantaged in my subsequent pursuit of an economics Ph.D. It remains the case that many successful professional economists and current economics graduate students had little formal training in economics before college or, in some cases, graduate school. In other words, the primary aim of K-12 education in economics and finance is to prepare students to be thoughtful individuals, good citizens and intelligent workers, but not necessarily economists.

These aims can be largely met by successfully conveying a small set of basic economic and finance concepts. We economists are notorious for our arguments and disagreements, of course, but the fact is we generally agree on the basic concepts that underlie economic reasoning. Fortunately, economists and economic educators have already translated these core concepts into standards for K-12 instruction, including the *Voluntary National Content Standards in Economics* from the MCEE's national partner, the Council for Economic Education[1] and the Minnesota Department of Education's proposed new social studies standards.[2]

So the good news is that these concepts and more have already been written into proposed or actual standards for K-12 social science education, and there are additional proposed and actual standards in personal finance. In other words, appropriate specific objectives for K-12 economic and personal finance education are pretty well understood.

The challenge, however, is to meet those objectives. Although parents and other mentors and nonschool experiences play an important role, especially in personal finance learning, effective K-12 teaching is critical to achieving a broad base of public understanding of basic economic and finance concepts. The mission of the MCEE and its sister organizations stems from the idea that effective teaching is based on good material and a well-prepared instructor.

The MCEE has long provided a full range of materials organized to help teachers teach to standards, including full curricula and lesson plans from the Council for Economic Education, other state councils on economic education and organizations such as Junior Achievement and the National Endowment for Financial Education. On its own, the MCEE has taken a leading role in delivering materials and hosting student competitions for the Cargill Global Food Challenge, a curriculum that teaches students how supply and demand factors interact to determine equilibrium prices and quantities in a global market while also covering policy issues related to agriculture, trade and food security. The widely used *Seas, Trees, and Economies* environmental economics curriculum was developed by Curt Anderson, director of the MCEE's center at the University of Minnesota Duluth. Anderson and the MCEE are also in the process of disseminating a new set of personal finance materials. For classroom teachers developing their own materials, the MCEE provides workshops and mentoring as well as awards for outstanding new lesson plans in economics and personal finance, funded by 3M and Thrivent, respectively.

Preparing teachers

Teaching materials are important, but only if they are taught, and especially if they are taught by a well-trained teacher. Ideally, all teachers would be trained in the content and pedagogy of their subject areas in their undergraduate or graduate courses, but the reality is that many K-12 teachers teach subjects they did not study extensively in college. When the subject is economics or personal finance, a common reaction is panic, often followed by a call for help to the MCEE or a similar organization. To meet the needs of both new and experienced teachers at all grade levels, the MCEE offers an array of courses, ranging from *Using Children's Literature to Teach Economics and Personal Finance* to *Enhancing the Social Studies Curriculum with Economics* and *Preparing to Teach High School Economics*.

Scott Wolla's story illustrates that the results can be impressive. Wolla became a social studies teacher at Hibbing (Minn.) High School in 1996. When the opportunity to teach economics

opened in 2001, Wolla volunteered, but soon decided he needed help, despite having a degree in social studies education. Like many others in this situation, he turned to the MCEE for instruction on suitable materials and lessons plans. Before long, he was not only confident, but proficient. Wolla coached his students to the national championships in the Council for Economic Education's Economics Challenge competition three times, culminating in a national championship in 2006; his students have also won the Cargill Global Food Challenge.

Wolla went on to develop his own lessons plans, winning the MCEE's 3M Innovative Economic Educator award in 2003. In 2006, he was named Minnesota's high school social studies teacher of the year and won MCEE's 3M Economic Educator Excellence award for career achievement. Along the way, Wolla completed a master's degree in economics for educators. He now serves as one of my colleagues, as an economic education specialist at the Federal Reserve Bank of St. Louis.

The transition from panic to proficiency taken by Wolla has been repeated by many others; a number of his fellow recipients of the MCEE's 3M and Thrivent Innovative Educator awards have related similar tales. But the case is backed up by research as well as anecdotes.

A recent study by Wendy Way and Karen Holden of the University of Wisconsin documents a gap in readiness to teach personal finance among K-12 educators from across the country.[3] Almost 90 percent of the K-12 teachers who responded to Way and Holden's survey expressed moderate to strong agreement with the idea that "students should be required to take a financial literacy course or pass a literacy test for high school graduation," and about 30 percent had actually taught financial literacy concepts (usually integrated into a course on another or broader topic). Nonetheless, the respondents reported a large gap in knowledge about how to teach personal finance. Only 3 percent of K-12 teachers had taken a college course that covered how to teach personal finance, and just 7 percent to 11 percent felt well qualified in areas such as integrating financial literacy concepts into their disciplines, developing examples to explain financial literacy concepts and assessing students' financial literacy understanding. These findings corroborate the anecdotes of panic that lead many new teachers of economics and personal finance to seek out the MCEE and its affiliates.

Proficient students

Research also supports the anecdotes of student proficiency achieved through teacher training on economics and personal finance pedagogy. Two scholars associated with the MCEE's center at St. Cloud State University, Rich MacDonald and Ken Rebeck, teamed with the University of Nebraska's William Walstad to assess how much a well-prepared teacher using a well-designed curriculum could enhance students' acquisition of personal finance knowledge.[4] They worked with 15 teachers in four states who were trained to use the Council for Economic Education's *Financing Your Future* curriculum.

After being trained, these teachers used the curriculum to instruct hundreds of students. Those students and a control group of similar students who received no instruction were tested both before and after the instruction, and the results were clear. Before instruction began, both groups of students correctly answered just under 50 percent of the test questions. Afterward, performance was unchanged for the control group, but rose to almost 69 percent correct for the students receiving instruction, a statistically significant improvement.

In short, well-trained teachers using sound curricula make a difference. That logic lies behind the Federal Reserve Bank of Minneapolis' long partnership with the MCEE, the Montana Council on Economic Education and other economic and personal finance education organizations. Our senior officers and economists have worked with the MCEE and others since at least the 1960s. We value the opportunities the MCEE provides for talking with K-12 educators about macroeconomics, monetary policy, financial supervision and the role of the Federal Reserve System, as well as its help in publicizing and building participation for our annual economic essay contest. And each April we are honored—and honestly, get a huge kick out of—hosting teams from across Minnesota in the final rounds of the MCEE's two state high school quiz-bowl-like championships, the Economics Challenge and the Personal Finance Decathlon.

So, on behalf of the Federal Reserve Bank of Minneapolis, let me thank all of those who teach economics and personal finance as well as those who support, prepare and train them, with a special nod to our long-term partner, the Minnesota Council on Economic Education, on the occasion of its 50th anniversary celebration this October. Let's keep working together to prepare students to be thoughtful individuals, good citizens, intelligent workers and, sometimes, economists. R

Notes

[1] Online at www.councilforeconed.org/ea/program.php?pid=19

[2] View the Minnesota Department of Education's social studies standards at education.state.mn.us/MDE/Academic_Excellence/Academic_Standards/Social_Studies/index.html.

[3] Way, Wendy L., and Karen C. Holden. 2009. "Teachers' Background and Capacity to Teach Personal Finance: Results of a National Study." *Journal of Financial Counseling and Planning* 20 (2).

[4] Walstad, William B., Ken Rebeck and Rich MacDonald. 2010. "The Effects of Financial Education on the Financial Knowledge of High School Students." *Journal of Consumer Affairs* 44 (2).

The Case of the Disappearing Large-Employer Manufacturing Plants

Not Much of a Mystery After All

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Economic Policy Papers *are based on policy-oriented research by Minneapolis Fed staff and consultants. The papers are an occasional series for a general audience. Views expressed are those of the authors, not necessarily of others in the Federal Reserve System.*

ABSTRACT

This paper seeks to contribute to policy discussion over recent declines in U.S. manufacturing through close investigation of employment trends in U.S. manufacturing plants with 1,000 or more workers, "large-employer plants." These plants are disappearing at a rate much greater than the decline in manufacturing as a whole. To determine what is happening to these plants, the paper links the 1997 and 2007 published Census Bureau tabulations of the locations of manufacturing plants. This makes it possible to distinguish between plants that are no longer large employers because they have downsized to a smaller employment level and plants that have closed outright.

The author concludes that the dramatic disappearance of large employers is neither mysterious nor surprising. Most of the missing large employers from 1997 are still open, only with fewer employees. The plants that have closed have tended to rely on large quantities of unskilled labor, making them vulnerable to strong import competition from China and other nations, where unskilled labor is less expensive.

The analysis begins with trends in all of U.S. manufacturing and narrows successively. The initial narrowing focuses on a specific geographic area, the "Piedmont region" of the southeastern United States, which has specialized in manufacturing industries that use unskilled labor intensively. Scrutiny then narrows further within the Piedmont to industries heavily impacted by imports from China, designated here as "China surge industries." The analysis ends by contrasting how two large-employer plants making furniture in the Midwest have managed to survive, while the furniture industry in the Piedmont region has collapsed.

Introduction

In 1950, U.S. Steel employed 30,000 workers at its Gary, Ind., plant, and Bethlehem Steel had a factory of similar size in Sparrows Point, Md. Ford's massive Rouge River plant near Detroit employed even more workers—over 100,000 in the 1930s.

Things are far different today. Gigantic employer plants like these are virtually extinct in the United States. Indeed, as of 2007, only 47 plants with more than 5,000 workers exist, half as many as just 10 years earlier. To find massive-employer manufacturing plants, look to China. The Foxconn complex in Shenzhen where iPhones are assembled, for example, is credited in news reports with employing an astonishing 300,000 workers.

The decline of manufacturing in the United States has generated widespread concern and intense discussion about what government should do, if anything, to prevent (or even reverse) the painful downward trend. "The answer is to build things better, make things better, right here in the United States," declared President Obama in 2010, as he signed the Manufacturing Enhancement Act.[1]

Many Americans believe there is a close connection between the international competitiveness of the U.S. manufacturing sector and the nation's ability to remain a prosperous country. A world where China sends container ships filled with manufactured goods to the United States effectively in exchange for U.S. Treasury notes is unsustainable in the long run. Manufacturing also relates to income distribution and inequality trends because it has long provided stable, well-paying jobs for blue-collar workers not skilled in high tech or high finance and ill-suited to design the next iPad or Wall Street innovation.

Thomas Holmes

Unfortunately, most discussions of manufacturing employment trends lump together plants of all sizes, big and small. Obama noted in his 2010 speech, "Over the last decade, the manufacturing workforce shrank 33 percent." While not inaccurate, such statistics can be misleading, because they obscure diverse trends within the manufacturing sector.

In this paper, I hope to illustrate this diversity by focusing specifically on what is happening at the top, to the large-employer plants: those with 1,000 or more employees. To do so, I use published government statistics in a rather novel way to track large employers over time, and since the number of these plants is declining rapidly, there is much activity in the data. Because the largest plants are more likely to be exporters and tend to pay higher wages, this focus on the biggest employers is particularly relevant for issues related to the trade deficit in manufacturing and trends in inequality.[2]

Before I go into details of the analysis, a broad overview that begins with a specific example might be helpful. Go back to the steel plant in Gary with 30,000 workers in 1950. The plant is still in operation, but according to Dun and Bradstreet, its current employment is down to 5,000. Remarkably, with one-sixth as many workers, the plant produces even more steel now than in 1950, as capacity has increased from 6 million to 7.5 million tons a year.[3]

This example of growth in labor productivity illustrates a general long-term trend of technological change and mechanization. One reason some large-employer plants have disappeared is that they have "downsized" into relatively smaller-employer plants, but remained steady or even "upsized" in output. At such plants, tasks once done by American workers are still being performed in the United States, but by machines instead of people. Of course, it's also true that other plants are no longer on the large-employer list because they have closed outright and the work has shifted overseas.

In this paper, I take on the case of the disappearing large-employer manufacturing plants. In the end, I don't find much that is mysterious. Many of the plants that disappear from "large-employer" status are simply dropping down to the next-lower size category. Yet there are also plenty of instances of dramatic employment decline or actual closure. To better understand these trends, I focus on specific industries hit hard by imports from China, including the apparel and furniture industries. And I focus especially on the Piedmont region in southeastern United States.

For most of the last century, the Piedmont played the same role relative to the industrialized Northeast and Midwest of the United States as China is playing today vis-à-vis the United States as whole. In the earlier period, labor-intensive factories in places like Pennsylvania and Michigan closed down and moved operations to North Carolina to take advantage of low wages. The Piedmont region ended up with huge factories employing large numbers of unskilled laborers in routine tasks.

Tasks once done by American workers are still being performed in the United States, but by machines instead of people. ... it's also true that other plants are no longer on the large-employer list because they have closed outright and the work has shifted overseas.

Today, these large employers in the Piedmont are being closed at a disproportionately high rate compared with the rest of the country. Given their industry specializations, this turns out not to be a mystery. There is tremendous cost pressure to eliminate routine, labor-intensive tasks from manufacturing in the United States, where labor is relatively expensive, and everything I find is consistent with the power of this force.

This paper starts at a broad level—all of manufacturing—and successively narrows down. By the end, the discussion focuses on what is happening in just two furniture plants in the Midwest, including "nano-level" details about job postings. These are not simply two random plants pulled out of a hat for the sake of an anecdote. Rather, they are the two largest plants that have managed to survive in an industry otherwise decimated by Chinese imports.

These two plants alone account for about 10 percent of all that is left of employment in their industry.

Large employers are interesting not only for all the "action" noted above, but also because they are disproportionately important as a source of jobs. Understanding the nitty-gritty about just a few large plants can therefore provide information that is quantitatively important for the industry as a whole. Readers will see that these two Midwest plants are full of white-collar workers and so, ultimately, it will be no mystery why these plants have survived, while the Piedmont plants, once filled with thousands of blue-collar workers, are gone.

Matching plants over time

To track large employers, I use public data from the Census of Manufactures taken by the U.S. Census Bureau every five years. The Census publishes a tabulation of the number of plants at each location and industry in various employment size ranges, such as "2,500 and more employees," "1,000-2,499 employees" and so forth.[4] From these data, I determine the list of all plants in the 1997 Census of Manufactures with 1,000 or more employees and define these as "large employers." I then go 10 years forward to 2007 and look for a match in the same location and industry. The appendix (online at minneapolisfed.org) describes the matching algorithm in detail.

For smaller employers it would be difficult or impossible to match specific plants over time, because business starts and closures (entry and exit) are so common. A restaurant reported in the 1997 Census in a particular location with 1-19 employees might be the same restaurant observed in the 2007 Census, or—just as plausibly—the 1997 restaurant might have closed down, and the 2007 report is a new, similar-sized restaurant in the same location.

Large-employer plants, by contrast, are extremely rare, so when they are linked over time, I can be highly confident the link is true. For example, in the 1997 publication for the industry "Iron and Steel Mills" in the place "Gary, Indiana," there is exactly one "2,500 plus" plant and no other plant with more than 250 employees. In the 2007 publication, there again is exactly one "2,500 plus" plant. My matching algorithm links these as being the same plant, which of course is a correct match.

While the algorithm isn't always perfect, it seems to work very well overall. It greatly helps matters that in the more recent censuses, the location information has been published in greater geographic detail than the county level used in earlier censuses. For example, in the 1997 Census, not only is there a "2,500 plus" steel plant in Gary, but there is another "2,500 plus" steel plant in "East Chicago, Indiana." These two places are in the same county, so these two plants would be grouped together if the place-level detail in the 1997 Census were not available. Having data at narrow geographic detail makes it possible to reliably match plants over time. The analogous tabulation with detailed geography for the 2007 Census of Manufactures was only just released in January 2011. Combining this freshly available, detailed public data from 1997 to 2007 provides a wealth of information about American manufacturing over a decade of dramatic transformation—invaluable evidence for untangling the "mystery" of disappearing large employers.

Table 1: **Long-Term Trends in U.S. Manufacturing Employment**

	1977	1987	1997	2007
Employment in plants with 1,000 or more employees (millions of employees)	5.1	4.2	3.2	2.1
Number of plants with 1,000 or more employees	2,061	1,711	1,503	1,014
Number of plants with 5,000 or more employees	192	154	97	49
Manufacturing employment in plants of all sizes (millions of employees)	18.5	17.7	16.8	13.4
Manufacturing employment as share of total private (nongovernment) employment	22.4%	17.4%	13.7%	9.7%

Source: U.S. Census Bureau, Census of Manufactures. The source for plants with 5,000 or more employees is County Business Patterns (1977, 1987, 1997, 2007).

A broad overview

Table 1 and Figure 1 show the long-term decline of large-employer plants (defined in this paper as 1,000 or more employees). Employment in such plants fell from 5.1 million in 1977 to only 2.1 mil-

lion in 2007. The number of such plants decreased by about half, from 2,061 to 1,014 (Figure 2). The decline is even more remarkable in plants with 5,000 employees, where the numbers fell from 192 plants in 1977 to only 49 by 2007.

What has happened to these large employers? It is well known that the U.S. manufacturing sector is in decline generally, that is, across plants of all sizes. Over the 30-year period, overall manufacturing employment fell from 18.5 million to 13.4 million. Since nonmanufacturing employment grew during these decades, manufacturing's share of employment fell from 22.4 percent to 9.7 percent. While the overall decline of manufacturing is indeed significant, what is happening at the top, to large-employer plants, is even more dramatic. Table 1 and Figure 1 make this point very clear.

By looking more closely at these large plants and the enormous changes they've undergone, I can get a better sense of the forces behind the overall transformation of the manufacturing sector. And I can do this by tracking plants over time, using the algorithm described above to match large employers in 1997 to the same (if changed) plants in 2007.

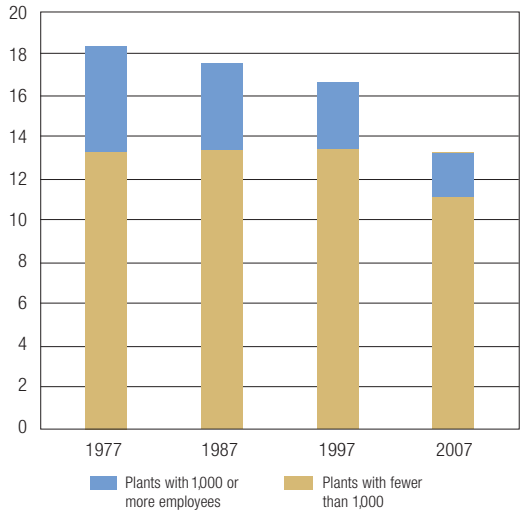
To illustrate the matching algorithm at work, first look at *huge* employers (2,500 plus) that have newly appeared as of 2007, in the sense of not matching to a plant in 1997 with 500 or more employees. There are only 15 of these, making it possible to put all of the plants in a table (Table 2) to get a sense of the data. The plants listed include both brand-new entrants that started from scratch over the 1997-2007 period and existing plants from 1997 with fewer than 500 employees that grew to huge status (2,500 plus) by 2007. Both kinds of expansion are extremely interesting, and it simplifies the algorithm when I don't have to separate them out.

Five of the new huge plants in Table 2—one-third of the total—are auto plants. These are all highly publicized new plants, for example, the new Nissan facility in Canton, Miss., the Hyundai plant in Montgomery, Ala., and so on. Auto plants are highly capital-intensive facilities, where robots do much of the assembly work; it is no surprise that they are still opening in the United States.

The next four on the list are meat-processing plants, which make intensive use of low-skilled labor. A reporter taking a job at a huge meatpacking plant vividly describes the work: Men standing at assembly lines using knives to hack meat off bone by hand.[5] Given the difficulties inherent to trans-

Figure 1: **Manufacturing employment drops, especially in large-employer plants**

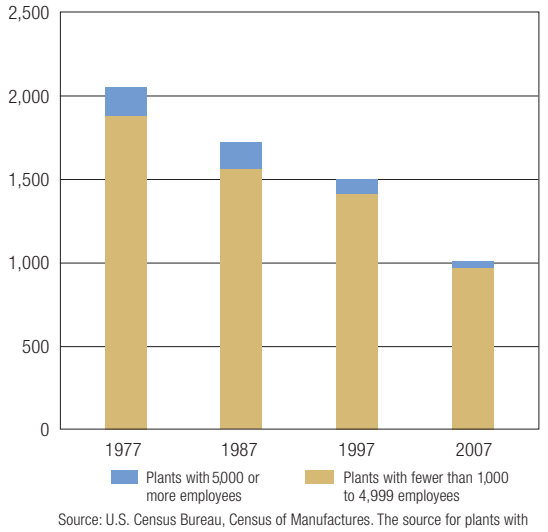
Millions of manufacturing employees



Source: U.S. Census Bureau, Census of Manufactures

Figure 2: **Number of large-employer plants falls**

Number of manufacturing plants



Source: U.S. Census Bureau, Census of Manufactures. The source for plants with 5,000 or more employees is County Business Patterns.

porting live animals and fresh meat, it makes sense that this work is still done in the United States. The remaining six plants on the list are generally in high-tech industries, where it is understandable why new capacity is being added.[6]

Table 3 reports the main results of the matching algorithm regarding the disappearance and new appearance of large (again, 1,000 plus) employer plants between 1997 and 2007. The top panel answers the question: Where did the large employers from 1997 go? The table shows that of the 1,503 large employers from 1997, just under half of them (708 plants) remained as large employers 10 years later. Fully one-quarter of them (383 plants) downsized employment to the "500-999" category, and 6.5 percent (97 plants) downsized even further to the "250-499" category.

The remaining 21 percent (315 plants) either closed outright or contracted to a plant size of below 250 employees. Both kinds of decline represent an extreme level of contraction, and I simplify the algorithm by grouping these two outcomes together and calling it "closure."

The bottom panel answers the related question: Where did the large employers from 2007 come from? Here the table shows that the vast majority of such plants were already large employers in 1997. About 10 percent of them either didn't exist in 1997 or expanded from a very small base of below 250 employees, an outcome I label "entry." The industry composition of the entrants is very similar to the entry of new huge employers in Table 2. Nearly 70 percent are in four broad industries: food, transportation, computers and chemicals.

Table 2: **List of "2,500 or More Employee" Plants from 2007 that Are New Entry***

Industry Code	Industry Description	Plant Location
	Automobile and Truck Plants	
336111	Automobile manufacturing	Canton, MS
336112	Light truck and utility vehicle manufacturing	Montgomery, AL
336112	Light truck and utility vehicle manufacturing	Talladega County, AL
336112	Light truck and utility vehicle manufacturing	Gibson County, IN
336112	Light truck and utility vehicle manufacturing	Delta Township, MI
	Meat Processing	
311611	Animal (except poultry) slaughtering	St. Joseph, MO
311615	Poultry processing	Dunwoody, GA
311615	Poultry processing	Camilla, GA
311615	Poultry processing	Robeson County, NC
	All Other	
313230	Nonwoven fabric mills	Bensley, VA
326199	All other plastics product manufacturing	Wharton, TX
334111	Electronic computer manufacturing	Austin, TX
334413	Semiconductor and related device manufacturing	Wood County, OH
334510	Electromedical and electrotherapeutic apparatus manufacturing	Waukesha, WI
336414	Guided missile and space vehicle manufacturing	Jefferson County, CO

* "New entry" is defined as no match in 1997 with 500 or more employees in the same industry and location.

Source: This table was constructed by the author using published tabulations of the Location of Manufacturing plants from 1997 and 2007 Census of Manufactures.

Table 3A: **Large-Employer Plants in 1997: Where did they go?**

	United States		Piedmont	
	Number	Percent	Number	Percent
1997 plants with 1,000 or more employees	1,503	100.0	326	100.0
Of the plants above, number of employees in 2007				
1,000 or more	708	47.1	122	37.4
500-999	383	25.5	81	24.9
250-499	97	6.5	24	7.4
Closure*	315	21.0	99	30.4

Table 3B: **Large-Employer Plants in 2007: Where Did They Come From?**

	United States		Piedmont	
	Number	Percent	Number	Percent
2007 plants with 1,000 more of employees	1,014	100.0	187	100.0
Of the plants above, number of employees in 1997				
1,000 or more	708	69.8	122	65.2
500-999	172	17.0	30	16.0
250-499	29	2.9	3	1.6
Entry*	105	10.4	32	17.1

*Closure includes shrinking to a plant size below 250 employees. See the discussion in the text. Analogously, entry includes starting with a plant in 1997 with fewer than 250 employees.

Source: This table was constructed by the author using published tabulations of the Location of Manufacturing plants from 1997 and 2007 Census of Manufactures.

Table 3 reveals a broad overview of what is happening to the disappearing large employers. But to get a clearer picture of what is going on, I need to dig deeper.

Narrowing the investigation

To examine further the case of the disappearing large employers, I narrow the investigation to industries that have been heavily impacted by imports from China. I put particular focus on what is happening in the Piedmont region.

For much of the 20th century, the Piedmont region in the southeastern United States, at the foothills of the Appalachian Mountains, has been a center of low-wage labor, attracting industries that use unskilled labor intensively, in much the same way that China does today. Holmes and Stevens (2004) presents a map of manufacturing activity in the region and some early references. For simplicity, here I am going to define the region broadly to include the following seven states: Virginia, North and South Carolina, Tennessee, Georgia, Alabama and Mississippi. (While Tennessee and Mississippi are not *geologically* part of the Piedmont plateau region, for this economic analysis, it makes sense to include them.) In 1997, these states accounted for 14.1 percent of the U.S. population.

The two right-hand columns of Tables 3a and 3b present an analysis of disappearing large employers as before, but just for plants in the Piedmont region. In 1997, the Piedmont was home to 326 large-employer plants. This is 21.7 percent of the nation's total of 1,503 large-employer plants at the time, much greater than the Piedmont's 14.1 percent share of the U.S. population. Note that the closure rate for Piedmont's large employers is 30.4 percent, well above the national rate of 21 percent.

To get a sense of why the closure rate in the Piedmont is particularly high, it is useful to sharpen the focus still further by looking at industries that have been knocked around by imports from China over the 1997-2007 period. Here I'll call these the "China Surge" industries.[7] Table 4 lists the 17 industries. Total employment declined dramatically from 1997 to 2007 for all 17, with infant apparel declining at an astonishing rate of 97 percent. In these industries, imports grew from about 20 percent of the U.S. market to 60 percent over the decade, and China's share of these imports grew from 20 percent to 57 percent.[8]

Table 4: **Employment Change in the Piedmont Region's "China Surge" Industries**

China Surge Industries	Change in Employment 1997-2007 (percent)
Infants' cut & sew apparel mfg.	-97
Women's & girls' cut & sew suit, coat, skirt mfg.	-91
Silverware & plated ware mfg.	-82
Glove & mitten mfg.	-78
Other apparel accessories & other apparel mfg.	-75
Hat, cap, & millinery mfg.	-74
Women's & girls' cut & sew dress mfg.	-71
Electronic computer mfg.	-68
Men's & boys' neckwear mfg.	-67
Costume jewelry & novelty mfg.	-63
Power-driven hand tool mfg.	-56
Electric housewares & household fan mfg.	-54
Other household textile product mills	-51
Blankbook, looseleaf binder, & device mfg.	-51
Nonupholstered wood household furniture mfg.	-51
Metal household furniture mfg.	-48
Curtain & drapery mills	-47

Source: The percent employment change is calculated using the 1997 and 2007 Census of Manufactures. The selection of industries is discussed in Holmes and Stevens (2010).

Now I'll track what happened to large employers in the China Surge industries between 1997 and 2007. Table 5A shows that the Piedmont had 21 of the large employers in 1997, while the rest of the country had 29. These numbers show the high concentration of these industries in the Piedmont—just 14 percent of the nation's population, but 42 percent of the large employers in China Surge industries. In other words, the Piedmont region specialized in the same labor-intensive industries, like apparel and furniture, that have now shifted over to China.

Things have been rougher for these industries than for the manufacturing sector as a whole, and things are particularly rough for the Piedmont plants. Of the 21 large China Surge employers in the Piedmont in 1997, *only one* was still a large employer 10 years later. Moreover, as I'll discuss later, this one plant switched to a different industry little threatened by Chinese imports. Therefore, *not a*

Table 5A: **Large-Employer Plants in the China Surge Industries in 1997: Where Did They Go?**

	Piedmont		Rest of U.S.	
	Number	Percent	Number	Percent
1997 plants with 1,000 or more employees	21	100.0	29	100.0
Of the plants above, number of employees in 2007				
1,000 or more	1	4.8	5	17.2
500-999	5	23.8	6	20.7
250-499	2	9.5	4	13.8
Closure*	13	61.9	14	48.3

Table 5B: **Food Processing Plants in 1997: Where Did They Go?**

	Piedmont		Rest of U.S.	
	Number	Percent	Number	Percent
2007 plants with 1,000 more of employees	52	100.0	77	100.0
Of the plants above, number of employees in 1997				
1,000 or more	32	61.5	39	50.7
500-999	14	26.9	28	36.4
250-499	3	5.8	3	3.9
Closure*	3	5.8	7	9.1

*Closure includes shrinking to a plant size below 250 employees. See the discussion in the text.

Source: This table was constructed by the author using published tabulations of the Location of Manufacturing plants from 1997 and 2007 Census of Manufactures.

single one of the 21 large employers in the Piedmont survived as a large employer competing head to head with the Chinese. And 13 of them ended up in the closure category. While matters are also rough in the rest of the country, where 14 of 29 closed, China Surge industry plants have fared a little better than those in the Piedmont; five plants outside this region somehow managed, as of 2007, to continue on as large employers. I will further investigate some of these later.

The China Surge industries contrast strongly with food processors, which experience little pressure from imports because of transportation issues. Food processing plants in the Piedmont are doing well (see Table 5B). Of 52 large-employer food processors in 1997, only three ended up in the closure category, a rate of only 5.8 percent, compared with the 10.6 percent closure rate in the rest of the country. Note also in Table 2 that three of the four newly entering huge meat processing plants are in the Piedmont. The bottom line is that in food industries not under import threat, the Piedmont plants are doing better than the country as a whole. But in the China Surge industries, the Piedmont is doing far worse.

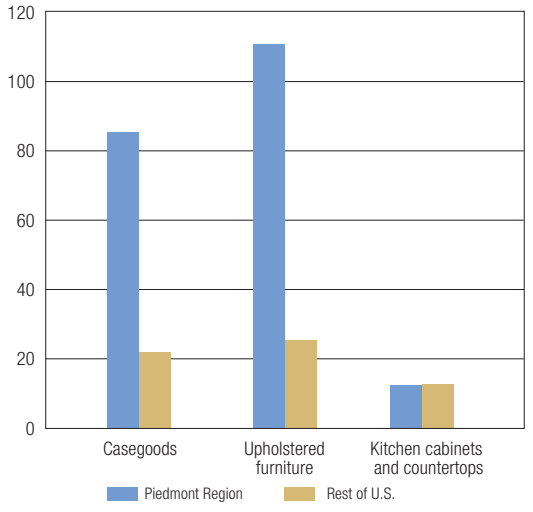
Manufacturing in the Piedmont has been hit hard, not only because it has specialized in low-skill-intensive industries, like apparel and furniture, that have been heavily impacted by Chinese imports, but also because even *within* these industries it has specialized in that segment of the business that makes standardized goods with heavy use of low-wage labor—precisely that part of an industry that is most vulnerable to competition from China. Holmes and Stevens (2010) provide a related analysis. Here, I make the case by digging deeper into the furniture industry.

Making the case with the casegoods

In 1997, wood furniture, such as bedroom and dining room furniture—the industry uses the term "casegoods"—sold anywhere in the United States was very likely made in the vicinity of High Point, N.C., in one

Figure 3: **Piedmont plants larger than U.S.**

Average number of employees per plant, 1997



Source: 1997 and 2007 Census of Manufactures, U.S. International Trade Commission and International Trade Administration

of the many towns like Thomasville or Lexington that have lent their names to well-known brands of furniture. This area was turned upside down in a remarkably short time by Chinese imports. Over the years, furniture makers have tried to adopt mass production techniques, but making quality wood furniture requires human craftsmanship—expensive in the United States, but not in China. There is an interesting recent video about the last day of work at the Hooker Furniture Factory, a plant near High Point that closed in 2007. It is striking to see the extent of the hands-on nature of the production process, the physical touches of the wood, the spraying of stain by hand and so on. The piece is fittingly called "With These Hands: The Story of an American Furniture Factory."[9] With the relative ease of transporting casegoods from overseas, the U.S. industry collapsed in remarkable fashion.

To understand what has happened, it is useful to contrast casegoods with two related, but very different industries: kitchen cabinets and upholstered furniture. Kitchen cabinets are usually built to the specifications of a particular kitchen. There are two great advantages in having this work done locally: quicker turnover and better communication. The high value of proximity in this industry has kept imports to a minimum. Table 6 shows that the import share is quite small and changed little between 1997 and 2007. Custom plants don't have assembly lines and tend to be small, craft-oriented shops, averaging only 12 employees in each plant. This is in sharp contrast to the average employment size of 87 workers in casegoods plants in the Piedmont region.

Upholstered furniture is yet another story. With wide varieties of fabric patterns and colors, there are more variables to deal with than for casegoods with their limited selection of finishes. This makes managing inventory a central issue. The first key advantage then of U.S. production is that it allows for quick inventory turnaround. The second is the shipping expense of bulky sofas. Therefore, the upholstery work shifted to China tends to be the labor-intensive "cut and sew" of fabric into a "kit." These fabric kits are cheap to ship overseas, and U.S factories finish sofas by stuffing locally built frames of foam and wood into the imported kits.

The upshot is that the import share for upholstery has remained relatively low, unlike what is happening with wood furniture. While upholstery

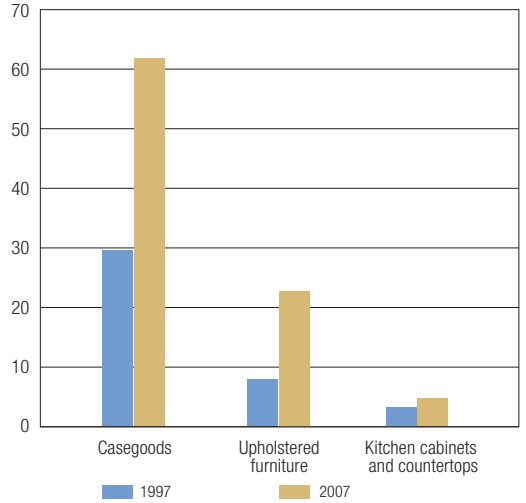
Table 6: **Comparison of Different Kinds of Furniture Industries**

	Casegoods	Upholstered furniture	Kitchen cabinets & countertops
Share of industry employment			
Piedmont region	47.0%	69.1%	17.9%
Rest of U.S.	53.0	30.9	82.1
Average employment per plant in 1997			
Piedmont region	86.8	111.1	12.2
Rest of U.S.	21.6	25.8	12.7
Import share			
1997	29.5%	7.8%	3.2%
2007	61.8	22.7	4.6
Percent change in U.S. employment over 1997-2007			
	-50.6	-13.9	39.4
Share of employment in Piedmont region			
1997	47.0%	69.1%	17.9%
2007	28.1	68.0	16.1

Source: Author's calculations with published tabulations of the 1997 and 2007 Census of Manufactures. The import shares use import information posted by the U.S. International Trade Commission at its website, as well as revisions for the furniture industry reported at the website of the International Trade Administration..

Figure 4: **Casegoods imports boom since 1997 ...**

Import share of goods



Source: 1997 and 2007 Census of Manufactures, U.S. International Trade Commission and International Trade Administration

is like cabinetry in that the work is still done in the United States, it differs in that it is done in large plants, not custom craft shops. (See Table 6.) In this respect, upholstery plants are like the casegood plants: Both are large and produce standardized sizes and shapes.

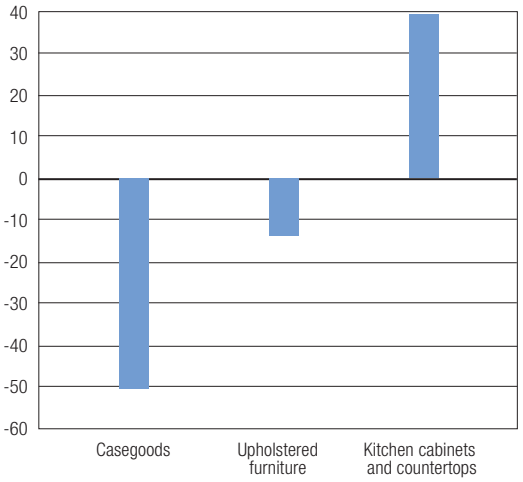
Table 6 presents some sharp contrasts between the Piedmont and the rest of the United States in terms of these three related industries.[10] First note the Piedmont's extremely large shares of the casegoods and upholstery businesses, with 47 percent and 69 percent of U.S. production in 1997, vastly exceeding the region's 14 percent population share. Again, both industries tend to produce standardized products in large factories with low-wage employees.

In contrast, the region's share of the cabinet industry is relatively close to its population share. This industry does not tend to have large plants full of low-wage, unskilled workers, so—unlike casegoods and upholstery—had no incentive to concentrate in the Piedmont.

A second contrast: average plant size *within* each of the industries. For casegoods and upholstery, average plant size (in number of employees) is *four times* larger in the Piedmont than elsewhere in the United States—87 employees in the average Piedmont casegoods plant versus 22 in the rest of the country; 111 employees versus 26 in upholstery plants (see Figure 3). In fact, in terms of average size, casegoods plants in the rest of the United States are closer to cabinet plants than furniture plants in the Piedmont. Furniture plants outside the Piedmont are not making low-skill-intensive, assembly-line-style standardized goods. Instead, they are making either craft-oriented, custom furniture (like an Amish furniture shop) or furniture from highly mechanized production.

The final thing to see in Table 6 is what has changed over time. The entire U.S. casegoods industry has been battered by imports, with the share of imports more than doubling from 1997 (29.5 percent) to 2007 (61.8 percent). (See Figures 4 and 5.) But the Piedmont has been especially hard hit. Its share of what is left in the United States has plummeted from 47 percent to 28 percent. In contrast, imports have had relatively little impact on the Piedmont's shares of U.S. employment in upholstery and cabinetry/countertops, dropping just 1 and 2 percentage points, respectively.

Figure 5:
... as casegoods employment plummets
Percent change in U.S. employment, 1997-2007



Source: 1997 and 2007 Census of Manufactures, U.S. International Trade Commission and International Trade Administration

What about the large employer casegoods manufacturers that have survived?

Having established some facts using data based on plants of all sizes, I'll complete my analysis of what is happening to casegoods by making use of the linked data on large employers that I created for this paper. In 1997, there were 12 large U.S. employers in casegoods, seven of them in the Piedmont. As of 2007, *only one* of seven Piedmont plants remained a large employer. But interestingly, this plant switched from casegoods (a tough place to be) to upholstery (a relatively safe place). This is the plant mentioned earlier as the only one of 21 China Surge industry plants in the Piedmont to have remained a large employer. Remarkably, as of 2007, there are no longer any large-employer casegood plants in the Piedmont region.

If I look *outside the Piedmont region* in 2007, however, I can find a few large employers in China Surge industries. In particular, there are two huge (2,500 plus) plants classified in casegoods, one in Archbold, Ohio, and the other in Trempealeau,

Wis. By using publicly available information, I can figure out quite simply what these plants now do.[11]

Sauder Woodworking's website claims that its facility in Archbold is one of the "most technologically advanced furniture facilities in the world." The product is "ready-to-assemble" furniture, so buyers, not workers, perform the labor-intensive task of putting the pieces together. "All Sauder furniture has a paper laminate finish," implying that machines put on the finish and there is no human handwork, unlike the Hooker plant mentioned above where workers spray on finish. The manufacturing facility in Archbold is the company headquarters and includes management and engineers designing new products and other workers not directly engaged in furniture manufacture. For example, one recently posted job at the Archbold facility is for a "social media specialist" in the marketing department.

Ashley Furniture is one of the largest furniture companies in the world. Its website explains that the facility in Trempealeau is both its worldwide headquarters and its core manufacturing center in the United States. While the Wisconsin plant is classified in the casegood industry, on a recent trip to an Ashley store, I found that all of the casegoods were made outside the United States, with tags like "Made in China" or "Made in Malaysia." A salesperson explained that while the wood furniture is imported, the Wisconsin plant did the upholstery. But even the upholstery's labor-intensive cut-and-sew work has been sent offshore to a 5,000-employee plant in China.[12]

In summary, there are only two casegood plants with more than 2,500 employees in the 2007 Census, one in Ohio, the other in Wisconsin. With more than 5,000 employees between them, they account for approximately 10 percent of the entire 2007 U.S. casegood employment of 63,000. Thus, it is quantitatively important to understand these two stories. These plants do not look anything like the casegood plants in the Piedmont that have been decimated by Chinese imports. In previous decades, the Piedmont plants had been full of low-wage workers doing routine tasks, but the current Ohio and Wisconsin plants are full of white-collar workers running the company and marketing its products. The plants do indeed make things—that's why they are classified as "manufacturing"—but the routine, labor-intensive work has moved elsewhere: The Ohio plant has shifted this labor to the consumer, and the Wisconsin plant has sent it to China.

Summing up

Debate about the disappearance of manufacturing jobs in the United States sometimes implies that mysterious forces are at work. But a closer look at recent trends, especially at large-employer plants, reveals no such puzzles. To survive competition from overseas—particularly from China—large employers in the U.S. manufacturing sector have been engaged in a relentless drive to cut routine, unskilled production tasks out of processes taking place in facilities in the United States, where labor is relatively expensive. Unless precluded by transportation barriers (as for live animals and fresh meat) or government restrictions (related to national security), these forces have led to a dramatic decline in the number of large-employer manufacturing plants in the United States.

By linking plants over time, I have shown that most plants that have fallen out of large-employer status have done so by shrinking down to the next-lower size category. Yet closure also has been substantial in industries—such as apparel and furniture, and especially in the Piedmont region—where large plants have tended to employ low-wage workers doing routine tasks. I have noted that the shift of this kind of work out of the Piedmont area to China today is a reprise of the previous century's shift of this kind of work *within* the United States. In the earlier case, it was a migration to the Piedmont region away from the high-labor-cost Northeast and Midwest. In both industry migrations, the lure of lower wages was a primary attraction.

There was much consternation and painful adjustment in the earlier period, as industries shifted from North to South within the nation. In the end, things seem to have worked out for former manufacturing giants like Chicago and Boston that have become great centers for services and innovation. For Detroit, things have not gone as well.

How the second showing of this story will play out, with China newly replacing the role of the American South, is an issue of great importance for policy discussions. I believe there is much to be learned through particular focus on large-employer plants; this paper is a step in that direction. R

Notes

[1] Remarks by the president at the signing of the Manufacturing Enhancement Act of 2010. http://www.whitehouse.gov/the-press-office/2010/08/11/remarks-president-signing-manufacturing-enhancement-act-2010

[2] For classic references, see Bernard and Jensen (1995) about exporters and Brown and Medoff (1989) about pay and plant size.

[3] For current capacity, see United States Steel Corp. (2010). For 1951 capacity, see American Iron & Steel Institute (1951).

[4] For 1997, this is file E9731e2 from the 1997 Census of Manufactures (U.S. Bureau of the Census 2001). For 2007, this is file EC0731SA11 from the Census FTP site (U.S. Bureau of the Census 2007).

[5] See LeDuff (2000).

[6] One puzzling plant in the list is the "non-woven fabric mill" in Virginia. Given the decline in the U.S. textile industry, it is surprising to see a brand-new huge plant. After some digging, I found that the plant actually isn't new at all; rather, it dates to 1929. (The appendix provides details.) The algorithm missed this because of a significant change in the plant's industry classification over the period. As noted, the algorithm isn't perfect, but it works well overall. It is reassuring, for example, that all five of the auto plants in the table are indeed new plants, as easily verified through news sources.

[7] See Holmes and Stevens (2010) for details of how these industries are selected.

[8] See Holmes and Stevens (2010).

[9] The 2009 film is by Matt Barr. An 8-minute clip can be seen at http://www.youtube.com/watch?v=2_qKYolUU_A

[10] "Casegoods" here corresponds to the Census industry "nonupholstered wood household furniture."

[11] I used a trade magazine for the casegoods industry to identify the plants. See FDMonline for February 2007, where there is a directory of the 300 largest firms. http://www.fdm-digital.com/fdm/200702/

[12] For more about Ashley, see Russell (2006).

References

American Iron & Steel Institute. 1951. "Directory of Iron and Steel Works of the United States and Canada: 1951."

Bernard, Andrew B., and J. Bradford Jensen. 1995. "Exporters, Jobs, and Wages in U.S. Manufacturing, 1976-1987." *Brookings Papers on Economic Activity: Microeconomics*, 67-112.

Brown, Charles., and James L. Medoff. 1989. "The Employer Size-Wage Effect." *Journal of Political Economy* 97 (5), 1027-59.

Holmes, Thomas J., and John J. Stevens. 2004. "Spatial Distribution of Economic Activities in North America," in *Handbook of Urban and Regional Economics* 4, Vernon Henderson and Jacques-François Thisse, eds. New York: Elsevier.

Holmes, Thomas J., and John J. Stevens. 2010. "An Alternative Theory of the Plant Size Distribution with an Application to Trade." NBER Working Paper 15957.

LeDuff, Charlie. 2000. "At a Slaughterhouse, Some Things Never Die: Who Kills, Who Cuts, Who Bosses Can Depend on Race." *New York Times*, June 12.

Russell, Thomas. 2006. "China Cut-and-Sew Pays Off for Ashley: Expansion Underway at Shanghai Facility." *Furniture Today*, Nov. 17.

United States Steel Corp. 2010. 2010 Annual Report and Form 10-K. http://www.USSteel.com/corp/investors/annual_reports/index.asp

U.S. Bureau of the Census. 1977, 1987, 1997, 2007. County Business Patterns.

U.S. Bureau of the Census. 2001.1997 Economic Census. CD-ROM. Washington, D.C.: U.S. Dept. Commerce. C1-E97-NAFI-17-US1.

U.S. Bureau of the Census. 2007. Sector 31: EC0731SA1: Manufacturing: Subject Series: Location of Manufacturing Plants: Employment Size for Subsectors and Industries by U.S., State, County and Place. (Downloaded at U.S. Bureau of the Census, FTP http://www2.census.gov/econ2007/EC/sector31/.)

Daron Acemoglu

The scope, depth and sheer volume of Daron Acemoglu's scholarship are nothing short of breathtaking, verging on implausible. A co-author jokingly complained, "He can write faster than I can digest his research." Another economist suggests that his extraordinary productivity can only be explained by existence of an identical twin.

Through omnivorous curiosity, apparently boundless energy and profound intellect, Acemoglu has produced seminal work in diverse, yet interrelated areas such as skills acquisition, technological change, trends in inequality, unemployment and directed job search, climate change economics, network economics, intellectual property rights and innovation. (Not to mention the occasional technical article: "Generalized Poincaré-Hopf Theorem for Compact Nonsmooth Regions," for example.) His key focus in recent years: institutions and economic growth, and the dynamics of political economy.

The MIT economist's gifts were recognized early. "I can say with some degree of certainty that [his] was the best thesis that I had ever examined," remarked Christopher Pissarides, the 2010 Nobel laureate, of Acemoglu's 1992 doctoral dissertation. "Original, full of important ideas and massive, without superfluous material." Acemoglu received the 2005 John Bates Clark Medal, given to that year's most-promising economist under 40. He's been honored with numerous other awards as well, including fellowships in the American Academy of Arts and Sciences and the Econometric Society.

But Acemoglu is not one to rest on his laurels, if indeed, he rests at all. In the six years since the Clark Medal, he has written—along with scores of journal articles—two massive books: an award-winning collaboration with political scientist James Robinson on dictatorship and democracy, and a 1,000-page graduate text on economic growth. Next year, he and Robinson will publish *Why Nations Fail*. Four more books are in preparation. And he fits in dozens of speeches around the world: In the first half of 2011 alone, he delivered five keynote lectures, including one in Istanbul, his birthplace.

Predictably, given his body of work, this *Region* interview went overtime. (Portions are web-only.) Even Acemoglu's energy seemed to flag. But when asked about the political economy of the Arab Spring, his eyes widened and he was off on an eloquent oral essay. As it happens, the preface of his newest book is titled: "Why Egyptians filled Tahrir Square to bring down Mubarak." He pointed to the voice recorder, and said, "I know we're running long, but please don't cut this part."

Not a word.

Photographs by Peter Tenzer

JOB MARKETS

Region: You've done a great deal of research on labor market imperfections, looking at search frictions and asymmetric information, as well as important work on directed job search, matching efficiency and the impact of unemployment insurance. What's your sense of the impact those factors are having on the current U.S. job market?

Acemoglu: I pondered exactly that question over the last few years. Who hasn't, I suppose? [Laughs.] And I guess I have a two-layered answer. I tend to think that there are serious structural problems with the U.S. labor market that will keep the economy down more and more over the next decade. They're related to the fact that our workforce, especially the male half, hasn't really made an adjustment to the new technologies and types of skills that are required.

Labor market imperfections play a role in that, in the sense that I think most people are not sufficiently informed about the sort of skills that they will require. They get their understanding of the labor market through word of mouth, from their parents and their neighborhoods, and there isn't quite enough of an understanding that most U.S. workers who don't have college degrees are not going to be able to get good-paying manufacturing jobs.

Those types of bread-and-butter jobs of previous decades have gone; now those tasks are being performed by robots and computers, and instead we have an explosion of demand in the service sector, in middle- and low-skill services, for example, in health care, clerical occupations or customer service. These are jobs that workers with high school or two-year college degrees can perform. But for the most part, U.S. workers, especially U.S. males, haven't really made the transition to performing them.

Bread-and-butter jobs of previous decades have gone; now those tasks are being performed by robots and computers, and instead we have an explosion of demand in the service sector, in middle- and low-skill services. … But for the most part, U.S. workers, especially U.S. males, haven't really made the transition to performing them. … Another important aspect is that social insurance programs, while not very generous, have really relaxed their eligibility requirements. … These factors have raised the structural rate. But I don't agree that what we are seeing right now in the U.S. labor market is just structural unemployment. The sudden increase in and the composition of joblessness points out that this unemployment experience is really related to the downturn.

Region: So it's asymmetric information about job requirements and necessary education?

Acemoglu: You can say that people aren't fully informed. But there are probably other things going on as well. Perhaps the culture frowns on men doing certain of these jobs, be it in the health care sector, retail or clerical jobs that are complementary to the new technologies. These are not the typical "male jobs," and that might be part of it.

But another important aspect is that social insurance programs, while not very generous, have really relaxed their eligibility requirements. A lot of people who get discouraged because the sort of jobs they were expecting don't exist, drop out of the labor market. So, disability rolls, for example, have exploded, mostly with low-skilled males who are frustrated because they're not finding the sort of jobs they hoped for. This is not to say they are all faking disability; I don't think that's true, but I think people have adapted to thinking

that a much more minor disability is sufficient to get on disability rolls, and the administration of these programs has become much more accommodating.

This is documented, for example, by David Autor and Mark Duggan ["The Rise in Disability Rolls and the Decline in Unemployment," *Quarterly Journal of Economics* 118, February 2003, pp. 157-205]. Their work on this and related issues over the last decade shows not only the remarkable increase, but how economically elastic this is. If it were just pure disability, you wouldn't expect it to take place more in places that are more depressed, especially more depressed for low-skill workers, and that's what's going on.

Region: Some contend that labor market factors like these have raised the structural rate of unemployment.

Acemoglu: Right, yes. I was just getting to that idea in fact. I would probably agree with the statement that these factors have raised the structural rate. But I don't agree—and I think it's hard to agree—with the statement that what we are seeing right now in the U.S. labor market is *just* structural unemployment.

It seems quite clear that the sudden increase in and the composition of joblessness points out that this unemployment experience is really related to the downturn in economic activity. I think it also highlights that at some level, despite decades of very productive work, we economists haven't really made as much progress in understanding cyclical unemployment as we thought.

At some level, this wasn't so much of an embarrassment for us because the United States previously had relatively low unemployment, so most labor economists in the United States didn't really worry about unemployment, and most macroeconomists worried much more about employment than unemployment. Even when search models have been successful in thinking about some conceptual issues, I don't think they have been really that useful for thinking about why is it that we have these long periods of unemployment?

I think we probably need sort of a paradigm shift there, to combine some of the elements of the search model, perhaps, with some other ingredients in order to understand these things.

TRENDS IN INEQUALITY

Region: Let me ask a related question about wage distribution and inequality trends. In a 2002 article ["Technical Change, Inequality, and the Labor Market," *Journal of Economic Literature* 40, March 2002, pp. 7-72], you summarized much of the research in this area. To summarize it still further, if I may, you said that trends in inequality can best be explained and forecasted by understanding interactions of five factors, all of which are constantly evolving in interaction with one another: technology, labor market institutions and policies, how firms organize production, labor market search and matching efficiencies, and international trade.

It's a tall order, of course, but I wonder if you feel that economists have made some progress over the last decade in understanding those interactions.

Acemoglu: Yes, actually, in my opinion, this is an area where there has been quite a bit of progress in that I think we now have a better theoretical and better empirical understanding of issues such as trade, offshoring and outsourcing. Originally, they were—probably correctly—downplayed relative to other factors, such as technology and labor supply. But I think they have become quite important, even more important, over the last decade.

And I think we also have made much more progress in understanding how technology changes the demand for labor and interacts with the organization of firms and of tasks. Here, for example, the work again by my colleague David Autor has been very important. His work with Frank Levy and Richard Murname has pushed the idea that a very important factor in thinking about this is to recognize that a lot of recent technologies have substituted for routine tasks that workers used to perform ["The Skill Content of Recent Technological Change: An Empirical Exploration," *Quarterly Journal of Economics* 118, November 2003, pp. 1279-1334].

That really helped us think about the microeconomics of technology within firms, how these new technologies are affecting the way that firms are organized and what types of jobs they offer. It has also been very useful for thinking through the sorts of questions that we started talking about at the beginning, which is about structural unemployment, the demand for certain types of workers disappearing and so on. Now, I think, it is leading toward a better conceptual framework for the analysis of trends in employment and inequality.

Trade, offshoring and outsourcing … have become quite important, even more important, over the last decade. We also have made much more progress in understanding how technology changes the demand for labor and interacts with the organization of firms and of tasks. … Rather than thinking of college graduates versus non-college graduates, it's much better to think of a wider range of skills, because these technological changes have actually hurt the middle of the income distribution, while at the same time helping both the top and the bottom.

For instance, a paper that I have written with David Autor was an attempt in that direction ["Skills, Tasks and Technologies: Implications for Employment and Earnings," *Handbook of Labor Economics, Volume 4,* Orley Ashenfelter and David E. Card (eds.), Amsterdam: Elsevier, forthcoming]. It tries to provide a task-based framework for labor market analysis and for interpreting changes in inequality and employment patterns. Once you have such a task-based framework, one thing that becomes quite clear is that the sorts of changes that have happened in offshoring and trade over the last 10 years could be very consequential because they are replacing precisely the products and functions that a very narrow group of workers were performing in the U.S. economy.

With this framework, it also starts making more sense that rather than thinking of college graduates versus non-college graduates, which the early literature did focus on (including my own paper in the *JEL* that you mentioned), it's much better to think of a wider range of skills, because these technological changes have actually hurt the middle of the income distribution, while at the same time helping both the top and the bottom.

That might seem like a strange statement, because most people have a picture that the bottom is actually now doing really badly. But that misconception comes from bunching together the middle and the bottom. If you look at the 1980s, the bottom of the income distribution was indeed doing badly. But if you look at the 1990s and 2000s, what you see is that in terms of employment growth, occupations that are lowest-paying are actually expanding very fast.

Region: Services, for example?

Acemoglu: Personal services, retail, low-skill health care—those are expanding very rapidly—so workers at, say, the 20th percentile or the 10th percentile are actually doing better than, say, the 50th percentile over time. They're subject to more positive changes in their earnings than are the middle percentiles. So looking at the world just through two types of workers, high-skill versus low-skill, would mask this. Similarly, getting our picture of what's going on from looking only at the 1980s would mask this because trends then were very different from the 1990s or the 2000s.

THE FINANCIAL CRISIS: LESSONS FOR REGULATION

Region: Let me jump ahead another decade, to the financial crisis. In 2009, you gave a presentation at the International Monetary Fund/World Bank in which you answered the question, What should we do about the financial crisis? with a three-word answer: I don't know. I thought that was wonderfully humble. You said, also helpfully, what not to do: Don't sacrifice long-term growth. Don't create expectational traps.

But I wonder if, over the last couple of years, you've reached greater clarity over how financial crises should be addressed and how they could be limited in the future. What do you think about the Dodd-Frank approach, the Financial Stability Oversight Council and other regulatory initiatives that have been taken?

As an example, in an *Economist* forum a year ago about taxing bank risk, you said that, actually, consideration should be given to regulating the asset side of banking, that creating some "speed bumps" in financial innovation might be worthwhile if the social value of those innovations isn't so great.

So, more generally, what thoughts have you had about lessons for regulation?

Acemoglu: I'm not sure that I have reached as much clarity as I would have liked. [Laughs.] I'm pretty sure I haven't. Let me make a somewhat disjointed set of comments.

There is very little doubt in my mind that additional regulation of the financial industry was necessary relative to where we were in 2008. It was not a tenable equilibrium for finance to remain as unregulated as it was in 2007-2008 while interconnections in the financial sector—especially those linking a few major financial institutions to the rest of the financial sector—were so great, and there is the implicit guarantee, not primarily from deposit insurance, but from the fact that the policymakers around the world know that you can't let such an interconnected system fail. So that's number one.

Unfortunately, I also hold an opinion that runs a little counter to that, which is that, number two, you have to tread very carefully with regulation because you're dealing with very complex and very profitable institutions, and nobody has great ability to see what the future arrangements are going to be. Many of the regulations might create a lot of inefficiencies; especially bad would be those where the financial sector is able to overcome the intent of the regulation by creating an even more inefficient structure.

The shadow banking system is an example of that. Nobody understood that the few regulatory provisions that existed

You have to tread very carefully with regulation because … we don't know what the next shadow banking will be. A lot of regulations should be in the form of speed bumps, meaning they shouldn't eliminate financial innovation, but they should slow it down. They especially should make sure that the core of the financial system doesn't become mired in new types of assets and new risks before they are properly understood. … I am not convinced that the Dodd-Frank Act is going to prevent the next financial collapse if the financial system actually continues on its current trajectory.

in the 2000s would lead to a shadow banking system that would be so big and so dangerous. And we don't know what the next shadow banking will be.

That's the origin of my thinking that a lot of regulations should be in the form of speed bumps, meaning they shouldn't eliminate financial innovation, but they should slow it down. They especially should make sure that the core of the financial system doesn't become mired in new types of assets and new risks before they are properly understood.

As for focusing on the asset side of banking, I think a lot of the emphasis among economists on regulation has been on the leverage side, on the liability side, so if we reduce leverage, that's going to resolve things. Obviously, excessive leverage is a very dangerous thing, but I think that by itself is only half of the problem in the sense that even with limited leverage, there are going to be major interconnections in the system. In fact, you can have a lot of interconnections without having any net leverage; I can just borrow from you and lend to somebody else. In such a situation, there might still be major cascades from the failure of a few financial institutions, but there wouldn't be net leverage. Of course, there are different ways of defining leverage that would deal with gross versus net.

But when there is this interconnected structure (which I think was the reason people were concerned, very rightly, about the collapse of the financial system), you may also want to make sure that these core institutions—those whose failure would be very costly for the system—should be discouraged from holding, or not even allowed to hold, certain assets, especially as the nature of those assets is still uncertain and evolving.

Again, it's all with hindsight, but the allocational costs of excluding most major financial institutions (and it's not clear how you would treat investment banks here), such as Bank of America or Citibank, from holding CDOs [collateralized debt obligations] and CDO-squareds might be quite limited, because these financial instruments might still be available and held by hedge funds, so it's not as if the necessary capital would be totally cut off.

But it would mean that if, in fact, those instruments turn out to be more risky and much more sensitive to a slowdown or reversal in U.S. house prices than foreseen, that this will bring down a lot of hedge funds, but it wouldn't bring down the core financial institutions.

So those sorts of regulations, I think, ought to be considered. But the difficulty is that you don't want to make those regulations extremely detailed. I think the problem with the Dodd-Frank Act is that the amount of good it contains seems to be dwarfed by the amount of additional minute details it contains. That fails to achieve the intent of the regulation. It also gives better regulation a bad name, because people who are opposed to regulation can easily point to the page after page after page of paperwork and procedural things that Dodd-Frank wants you to do.

And I am not convinced that the Dodd-Frank Act is going to prevent the next financial collapse if the financial system actually continues on its current trajectory. I don't think anybody can claim that they know what's going to happen in the next five years in the financial sector, but the financial sector has become more concentrated. It's very profitable, it is still investing in highly risky assets and, in fact, it hasn't really cleaned up its balance sheet to a great degree. The bonus culture, for example, was one of the elements that contributed to the crisis—not by any means the only one, or the most major one, but it was certainly an important factor. It has remained the same. And the Dodd-Frank Act doesn't really do anything to deal with that. I don't think the Volcker rule does anything to deal with that either.

I think something that's much more effective—and again, I view it as a speed-bump-type of regulation—is to increase capital requirements. This is what Basel III [http://www.bis.org/publ/bcbs189.htm] is doing, and the Swiss banking regulations are doing it even beyond Basel III. If you increase capital requirements, you're essentially putting in speed bumps because the rate at which a bank

can expand its balance sheet is going to be limited by the capital it has to a much greater extent than currently required.

Those are the kinds of things that, as long as they're not very detail-oriented, I think hold more promise. When they are detail-oriented, they are easier to overcome and thwart, and they are also much more costly to the daily functioning of banks.

"TOP INEQUALITY" & POLITICAL PROCESSES

Region: Earlier this year, at the American Economic Association meeting, you said that top inequality (the top 99th percentile) and the financial crisis itself might be due to "the peculiar political processes that have been under way in the United States over the last 25 years."

Can you elaborate on what you meant?

Acemoglu: Yes, sure. I think it's useful to put that into perspective, because that was commenting on a well-known thesis, that's become even better known over the last year or so, proposed by Raghu Rajan at the University of Chicago. And Raghu is a leading financial economist and has written many insightful pieces, including a wonderful book called *Fault Lines*.

Region: *Fault Lines*, right. He gave us a preview in an October 2009 *Region* interview [online at www.minneapolisfed.org].

Acemoglu: I sympathize with 80 percent of the book greatly. But the 20 percent that has perhaps received the most attention, including by Raghu himself, I think, in his presentations, is about this new thesis—and I think it is really new, and I applaud that a lot, because new ideas deserve special respect—that the root of the crisis was a regulatory response to the rising inequality experienced in the United States. I think this 20 percent is less compelling.

And the story goes like this: Inequality has been rising in the United States, and I think by that he was referring not to the top 1 percent inequality, but inequality between the bottom quarter and top quarter, or middle and the top quarter. It's been rising for exogenous reasons, for reasons unrelated to finance or to banking regulations and so on. This rise in inequality generated demand for appeasing the bottom of the distribution, and the political process responded by giving them cake instead of bread, so to speak—by giving them housing. And it did so by encouraging the GSEs [government-sponsored enterprises such as Fannie Mae and Freddie Mac] to give lower-income people unsustainably cheap credit or subprime lending and mortgages.

Region: Creating the "ownership society."

Acemoglu: Exactly: the "ownership society." And the house of cards that was created came tumbling down. That would be my summary of the 20 percent of Raghu's book that he emphasizes a lot and is the part that I disagree with.

So when I made that comment about top inequality and the crisis being due to the political process, it followed other remarks I made to explain why, in my opinion, this thesis doesn't hold water.

Why not? First, I think evidence that the demand for redistribution from the bottom was strongest in the 2000s is nonexistent. If anything, it was stronger in the 1980s, which was a time when the bottom of the income distribution was falling and, in fact, there was a stronger labor movement to demand such changes. If you look at the 2000s, the bottom of the income distribution is doing well, actually, for the reasons that we just talked about. In fact, the middle is not doing all that badly either in the 2000s, relative to what was going on before. So the 2000s seem to be a particularly peculiar time for people to make those demands.

Second, I actually see no evidence, qualitative or quantitative, that even if people at the bottom *did* make such demands, the political system would respond to it. Over time, the U.S. political system seems to have become much *less* responsive to what's being demanded by the bottom.

And third, I didn't see any evidence that GSEs really played such an important role in this whole thing. They were relatively late arrivals into the subprime scene, which the private sector had fought very hard to carve out away from the GSEs and had successfully done so. Then the GSEs came in because they thought this was a profitable opportunity.

Region: So the demand timing was wrong, the political response wasn't really there and the institutional details weren't quite right either.

Acemoglu: Yes, the details of the institutional process just don't seem to work out. Now, for all of this, we don't have conclusive evidence, but existing evidence doesn't seem to support the thesis.

And at the end, I said that if there was going to be any link between inequality and the financial crisis, I would have put it another way, which is that the financial crisis and the inequality of the top 1 percent, which has a heavy overrepresentation from the financial sector, has been an outcome of the political processes that have removed all of the regulations in finance, and so created the platform for 40 percent of U.S. corporate profits to be in the financial sector—which is just an amazing number. That is where financial sector profits stood at the time.

Region: Really, 40 percent? Wow.

Acemoglu: Exactly, wow. And that's for a sector that doesn't use much capital, so it went to a very few, 20,000 or so people, in a very unequal way—especially in the form of year-end bonuses. They were amazingly overrepresented

in the top 0.1 percent of the income distribution. And the thing is that this was underpinned by a political process, in the sense that it was an outcome of this lack of regulation and the way that we have allowed the laws to be changed for things such as subprime, and the relationship between investment banking and regular banking. And those things also played a major role, obviously, in the run-up to the financial crisis.

So it could well be that a political process that responded not to the *bottom* of the income distribution, but to the lobbying, financial and expertise power of the *very top* of the income distribution might have been responsible for these two processes.

DIRECTED TECHNICAL CHANGE & GLOBAL WARMING

Region: I definitely want to ask about your related work with James Robinson on economic and political transformation, but first let me jump to another of your seminal contributions in economics: directed technical change. In brief, the idea is that innovation is directed by two competing forces: the price effect that encourages innovation toward scarce factors and the market size effect that does the opposite, directs it toward abundant factors.

You and your co-authors recently applied this idea to the environment—global warming, in particular—and concluded that because of the externalities involved, sound policy should redirect technical change toward clean technologies without delay, and also that optimal regulation with carbon taxes and research subsidies need not reduce long-term economic growth.

And you compare it to other economic analyses of climate change intervention, such as the Nicholas Stern report and William Nordhaus' work. But could you give a quick primer on directed technical change and how you apply it to climate change?

Acemoglu: Sure. It's useful for me to express it the following way, I think. The directed technical change idea really has two layers to it.

The first layer is sort of obvious to economists, but hadn't really been developed and stated. It's that just as we think all other factors go toward more profitable areas, investment in new technology and innovative activities also goes toward more profitable areas. I think in a micro sense, nobody would doubt this. We don't talk of "technological change" in the abstract. We talk of technological change in the pharmaceutical sector, for example. We talk of technological change going after heart disease. We don't just talk of broad technological change. And when we want to understand technological change for heart disease, we ask, What's the market for heart drugs, beta-blockers, ACE inhibitors, statins or whatever?

So, that's the most important part. Directed technical change was pushing this idea at the economywide level. Technology, either across sectors or across different types of factors—factor-augmenting or factor-substituting technologies—is also going to be determined by their profit incentives.

I first tried to develop these ideas in the context of inequality and skill-biased technological change. There the market size and the price effects, which you've mentioned, turn out to be quite important. If you want to understand how this works in a more detailed level, you need to understand how these market size and price effects work. They create countervailing forces, but one of them always dominates, and so on.

When we turn to the environment, I think the bigger picture insights seem to be more important. Market size and price effects come out in the context of the environment, and they're in our paper, of course. But for purposes of our conversation here, I think I can do justice to the main ideas without getting into those details.

Essentially, the bulk of the literature in environmental economics has been about how we have to tax economic activity to slow it down so that we don't damage the environment. If you think of a single-sector economy, with one sector that depends on coal, or on gas, that's the only thing you can do: slow down that one sector. If you want to reduce carbon emissions, you just have to slow down that sector. Now, you don't directly slow it down; you change its composition of factors, perhaps, but you can't let that sector take off at a very rapid rate and still, at the same time, limit carbon emissions.

The bulk of the literature in environmental economics has been about how we have to tax economic activity to slow it down so that we don't damage the environment. … The perspective shouldn't be, How can we slow down economic activity? Instead, it should be, How can we shift the composition of economic activity away from dirty technologies to cleaner technologies? … We expect there to be a distinctive cumulative aspect to research. Different technologies often build on past successes in the same line of technology. … So when technological change shifts away from the dirty technologies that are so fossil-fuel-dependent to the cleaner technologies, it will *also* make it potentially cheaper to produce these innovations.

Our perspective was, well, the economy has *several* technologies; some of them are cleaner than others. How should we shift toward the cleaner ones? When you look at the climate science, there's a lot of emphasis precisely on this and on questions such as, When is it that nuclear power will become economical? When will geothermal or wind or solar solve both their cost and their delivery problems?

Therefore, the perspective shouldn't be, How can we slow down economic activity? Instead, it should be, How can we shift the composition of economic activity away from dirty technologies to cleaner technologies?

Now, that's a very directed-technical-change-related question, but it already comes with a very important implication: The focus shouldn't be on slowing down economic activity,

but on changing its composition and changing the type of technological changes that the market generates.

Moreover, and importantly, we expect there to be a distinctive cumulative aspect to research. Different technologies often build on past successes in the same line of technology. So when you're building a new car, you build on the past advances in car technology; you don't as much build on advances in solar technology. In the same way as when you build new solar panels, you're building on the previous solar panels, not on the diesel engine. What that means is that there's going to be strong self-reinforcement in changing the direction of technological change. So when technological change shifts away from the dirty technologies that are so fossil-fuel-dependent to the cleaner technologies, it will *also* make it potentially cheaper to produce these innovations, these cleaner technologies, in the future.

That was the basic observation that I think was most important in the approach. And that's the source of the more optimistic conclusions. Let me explain that in the following way. If you have a Nordhaus-type model—and I don't want to caricaturize it, because Nordhaus in other work has considered richer models—but the seminal contribution that Nordhaus made in the early 1990s, for example, was sort of a neoclassical growth model used for the environment, and reducing carbons is reducing capital accumulation. In a model like that, parameters are going to determine how aggressive you should be in reducing carbon, but when you reduce carbon, you're reducing GDP, you're reducing growth.

The more optimistic aspect of our perspective came from the realization that if what you're doing with environmental policy is "tax one sector, but subsidize another sector," you might actually achieve in the long run quite successful growth, because the other sector is going to pick up the slack. *If* we have enough technological ingenuity—and that is an if, which I think we tried to make explicit in the paper—and can generate cleaner technologies that avoid the negative environmental consequences of coal and oil, *then* there is no reason for our economy not to grow at a healthy rate in the long run. So that was the optimistic part.

So in that sense, factoring in directed technical change made this conclusion much more optimistic relative to Nordhaus and, of course, more optimistic than Stern's review, which was much more effective, and I believe rightly so, [in warning] of the potential dangers from climate change.

But on the other hand, it also made policy prescriptions much more proactive than Nordhaus and, in that sense, far more similar to Stern. And the logic of that relates very tightly to the directed technical change aspect. In the Nordhaus approach, it's like a ramp-up thing: You don't want to do too much because reducing emissions today is costly, while the future is discounted. If you can cut things in the future, why do it today? Now you can also add, "We don't know where we're going to go, so let's go slowly," a very gradualist approach.

But let's think of the logic of directed technical change with cumulative research. The *less* we do on green technology today, the less knowledge is accumulated in the green sector, so the *bigger* is the gap between fossil-fuel-based technology and energy, and the cleaner energy, so *the harder* it will be in the future to close that gap. With more proactive, decisive action today, we already start closing the gap, and we're making it *easier* to deal with the problem in the future.

GROWTH, INNOVATION & SPILLOVERS

Region: That's great—a very clear explanation. And it leads me to a question about technological innovation as an engine of growth. Supporting innovation has been a central concern for policymakers and economists. Many economists have tried to evaluate the effectiveness of different policies, such as R&D funding, to encourage innovation.

But a key question in evaluating these policies is whether or not knowledge spillovers are large. And they've proven very difficult to measure. You've done important research in this arena with Joshua Angrist and others. Can you tell us briefly why these spillovers are difficult to measure and what strategies have proven most successful in gaining a sense of their magnitude? Also, what's your sense as to how large they are, and what factors might influence their magnitude?

Acemoglu: Excellent question. [Pause.] Let me first say why I believe, at kind of a broad level, why such spillovers must exist. And I will cite two sorts of very qualitative evidence. One is that when you think of an innovation such as the iPhone or iPad—just to pick some examples that have been extremely popular—they make a tremendous amount of money for Apple. But still they leave a lot of surplus for consumers, because we are receiving a large amount of consumer surplus above and beyond what we pay for these technologies.

And secondly, they also open the field to competing products that are also profitable. So, Android comes in largely inspired by the innovations of Apple, but the patent protection isn't so strong. There are some patent infringement cases, including one in which Apple won an initial ruling against Taiwan's HTC, a major producer of Android phones.

But this is the exception. There is a whole host of innovations building on these successful products, and the deeper you go in terms of fundamental research, the more true that is. Apple itself was building on a host of innovations that actually took place in academic research labs. A lot of other companies are building on such things. So, at some level, it's clear that spillovers exist.

A second piece of evidence comes from patent citations. Every patent cites hundreds of other patents. It's not really pro forma defensive citation. It's not as if I was sitting in my lab, and I came up with an idea all by myself, and then after I came up with it, I looked around to see which patents it might infringe, and so I cite them defensively.

No, really these people were starting from a knowledge base that these previous patents developed, and in many cases, they were trying to improve on them. That's why they cited them. Again, that's an example of knowledge spillover.

So there's little doubt in my mind that these spillovers are positive, although one can write down models in which you can have overinnovation, but I think there's little doubt that those externality spillovers are positive.

The question is, What's their magnitude? And I think there we have been very unsuccessful in coming up with credible answers. Part of the reason is that it's a very hard question, and part of it is that we haven't tried hard enough.

There's little doubt in my mind that these spillovers are positive. … The question is, What's their magnitude? And I think there we have been very unsuccessful in coming up with credible answers. Part of the reason is that it's a very hard question, and part of it is that we haven't tried hard enough.

Go online to minneapolisfed.org for Acemoglu's discussion of difficulties in measuring spillovers, and why intellectual property rights should be stronger for firms with the greatest competitive advantage.

TRANSITIONS IN POLITICAL ECONOMY

Region: There's so much more to ask about, and we haven't even touched on your massive body of research on institutions and on transitions in political economy. Perhaps we could end with that, with your work with James Robinson on transitions in political economy. I wonder if you could share any thoughts you've had about how that research applies to the Arab Spring.

Acemoglu: Yes, for the last 15 years, most of my research is exactly what you could call, broadly, political economy. Why don't I talk about that a bit, and then we can kind of transition into transitions.

Region: Perfect.

Acemoglu: My professional research didn't start with political economy, although when I originally began to study economics in high school and college, I was interested in what today you would call political economy—the interaction of politics and economics.

But later in college and graduate school, I started working on issues related to human capital, economic growth and so on. But then after a while, I sort of realized, well, you know, the real problems of economic growth aren't just that some countries are technologically innovative and some aren't, and some countries have high savings rates and some don't. They are really related to the fact that societies have chosen radically different ways of organizing themselves.

So there is much meaningful heterogeneity related to economic outcomes *in the political structures* of societies. And these tend to have different institutions regulating economic life and creating different incentives. And I started believing—and that's reflected in my work—that you wouldn't make enough progress on the problems of economic growth unless you started tackling these institutional foundations of growth at the same time.

That got me onto a path of research that has been trying to understand, theoretically and empirically, how institutions shape economic incentives and why institutions vary across nations. How they evolve over time. And politics of institutions, meaning, not just economically which institutions are better than others, but why is it that certain different types of institutions stick?

What I mean by that is, it wouldn't make sense, in terms of economic growth, to have a set of institutions that ban private property or create private property that is highly insecure, where I can encroach on your rights. But *politically*, it might make a lot of sense.

If I have the political power, and I'm afraid of you becoming rich and challenging me politically, then it makes a lot of sense for me to create a set of institutions that don't give you secure property rights. If I'm afraid of you starting new businesses and attracting my workers away from me, it makes a lot of sense for me to regulate you in such a way that it totally kills your ability to grow or undertake innovations.

So, if I am really afraid of losing political power to you, that really brings me to the politics of institutions, where the logic is not so much the economic consequences, but the political consequences. This means that, say, when considering some reform, what most politicians and powerful elites in society really care about is not whether this reform will make the population at large better off, but whether it will make it easier or harder for them to cling to power.

Those are the sort of issues that become first-order if you want to understand how these things work. And this area is where the majority of my time was devoted over the last 10 years, though I've been working on it for 16 years or more, a lot of it with Jim Robinson. Jim and I have co-authored a couple of papers on the effect of institutions on economic growth. We've written a lot on political processes and transitions, dictatorship, democracy and a series of papers on issues of political power and elites and so on. Some of that underpinned our book *Economic Origins of Dictatorship and Democracy*, which I'll

come back to in the context of your question about the Arab Spring. And some of it led to this new book that we finished—in fact, it's here [lifting a roughly bound manuscript from beneath several papers on his desk] which will come out next year, next calendar year.

Region: *Why Nations Fail*?

Acemoglu: Yes, *Why Nations Fail*. It's sort of a broader take on what are the deep causes, according to us, of this great variety of economic outcomes and economic organizations that you observe around the world, and we try to sort of have a coherent theory of this that is very different from those that are very popular in the media and policy circles. It is also, to some degree, even different from the ones that economists articulate. We put much more emphasis on the politics of it, rather than geography and culture, which is what a lot of policy and media people emphasize, or things related to optimal policy and how we can improve policy at the margin, and how we can design policies better, which is what economists put a lot of emphasis on.

Our take is that the political constraints here are central. And development is all about breaking those political constraints, rather than just thinking within existing political constraints and looking at the optimal tax design or the optimal unemployment insurance design and so on, within those constraints.

Obviously, the two are complementary, but I think this perspective is quite different from what's out there. So that's the major thing that's kept me busy over the last few years.

In this very long, roundabout way, let me come to the question that you asked, which was about the Arab Spring.

Region: Ah, yes. I see that your preface in *Why Nations Fail* is just that: You write, "Why Egyptians filled Tahrir Square [to bring down Hosni Mubarak, and what it means for our understanding of the causes of prosperity and poverty]."

Acemoglu: Exactly. If you want to think about the Arab Spring, I think a couple of issues are central, and some of them are the focus of this book, and some of them are the focus of both the previous book, *Economic Origins of Dictatorship and Democracy*, and this new book.

The first issue, which we focus on much more in this book, is that these societies weren't dictatorships only in the sense that they banned elections. They were dictatorships of a very particular kind, but a kind that has been quite common around the world, where a narrow segment of the society controls both political power and economic resources.

So if you look at all of these societies from Tunisia to Egypt to Syria to Bahrain or to Libya, a narrow elite controlled political power, limited the ability of almost anybody else in society to have any political voice and used their political power to distribute economic resources of the nation to themselves at the exclusion of anybody else.

In Libya, that's sort of obvious. In Syria, it's also sort of obvious now; the newspapers have explained in great detail how the Alawite minority, for example, commands not only all the economically lucrative positions, but also all the top positions of the bureaucracy and the army. In Bahrain, that's quite clear with the Sunni minority. In Tunisia and Egypt, it was a little in the softer form, in that many business interests that were favored had very strong representation within the group of cronies that Mubarak or Ben Ali had around them. And in those countries, the army and the security forces were effectively keeping any kind of real democracy at bay.

The consequence, perhaps not surprisingly again, is that when you have a system like this when a very narrow group controls political power for its economic ends, it also is quite disappointing for economic growth. It doesn't encourage new technologies to come in; it doesn't allow people to use their talents; it doesn't allow markets to function; it doesn't give incentives to the vast majority of the population; moreover, it encourages the people who control political power to suppress many forms of innovation and economic change because they fear it will be a threat to their stability.

So the result was large fractions of the population were excluded from political voice, they were excluded from economic power and they also saw their living standards not increase because there wasn't strong enough economic growth.

There are exceptions in the sense that Tunisia and Egypt did have some economic growth. They did have improved education of the population over the last 20 years. But by and large, the majority of the society felt that they weren't getting enough out of this deal, and they also had very little faith that politics as usual was going to serve their interests.

So, what to do? Well, most of the time, nothing, because such a system is structured and survives precisely because it is successful in denying voice and power to the majority. If the majority had real power all the time, such a system wouldn't survive—in the same way that a plantation society wouldn't be able to survive if 90 percent of the slaves really had a political voice.

But the 90 percent have vast numerical advantage if they can get organized—for example, as in Syria, where the Alawites rule society but are a small minority. So it's very difficult to keep the majority at bay all the time. Especially when there is some instability and some spark, as the one that came from Tunisia created in the rest of the Middle East, people are able to organize, they are able to solve their collective action problem and make real demands from those who hold power.

And what are those demands going to be? The people who went to Tahrir Square actually wanted deep, fundamental change. They wanted deep, fundamental change, partly for economic reasons. But also, I think, if you read the

blogs and other things they write, it's also clear that they thought fundamental change could only come from political change. In fact, from the get-go, a lot of the discussion, the debate over "reform or no reform" focused on political change.

So, the first move of the Mubarak regime was to say, "OK, fine, you want reforms? We'll give you reforms. Just go home." And the reaction of the people in Tahrir Square was, "No, you've got to be crazy, because if we go home, you'll just continue the same system as before."

This is the driving framework, the key element of the framework that Jim and I developed in *Economic Origins of Dictatorship and Democracy*. This also features to some degree here [in *Why Nations Fail*]. If you are able to solve the collective action problem and make some demands, then *promises* of change or economic goodies or political reform *in the future* are not good enough. Because if I go away and stop the collective action that is taking place in Tahrir Square or any other place, tomorrow what are your incentives to actually carry out the economic reform or the political reform?

And that's exactly what the people in Tahrir Square said: "No, we don't believe you. The moment we go home, you're going to re-create the same system." The only way of making those reforms credible is to change the distribution of political power and make the reforms right away. That's exactly what the people in Tahrir Square wanted.

So at some level, therefore, we understand through the lens of this framework, I think, how the dynamics played out, why the demands were made in the way they were made and why people in power tried to make concessions, but they weren't successful and there were demands for deep political reform.

The big question is, Is this going to be a political revolution in the same way as the Glorious Revolution in England, which unleashed a fundamental process of transformation in the political system with associated economic changes? Ultimately, such political revolutions are fundamental to the growth of nations. That's one of the arguments we make.

Or is it going to be the sort of revolution like the Bolshevik Revolution or the independence movements in much of sub-Saharan Africa in the 1960s, where there was a change in political power, but it went from one group to another, which then re-created the same system and started the same sort of exploitative process as the previous one?

More About Daron Acemoglu

Current Positions

Elizabeth and James Killian Professor of Economics, Massachusetts Institute of Technology, since 2010; Charles P. Kindleberger Professor of Applied Economics, MIT, 2004–10; on MIT faculty since 1993

Previous Positions

Lecturer in Economics, London School of Economics, 1992–93

Affiliations

Research Associate: Canadian Institute of Advanced Research, Centre for Economic Policy Research, National Bureau of Economic Research, Toulouse Information Technology Network

Fellow: American Academy of Arts and Sciences, Bureau of Research and Economic Analysis in Development, Econometric Society, European Economic Association, Society of Labor Economists

Honors and Awards

Honorary Doctorate, University of Utrecht, Netherlands, 2008

John von Neumann Award, Rajk College, Budapest, 2007

Distinguished Science Award, Turkish Sciences Association, 2006

John Bates Clark Medal, American Economic Association, 2005

Sherwin Rosen Award, Society of Labor Economics, 2004

T. W. Shultz Prize, University of Chicago, 2004

Adam Smith Memorial Prize, University of York, 1989

Publications

Prolific author of research on political economy, institutional economics, development and growth, income and wage inequality, human capital and training, technology and labor markets, and network economics. Award-winning author of *Economic Origins of Dictatorship and Democracy* (with James Robinson).

Education

London School of Economics, Ph.D., 1992

London School of Economics, M.Sc., 1990

University of York, B.A., 1989

The Bolsheviks were obviously very different from the Romanovs, but they created an even more exploitative system than the Czarist regime in Russia. Many of the independence leaders in sub-Saharan Africa, from Nkrumah to Mugabe to Kenyatta, were obviously very committed to throwing out the whites. And they had very legitimate demands, just like the Egyptians do today, but the system that they created either degenerated into something as bad or they personally created something even worse, like Mugabe did when he destroyed Ian Smith's terrible racist regime, and he created something even as terrible.

Earlier, in the 1960s, Nkrumah came to power in Ghana, and in Sierra Leone, Margai come to power. Margai re-created a very exploitative system. It was perhaps marginally better than the British system, but then Margai was replaced by his half-brother and then by Siaka Stevens in 1967. Stevens made things so much worse, but all of its roots were in what Margai had done, which was [he had] just taken over the British system and used it for his own political and economic purposes. Under Stevens, the whole system sort of collapsed.

So, there is no guarantee that such movements will translate into a broad-based political revolution, as opposed to sort of a palace coup where one group takes control for another. And again, part of *Why Nations Fail* is, we try to understand the conditions under which one takes place and interpret the long swath of history and the institutional variations that we see around us in light of this.

Region: Thank you. I know we've just scratched the surface. This has been wonderful.

Acemoglu: Oh, thank you.

—Douglas Clement
July 27, 2011

The big question is, Is [the Arab Spring] going to be a political revolution in the same way as the Glorious Revolution in England, which unleashed a fundamental process of transformation in the political system with associated economic changes? Ultimately, such political revolutions are fundamental to the growth of nations.

The Generation Gap

Recessions hurt the old most and the young least, with an impact determined by asset sales of the middle-aged

Douglas Clement
Editor

"Imagine you want to start a family," said University of Minnesota economist Victor Ríos, a Minneapolis Fed consultant. "It's bad news for you if houses are very, very expensive. But it's good news if the job market is good. We wanted to see which was more important: Is it better to start in good economic times, when labor income is high and houses are expensive, or to start in worse times, when labor income is lower but houses are much cheaper?"

The question—a straightforward explanation of a recent study by Ríos and three other economists—is clear-cut. Arriving at an answer, however, called for a remarkably intricate piece of research into the distributional consequences of severe recessions, resulting in a 75-page paper with seven technical appendixes.

"Intergenerational Redistribution in the Great Recession" (Minneapolis Fed Working Paper 684 online at minneapolisfed.org), by Andrew Glover, Jonathan Heathcote, Dirk Krueger and José-Víctor Ríos-Rull, approaches the problem through the context of a severe economic downturn that affects wages and asset prices not only for young households just starting out, but also for older cohorts who have accumulated wealth over the course of their economic lives. How will these different age groups experience the simultaneous shock to labor markets, on the one hand, and housing, stock and bond markets on the other?

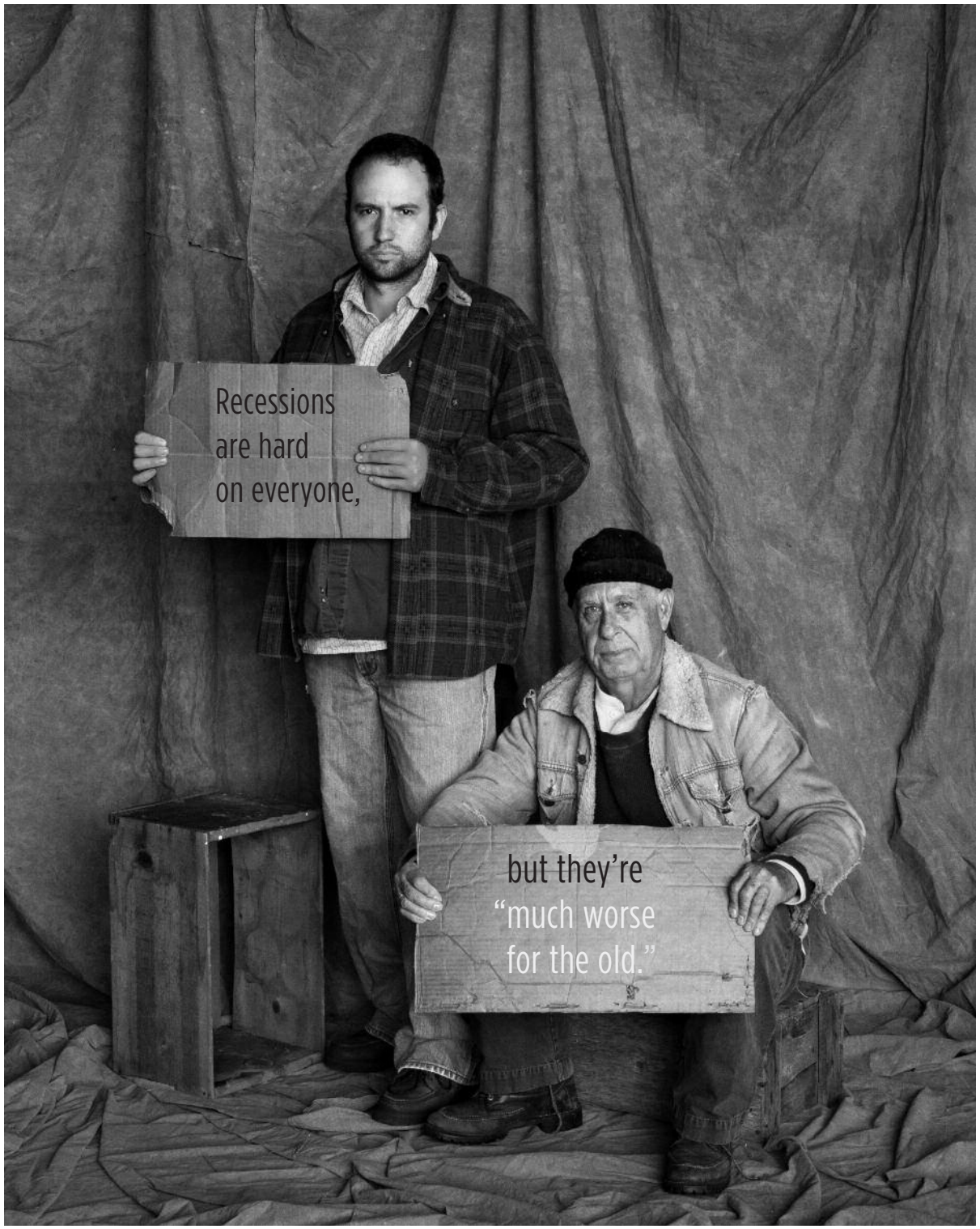
The short answer to the simple question: The young do better. Recessions are hard on everyone, but they're "much worse for the old," observed Heathcote, a Minneapolis Fed senior economist. "They're painful for the younger households, but not so painful."

The long answer is, well, considerably longer—more nuanced and far more intriguing. The central finding, for example, that the young fare better depends crucially on the assumption that prices of assets (on which older cohorts depend for income) experience a greater than proportional decline than do wages (on which the young most rely). That assumption is consistent with the U.S. experience during the Great Recession of 2007-09, and that is where the economists begin their investigation.

Assets, income and the recession

"I guess the starting point was when we looked at the data," noted Krueger of the University of Pennsylvania. "It's not so surprising, but we found a tremendous heterogeneity across age groups in the quantity of assets they hold. For young people, it's really not much, so they have perhaps not so much to lose [in a recession]. Most of the financial assets and real assets are held by the elderly. So it is to be expected that a recession when asset prices fall a lot would not affect everybody the same."

The economists document this heterogeneity with data from the Survey of Consumer Finances (SCF), conducted by the Federal Reserve every three years, including 2007 when asset prices were



PHOTOGRAPH BY STEVE NIEDORF

near their peak. As seen in Table 1 on page 35, they find that the average annual figures of $83,430 in income, about $660,000 in assets and $103,000 in debt obscure enormous variation among age groups. The youngest households (headed by 20- to 29-year-olds) had $39,000 in average annual income, about a third that of the 60- to 69-year-old households. The assets of the youngest were just 11 percent of those of the senior households, but their debt levels were half as large, leaving them with average net worth just 7 percent of that of the average 60- to 69-year-old household.

Figure 1 depicts this variation graphically with lines indicating life-cycle patterns for labor income and net worth from the youngest to the oldest households. Labor income (including Social Security payments) is actually lowest for the households (headed by those) 70+ years old, slightly below the 20-29 age group, and reaches its zenith for peak earning years in the 50s. Household net worth climbs with age until the 60s and then begins to decline.

But this was the picture in 2007, before the onset of the Great Recession. To estimate its impact on households of different ages, the economists examine asset portfolios of different age groups in 2007, looking at the range of holdings from risky assets like stocks and real estate to less risky holdings like bonds and certificates of deposit. They then estimate quarterly price declines for each element of household net worth and revalue household portfolios accordingly from the second quarter of 2007 to the first quarter of 2009, when asset values bottomed out.

This careful statistical exercise generates a pattern of the recession's redistributive effect among age groups. The average household saw a net worth decline of $176,000, accounted for mainly by an average decline of $79,000 in stock value and another $77,000 loss from diminished housing net worth. But, again, the heterogeneity of impact was dramatic. "Losses varied widely by age," observes the working paper. "Younger households lost much less [about $30,000], while those in the 60-69 year age group lost the most: $310,000 on average, or nearly four times average annual income for this age group."

While their income loss was smaller in an absolute sense, the young lost a huge chunk of their net worth since they tended to be in greater debt than older cohorts (proportionately) in 2007. The youngest lost almost 40 percent of their net worth, but the oldest suffered only a 27 percent drop. Households headed by the 30-39 age group actually suffered the greatest decline, almost 45 percent, due to high real estate leverage and stock portfolios nearly twice as big as those of the 20-29 age group when the recession began.

Figure 2 depicts this pattern for the six age groups at two moments in time: the first quarter of 2009, when asset values and net worth were at their nadirs, and the fourth quarter of 2010, after losses were substantial, but less so. Again, the picture of losses for all, but wide variation by age group, is apparent.

With this, the recession's impact on asset values and thereby on net worth by age group, the economists have provided an empirical base for their deeper examination. Economic welfare losses were unevenly distributed, but "a more complete analysis requires forecasts for the future evolution of labor income and asset prices," they write, "and an understanding of how agents will optimally adjust savings and portfolio choice behavior in response to expected future wage and price changes."

Variations on a model

The picture of decline and variety among generations is clear, but illustrating the key mechanisms behind it requires a mathematical model, and that is the primary focus of the paper—developing a model with several age groups that can examine each generation's response to economic shocks. And

In Brief

Assets, aversion and age

- Severe recessions affect age groups differently: The old suffer a more adverse economic impact than the young.
- With a model in which asset prices adjust in response to declines in economic output, researchers link income, consumption and savings dynamics to asset price dynamics, and find that the differential recession impact is due to relative effects on income and assets.
- A key determinant: The extent to which asset prices drop, relative labor earnings decline and output slumps. If highly risk averse, the middle-aged will sell wealth to maintain lifestyles. Asset prices will drop, benefiting the young and hurting the old.

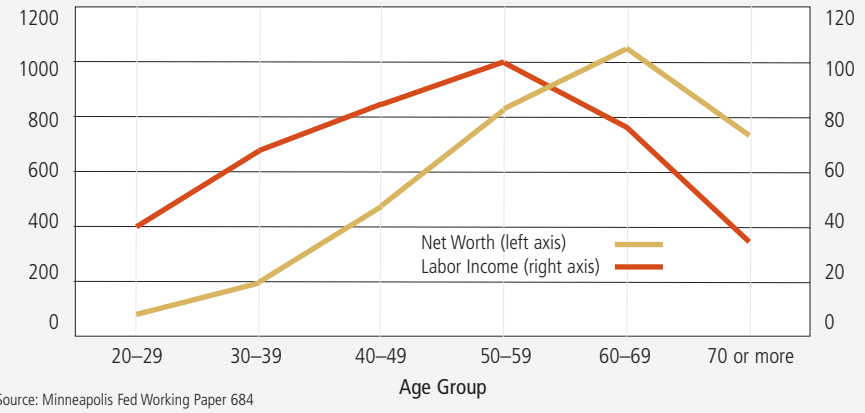
Table 1. **Income, Assets and Debt for U.S. Households, 2007**

Age Group (head of household)	Total Income*	Assets*	Debts*
All ages	$83,430	$659,000	$103,340
20–29	38,830	130,660	53,300
30–39	69,830	335,870	136,120
40–49	93,400	598,210	132,620
50–59	117,970	959,770	133,240
60–69	109,060	1,156,960	104,100
70+	57,560	756,760	28,480

*Note: All figures are means rather than medians, which are considerably lower; for example, median total income for all ages in 2007 was approximately $47,300 rather than the mean figure of $83,430.

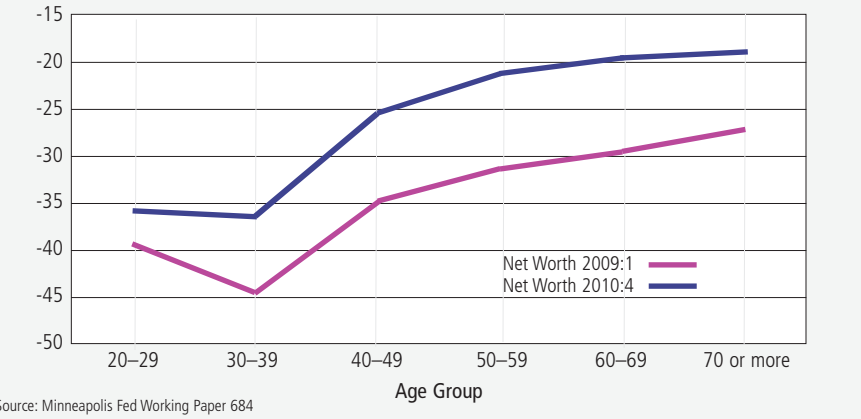
Source: Table 1 of Minneapolis Fed Working Paper 684

Figure 1. **Labor Income and Net Worth by Age, SCF 2007 ($1,000)**



Source: Minneapolis Fed Working Paper 684

Figure 2. **Percentage Decline in Net Worth by Age Group Relative to 2007:2**



Source: Minneapolis Fed Working Paper 684

it's with such a model, in which asset prices adjust in response to a slump in aggregate economic output—that is, a severe recession—that they build a "theoretical link between the dynamics of income, consumption and savings on the one hand and asset prices on the other."

The data drive the economists' decisions in shaping their model. First, because age groups vary widely in labor income and net worth, they differ in risk exposure. For quantitative analysis, therefore, the economists need "an overlapping-generations life-cycle model with aggregate shocks." Second, since portfolio allocations vary widely among generations, meaning age variation in net worth response to shocks, the economists consider models with both risky and safe assets. Third, because younger workers are far more likely to become unemployed during recessions than older workers, and the latter are likely to sustain income flows via Social Security payments, the economists need a model in which recessions change not just the level, but the shape, of the age-earnings profile. It is, in short, a complicated analysis.

And to better understand exactly how the model works, the economists test it through examination of four "example" economies. The process enables them to gauge the importance of various features—including age groups, for instance, or people's willingness to delay consumption until a later time—all experiments to illuminate the key mechanisms at work. What is it, precisely, that accounts for the magnitude of asset price changes relative to movements in economic output? And what determines how asset price movements translate into welfare effects that vary across generations?

The first economy is quite simple: a "representative agent" economy in which there's no difference among age groups in their reaction to economic shocks—everyone exhibits the same response. This simple example is a "useful benchmark" for examining the link between gross domestic product (GDP) and asset prices, they note, but "has nothing to say about differential welfare effects across age groups," their primary interest.

So the economists build three more variations, each incorporating a new feature. In another of their examples, households live through three time periods: young, middle-aged and old. As young households, they begin with no assets, don't value consumption and buy as many stocks as they can afford. As old households, they sell all their stocks.

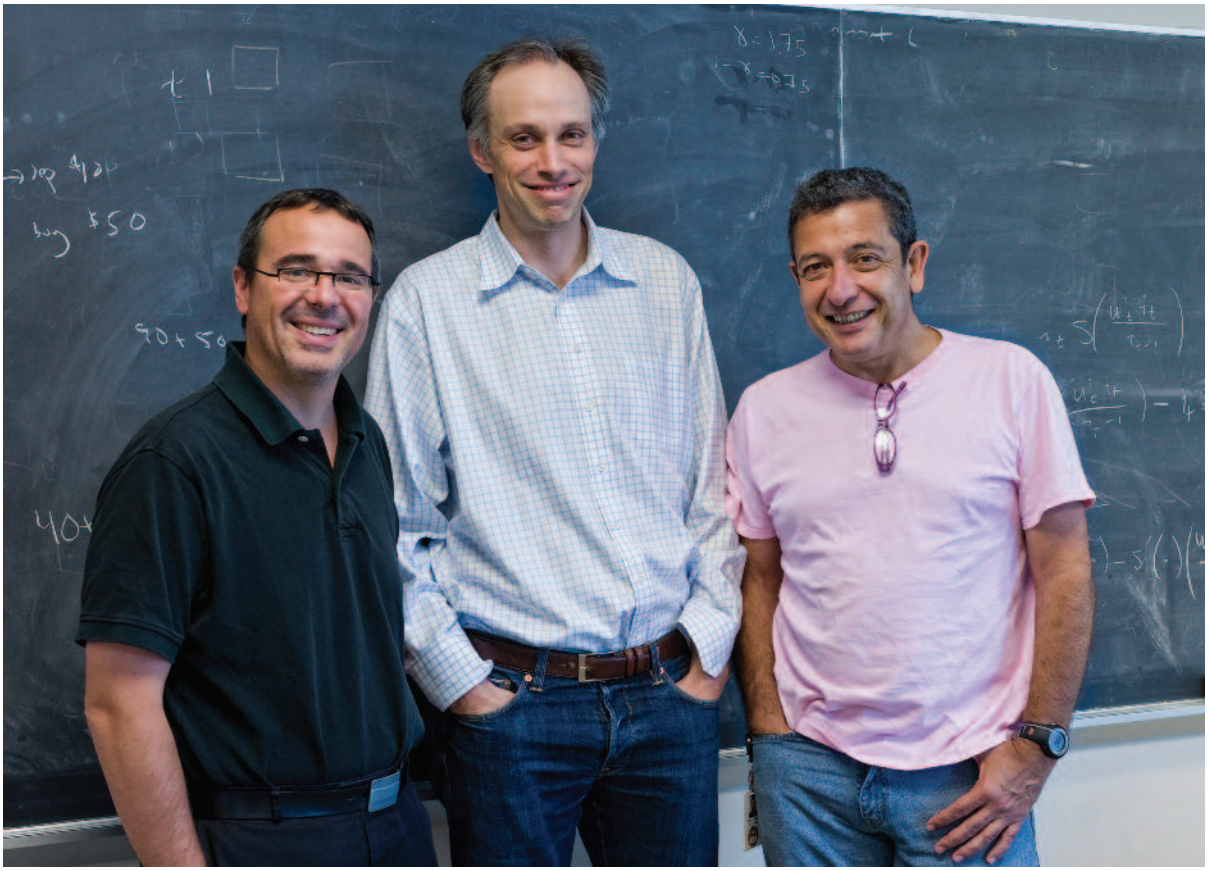
In this variation, "only the middle-aged make an interesting intertemporal decision," write the economists, "trading off current versus future consumption." And their decision is crucial. In a recession, the middle-aged have to weigh needs in the present against those anticipated as they age. To smooth consumption, they'll want to sell stocks and spend the proceeds on food, clothing and other living expenses. But as stock prices fall in a recession, they also have an incentive not to sell their stock so that they can gain higher expected returns in the future—when they become old households. These two tendencies—"income" and "substitution" effects—counter one another.

Asset price intuition

Running through this series of examples allows the economists to thoroughly analyze which features are critical to determining the size of asset price declines relative to output and to measure the implications for different generations. And, gradually, this careful exploration of model variations yields the following intuition about asset price movements: Much depends on (a) the share of wealth held by the middle-aged and (b) the willingness of all households to tolerate fluctuation over time in what they're able to consume or, as economists call it, their "intertemporal elasticity of substitution."

Why? First recall the assumption that young households begin their economic lives with no assets; this means that all wealth is held by either old or middle-aged households, and the old rely on selling off their assets to provide current income (and therefore consumption). When the middle-aged sell their assets, only the young are in the market, not the old. So, if middle-aged households anxiously sell off their stocks in a recession (to smooth their own consumption flows), stock prices fall, the young scoop up stocks at low prices and the wealth of old households is severely depleted. Thus, the share of wealth held by the middle-aged has a crucial impact on everyone's well-being after the start of a big recession.

The second critical factor: the intertemporal elasticity of substitution, or IES. The economists write that the logic for asset prices being more sen-



PHOTOGRAPH BY STAN WALDHAUSER

Dirk Krueger, Jonathan Heathcote and José-Víctor Ríos-Rull

sitive to output declines when this elasticity is low is "familiar and straightforward." Well, right—maybe if you too are an economist. Basically, the IES is a measure of responsiveness of consumption to price changes. If a small price increase convinces you to not buy something now, or to delay purchases, you have a high IES—you're flexible in your consumption decisions and quite responsive to price changes. But if it takes a large jump in price to make you stop buying, your IES is low. Algebraically, the IES is the inverse of risk aversion (or to be more technically precise, this is true in utility functions generally used by macroeconomists).

Said Ríos: "If you really hate to lower your consumption, the price has to do a huge job to induce you to eat less." Added Krueger: "If people really do not like their consumption to change over time, then prices have to fall a lot to convince them at dire times not to eat, but to save." For this analysis, they choose a benchmark figure of 1/3 for the IES (or, conversely, a risk aversion of 3), though some research pegs it closer to 1/2. Why 1/3? In the recent Great Recession in the United States," says the working paper, "asset prices fell roughly three times as much as output." Or as Krueger elaborated, "Output fell by 8.3 percent relative to trend. Three times that means the asset price fall would be on the order of 25 percent, which is about where house prices are, and financial prices were not so long ago, relative to their peak values."

In a nutshell, taking these two decisive factors into account, the economists' analysis of the impact of a severe recession on asset prices is this: The less willing households are to endure changes in consumption, the more asset prices will decline—relative to output—in a recession. And the higher the share of total wealth the middle-aged hold, the more asset prices will react to changes in aggregate output.

Figure 3 on page 39 illustrates these findings. It plots responsiveness (or elasticity) of asset prices to output as a function of the share of wealth held by the oldest generation for two values of elasticity of substitution.

First compare the red and blue lines. The red line shows results when households aren't very willing to put up with consumption variability. In that case, the less wealth held by the old—meaning the more held by the middle-aged—the greater the decline in asset prices. When households are more willing to tolerate consumption fluctuations (the blue line), the middle-aged aren't so anxious to sell their stocks, and asset prices don't decline as much.

Then follow either line from left to right, meaning from lower to higher shares of wealth held by the old (and, conversely, higher or lower wealth held by the middle-aged). The richer the middle-aged—the more stocks they own—the more stocks they'll sell in response to a shock in aggregate output.

Why do middle-aged households have such a big impact? If households aren't willing to accept variability in consumption, the middle-aged will sell their stocks at fire-sale prices to the young. That drop in stock prices depletes the net worth of the old, who hold the remaining shares of stock. "The larger the share of wealth is in the hands of the middle-aged households relative to the old, the larger is the downward pressure on prices in response to a negative shock," write the economists, "since the young must buy more extra shares with the same amount of earnings."

Having developed this understanding of the mechanisms that underlie asset price movements and welfare consequences through a sequence of simple models, the economists move to develop a more detailed model with six age groups. They use it to produce more refined estimates of exactly how large or small were the welfare costs of the Great Recession for different age groups in the United States.

They first calibrate the model to ensure that it can replicate the labor income and wealth profiles seen in U.S. data from 2007. Then they use it to analyze asset price declines in response to a "Great Recession" and the way different generations experience a severe, long-lasting recession in terms of reductions in their income and wealth.

Again, the economists ultimately find that the young suffer less than the old, but in most cases, not even the young are better off starting their working lives during a recession, even though asset prices are low—at a time when "labor income is [lower] but houses are much cheaper," as Ríos put it.

Now, it's certainly possible to stack the model's deck so that the young actually gain from a recession, but "unstacking" by adopting more realistic assumptions—for example, that the young actually do value consumption now, not just in the future—brings about what may seem a more sensible finding: A recession benefits no one to a significant extent. "A model recession is approximately welfare-neutral for households in the 20-29 age group," write the economists, "but translates into a large welfare loss of around 10 percent of lifetime consumption for households aged 70 and over." Still, arriving at that conclusion takes several more steps.

Results under two scenarios

Further analysis begins with fine-tuning the model through calibration so that it can closely deliver realistic results—that is, an accurate statistical picture of the U.S. population in 2007 in terms of earnings, net worth and portfolio holdings, as measured by the SCF.

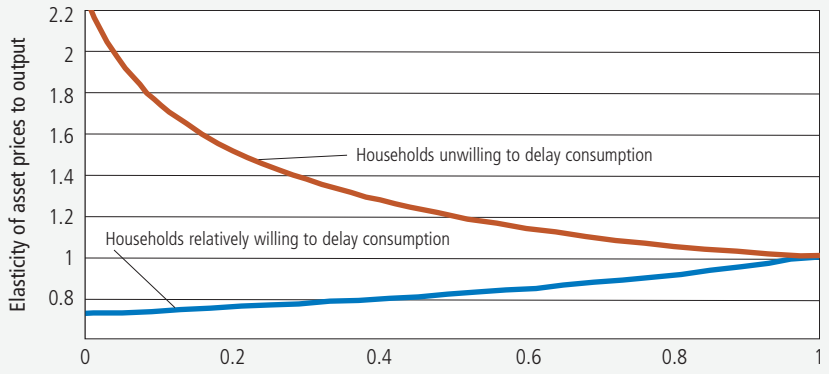
The economists first assume that everyone enters the economy as a 20-year-old and lives for six model periods of 10 years each. They then set figures for risk aversion (or 1/IES), discount factors, labor endowment profiles, a supply of bonds and a profile of portfolio shares allocated to stocks, and, finally, capital's share of income and a probability picture for productivity shocks over time.

And that's the simple explanation. Suffice to say, after setting appropriate parameters and calibrating carefully, the economists are able to faithfully reproduce the 2007 U.S. population profile for income, wealth and portfolio allocations in their model.

The next step is to gauge the calibrated model's response to a large recession, defined as an 8.3 percent fall in output, corresponding to the gap measured between actual and trend GDP per capita (adjusted for inflation) that opened up during the recent 2007-09 recession.

For computational reasons, actually, the economists have to impose a more long-lasting output decline of about 10 years. Future refinements of the

Figure 3. **Asset Price Response to Output Declines**



Source: Minneapolis Fed Working Paper 684

model may shorten the recession length, but it's noteworthy that midway through 2011, the actual U.S. economy remained well below trend. As Heathcote observed in late June, "The actual recession is evolving rather closely to our model. Output fell sharply below trend. While in previous recessions, milder recessions, you tended to see relatively quick recovery, in this one, while the economy is growing again, it's growing slowly. We've been stuck at about 8 ½ percent below trend since the beginning of 2009."

To see how asset prices change in their model economy and to measure the welfare implications, the economists consider two scenarios. In one, every age group experiences the same proportional drop in income from non-asset sources (labor, Social Security, pensions); in the other, the young suffer a greater relative income decline than the old.

For the latter, instead of assuming that every age group experiences the 8.3 percent average decline in income seen in the economy as a whole, the youngest earners (ages 20-29 years) suffer an 11 percent drop in earnings; the 30-39 age group, –11.9 percent; the 40-49 age group, –8.8 percent; the 50-59 age group, –8.9 percent; and the 60-69 age group, –6.2 percent. Those 70 years and older actually have a slight income increase of 1.6 percent. (These figures on income change for specific age groups were derived from Current Population Survey data, since SCF results for 2010 weren't available.)

Under both scenarios, the economists consider a range of risk aversion from 1 to 5, corresponding, respectively, to greater and lesser levels of intertemporal elasticity of substitution—that is to say, with more or less willingness to put up with consumption fluctuation—though, again, their benchmark value is 3. They also look at economies in which (a) only stocks are traded, (b) both stocks and bonds are traded, but portfolio allocations are fixed and (c) both stocks and bonds are traded, and allocations can shift in reaction to the recession.

The reporting of analysis and results runs for about 13 pages, but the economists' key findings can be gleaned from comparison of age group welfare allocations generated by model run-throughs under the two income scenarios: (a) income drops the same proportion for everyone and (b) income drops more for the young. Both are for a model with a fixed portfolio allocation and risk aversion of 3. See Table 2 on page 40.

The outcome evident under both scenarios is that all age groups suffer losses in economic welfare from a severe recession. But it's also quite clear that the oldest suffer much more, and the youngest least. If all age groups are assumed to experience the same proportional earnings decline in a recession (–8.3 percent), the youngest have less than a 1 percent decline in welfare, while the oldest undergo a 12 percent decline.

Table 2. **Expected Welfare Gains from a Severe Recession***

Age group (head of household)	(a) All age groups experience *equal* relative declines in non-asset income	(b) Age groups experience *different* relative declines in non-asset income
20–29 years	– 0.66%	–1.20%
30–39 years	–2.14%	–3.08%
40-49 years	–1.63%	–1.49%
50–59 years	–2.72%	–2.93%
60–69 years	–5.92%	–5.68%
70+ years	–12.20%	–10.69%

*Negative numbers indicate welfare losses.
Source: Table 2 of Minneapolis Fed Working Paper 684

Incorporating the fact that the youngest are most likely to lose their jobs or suffer wage declines nearly doubles their welfare loss (–1.20 percent versus –0.66 percent), and the oldest suffer a slightly diminished blow (–10.7 percent instead of –12.0 percent). Nonetheless, recessions are unambiguously harder on the old.

In fact, if risk aversion is set considerably higher (at 5 instead of 3 as in the benchmark model), meaning that people are less willing to lower consumption in the face of a price rise, and people are allowed to alter portfolio allocations, the youngest can be made even better off—by over 2 percent—because they can buy homes and financial assets at more massive fire-sale prices as older households sell houses, stocks and bonds to smooth consumption. This hypothetical benefit for the youngest comes despite an 11 percent decrease in earnings during the first decade of their economic lives.

Even so, the economists stress that the young would benefit from a recession only under the most exceptional circumstances. "In theory, it's possible; we discovered some conditions under which it could be advantageous for the young," said Ríos. "But when we looked at a good representation of the U.S. economy, does it look like it would happen? No, not really. It's better to be born in an expansion. Recessions are not good for the young."

Caveats and conclusions

To virtually all of this, of course, there are qualifiers. On the one hand, for instance, the fall in labor income for the young is partly because they work fewer hours, which—for those who happen to enjoy leisure time—can easily be considered a welfare gain. On the other hand, being out of the labor market for a considerable time period can erode job skills and diminish future employability. "If you are unemployed for a few years, there are long-term effects that go beyond the economic recovery," noted Ríos. "Right," Krueger added. "What we don't have yet in our model is the fact that bad outcomes for the young may have longer-run consequences on their earning capacity."

There are a few other weaknesses in their model, or features yet to be incorporated. "The extent to which the model is capable of replicating actual portfolios is limited," observed Ríos. The version of the model in which households choose portfolios generates numbers that show the old devoting less of their savings to stocks than they actually do and the young investing more in stocks than reality.

"Empirically observed portfolios do not vary quite enough with age to share risk efficiently across generations," the economists write. "Older Americans are over-exposed to aggregate risk in the data, relative to what is optimal from the perspec-

tive of the model." So, it might be that this points to flaws in American investment choices, rather than in the economists' model.

Regardless of remaining work and potential weaknesses, the economists' analysis provides a clear and intuitive picture. "Overall," write the economists, "we conclude that … welfare losses increase with age, and the oldest households lose the most from a severe recession. In addition, if the asset price decline is large relative to the fall in output and earnings (as was the case in the Great Recession), then the youngest households continue to benefit from becoming economically active in a recession, despite the sharp decline in labor income they experience."

The central determinant of what the old could lose and the young might gain is the extent to which asset prices drop, relative to labor earnings declines and slumps in aggregate output. If people have high risk aversion—low elasticity of substitution—the middle-aged will be more anxious to sell off their wealth to maintain their lifestyles. Asset prices will then drop significantly, benefiting the young and hurting the old.

What does all this imply for policy? The economists don't devote much of their paper to policy discussion. "One thing we could perhaps bring into this analysis is government," noted Krueger. "We have no fiscal response in our model. It could very well be that policies taken by government will load the younger guys with a lot of debt to be repaid in the future because of government action."

But the paper does point out that financing a greater share of government spending through debt rather than taxes shifts the burden to the young. And it notes that the large-scale asset purchases by the Federal Reserve, as well as the Troubled Asset Relief Program, both supported asset prices—and therefore were policies that benefited older and wealthier households. "From the perspective of the very asymmetric welfare results documented in this paper," they write, "a distributional argument can be made in favor of such policies."

Still, a quantitative exploration of that idea, and other possible elaborations, remains to be done. For now, it's enough to say that recessions, like many things in life, favor the young over their elders. R

Research Digest

In this issue, Research Digest *summarizes recent work by* Sam Schulhofer-Wohl *and* Miguel Garrido.

PHOTOGRAPH BY STEVE NIEDORF

Sam Schulhofer-Wohl

Do Newspapers Matter?

Research suggests that diminished news coverage following closure of a newspaper reduces democratic participation.

The collapse of the newspaper industry in recent decades is well-known, in part because of how extensively the media themselves have covered the trend. The consequences of this decline have been bemoaned by many, but rarely are they assessed with any degree of accuracy. Recent research by Minneapolis Fed Senior Economist Sam Schulhofer-Wohl and Miguel Garrido, an Edgeworth Economics consultant, provides a revealing, if preliminary, empirical demonstration

Research Digest

"The Cincinnati Post was a relatively small newspaper, with circulation of only 27,000 when it closed," write the authors. "Nonetheless, its absence appears to have made local elections less competitive along several dimensions: incumbent advantage, voter turnout, campaign spending, and the number of candidates for office."

that reduced news coverage due to fewer newspapers can indeed affect important civic activity and the democratic process itself.

In "Do Newspapers Matter? Short-Run and Long-Run Evidence from the Closure of *The Cincinnati Post*" (Minneapolis Fed Working Paper 686 online at minneapolisfed.org), the economists study elections in northern Kentucky communities near Cincinnati, Ohio, following the closure of a newspaper that had previously provided widespread coverage of the local political scene. They find that after the newspaper closed, fewer candidates ran for office, incumbents were more likely to be reelected, and voter turnout and campaign spending fell. Voter turnout remained depressed for nearly three years, though other effects diminished with time.

"*The Cincinnati Post* was a relatively small newspaper, with circulation of only 27,000 when it closed," write the authors. "Nonetheless, its absence appears to have made local elections less competitive along several dimensions: incumbent advantage, voter turnout, campaign spending, and the number of candidates for office."

A natural experiment

The consequences of shrinking newspaper numbers—689 U.S. cities had competing newspapers a century ago; just 11 cities currently do—have been studied by a number of researchers, but few have managed to separate causation from correlation. A political trend following a newspaper's closure may be due to the closure, but an unmeasured factor might have caused both, or the timing could be coincidental.

Schulhofer-Wohl and Garrido mitigate this problem by studying a "natural experiment" in which the timing of a newspaper's closure was virtually determined 30 years in advance, so had little or nothing to do with current political trends. (They use several statistical checks to further strengthen their case.)

In 1977, the *Post* and a competing newspaper, *The Cincinnati Enquirer*, entered into a joint operating agreement (JOA), a legal arrangement established by Congress in 1970 under the Newspaper Preservation Act. With the goal of preserving a free press and diversity of editorial viewpoint, the act exempted competing newspapers in "economic distress" from antitrust laws and allowed them to charge monopoly prices for subscriptions and advertising. The *Post-Enquirer* JOA specified an explicit endpoint of Dec. 31, 2007.

Hit with an almost 90 percent decline in circulation over the next 30 years, the *Post* did in fact close its doors on that date, while the *Enquirer* continued to publish and, indeed, increased its news coverage of the *Post*'s former geographic strongholds in northern Kentucky. The predetermined closure date supports the economists' argument of causality since the newspaper closed for reasons wholly unrelated to local politics.

Less newspaper competition = less political competition?

The economists gathered data between 2003 and 2010 for 48 municipalities in the seven counties of the *Post*'s core or near-core areas of Kentucky circulation. The data include a number of stories about each municipality, results of local elections, candidate spending in each election and demographics in 2000. From the election information, the economists construct several measures of "political engagement and completion": estimates of voter

Research Digest

turnout, ratio of candidates to seats available, fraction of seats won by incumbents and total expenditure for local political office campaigns.

They then run regression equations to gauge statistically the impact of shifting levels of newspaper coverage on each of the dependent political variables, and the results are unequivocal: "On all four measures of political engagement and competition, we find indications that the *Post*'s closure made elections less competitive."

Their estimates of political events in areas where the *Post* was more important than the *Enquirer* show that after the *Post* closed:

- Relatively fewer people went to the polls. ("The *Post*'s closing is estimated to reduce the number of voters by between 59 percent … and 92 percent… in a municipality where the *Post* provided all coverage, compared with a municipality where the *Post* provided no coverage.")
- Relatively fewer people ran for office.
- Incumbent advantage rose.
- Candidates spent relatively less money on their campaigns.

The economists provide numerous elaborations and qualifications to their findings: Controlling for race and age structure doesn't affect qualitative results, for example, though the size of the effect does change somewhat; not all results are statistically significant at conventional levels; the short-run impact they've measured might diminish with time as other media replace the coverage previously provided by the *Post*. Nonetheless, the decline in political engagement occurred even though the *Enquirer* increased its coverage in *Post* strongholds after the *Post* closed.

Perhaps the largest qualification is that these results were obtained in just one geographic area. Would they be equally strong elsewhere? "Future research could investigate the consequences of closing of other newspapers," write Schulhofer-Wohl and Garrido, "though a significant challenge is to find an exogenous or at least predetermined closing."

Assuming their findings are more generally valid—that fewer newspapers suggests less competitive elections—the overarching question remains: How valuable are competitive elections? "If voter turnout, a broad choice of candidates, and accountability for incumbents are important to democracy," the economists conclude, "we side with those who lament newspapers' decline."

—Douglas Clement

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2010–2011 Student Essay Contest
Job Creation

Essay Question

What role, if any, should government play in job creation?

This spring the Minneapolis Fed held its 23rd Annual Student Essay Contest, which is open to high school juniors and seniors in the Ninth Federal Reserve District. The contest drew over 360 essays from schools throughout the district. Submissions were divided into two categories: standard and advanced economics classes. The essay selected as the best over both categories is published here. Other top essays can be found at minneapolisfed.org under the Student Resources section of the Community & Education tab.

Fifteen finalists in each division received a $100 U.S. savings bond. First- and second-place winners from both divisions received additional savings bonds. A paid summer internship at the Minneapolis Fed was offered to the overall winner, Michael Hamilton of Saint Thomas Academy in Mendota Heights, Minn.1

High unemployment rates in the aftermath of one of the worst recessions in U.S. history have led to a great deal of discussion about government policies to create jobs. While decisions about employment policy are made in the political realm, the issue is fundamentally an economic one. In this year's essay contest, students were asked to use the tools of economic analysis to state their case either for or against government intervention into job creation and to consider the costs, benefits and consequences of job-creation policy.

Student Essay Contest Winner

Germany's *Kurzarbeit* Work Program: A Plan for Job Growth in the United States

Michael Hamilton
Saint Thomas Academy
Mendota Heights, Minnesota

Kevin Hassett, director of economic policy studies at the American Enterprise Institute, stated that "if we can slow job destruction even a little bit, then we will have set the stage for big increases in net job creation." Strong policy is necessary to diminish the threat the recession holds over American workers, and after a $787 billion economic stimulus, it may be time to look across the pond for a solution to combat rising unemployment. A sound economic policy to learn from has been implemented in Germany to minimize the effects of unemployment. The policy—called *kurzarbeit*, or short work—has allowed many German workers to remain employed, and a similar American strategy can be implemented, which will most likely have a dramatic effect on the pace and extent of national unemployment. Because of the high level of unemployment in the United States, it is necessary for the government to work with corporations by encouraging them to keep their current workers, while hiring new employees in order to maximize production. To establish the discussion of a resourceful American plan, it is important to first take a closer look at the situation in Germany.

German policymakers have discovered that it is effective to decrease unemployment rates by essentially decreasing the number of hours and wages of employees. Companies in Germany, along with those in numerous European countries, are encouraged to comprehensively reduce working hours as an alternative to actually laying off workers. This seemingly simple solution allows firms to reduce hours and wages by 10 percent or more, and the government will pay the workers up to 60 percent of their reduced salary.[1] When companies see dropping sales and profits, production and demand for labor decrease, resulting in firing employees to reduce overall production costs. The labor market in Germany has remained relatively steady during the most recent economic downturn, regardless of the country's sharper decline in gross domestic product (GDP) than the U.S. decline.[2] The *kurzarbeit* program sustained the labor market during the economic slump, and official estimates state that about $6 billion was spent in 2009 toward the policy, which is a relatively small amount compared with the cost of supporting the unemployed.[3] Through the program, 400,000 jobs were saved in 2009, and without work-sharing, Germany might have lost an additional 1.5 million jobs, sending its national unemployment above 5 million.[4]

While many European countries responded to the economic crisis by decreasing worker hours, employers in the United States reacted almost completely with layoffs.[5] Taking into account net unemployment, short-work policies would reduce the number of layoffs by 10 percent, basically having the same effect as creating 200,000 jobs every month.[6] Deutsche Bank Research economists in Germany stated that "short-time work is effective in addressing a temporary drop in demand triggered by external effects" because it raises net job creation, while stimulating the economic recovery through a stabilization of the workers' ability to spend.[7] This plan helps sustain jobs until, with the help of expansionary fiscal policy, there is a recovery in aggregate demand, which is brought about sooner because work-sharing supports consumer

spending in the markets by directly increasing consumer purchasing power, as well as by sustaining the amount of exports in the economy.[8] A short-work program also protects the nation from additional increases in unemployment in the case of a "double dip" recession and acts as a stabilizer for current and future jobs.[9]

Although U.S. GDP has recovered from the recession better than GDP in most countries, fewer workers are producing the nation's goods and services.[10] Instead of a controversial economic stimulus, costing hundreds of billions of dollars, a short-work policy would be a fraction of the cost; the United States is capable of fully adopting such a program for $10.6 billion.[11] Industries of all sizes and variations are able to implement this policy, allowing it to be a subsidy for all businesses, not specifically corporations in technology, green products and so on, so it truly focuses on securing jobs instead of promoting one good over another. An American worker making an original $600 weekly would receive $60 from the government after a 20 percent reduction in hours, instead of $300 weekly in unemployment benefits. This would allow the worker to make $540, more than on unemployment alone, making the worker less likely to remain unemployed long term.[12] Although there are still costs to the government, it would be paying individuals to work shorter hours instead of unemployment benefits, which effectively pay people for not working at all.[13] The program would raise the nation from the deep job slump, while stimulating demand and encouraging job growth.

Numerous states currently encourage short-work programs; however, they are underutilized and have not been pursued aggressively enough to make a significant difference in unemployment. Implementing this policy in America would require a broad federal program, with extensive publicity and support, as well as possible tax incentives to encourage employers to take part.[14] These government actions would ultimately affect the market by promoting an increase in individual market supplies and eventually the macro aggregate supply. Any additional funds needed to finance such a program could come either from individual state programs or through the existing unemployment insurance system. Subsidies provided by the government must be aimed at firms whose demand is temporarily depressed, and participating firms should be required to prove economic need, to reduce wasted funds.[15]

Along with additional programs to create and stabilize job creation, a program similar to Germany's *kurzarbeit* could prove to be an efficient method to lower unemployment and increase economic security; it would help minimize the moral hazard problem inherent in traditional unemployment programs. By collectively focusing on short-work policies with reformation of unemployment benefits and increases in exports, the government can significantly reduce the threat of the mounting unemployment rate. The nation's destruction of jobs "must be slowed before job creation can be the headline story."[16] R

Endnotes

[1] Hassett, Kevin. "U.S. Should Try Germany's Unemployment Medicine." Editorial. Bloomberg.com. Bloomberg, 8 Nov. 2009. Web 8 March 2011.

[2] Baker, Dean, and Kevin Hassett. "Work-Sharing Could Work for Us." *Los Angeles Times*, 5 April 2010. SIRS Issues Researcher. Web 8 March 2011.

[3] "Kurzarbeit—A German Achievement." Editorial. RTTNews.com. *RTT News*, 7 May 2010. Web 8 March 2011.

[4] "Kurzarbeit—A German Achievement."

[5] Schor, Juliet. "Exit Ramp to Sustainability." Plenitude the Blog, 9 Aug. 2010. Web 8 March 2011.

[6] Baker, Dean, and Kevin Hassett.

[7] Damme, Laureen. "Short-Time Work May Be Too Short-Term for U.S." Editorial. NewAmerica.net. New America Foundation, 20 Nov. 2009. Web 8 March 2011.

[8] Brzeski, Carsten. "What Is ... Kurzarbeit?" Editorial. ing.com. ING, 29 Nov. 2009. Web 8 March 2011.

[9] Leonhardt, David. "In Wreckage of Lost Jobs, Lost Power." Editorial. NYTimes.com. *New York Times*, 19 Jan. 2011. Web 8 March 2011.

[10] Baker, Dean, and Kevin Hassett.

[11] Greenhouse, Steven. "Work-Sharing May Help Companies Avoid Layoffs." Editorial. NYTimes.com. *New York Times*, 15 June 2009. Web 8 March 2011.

[12] Damme, Laureen.

[13] Lillis, Mike. "Economist Push for Federal Job-Sharing Program." Editorial. WashingtonIndependent.com. *Washington Independent*, 24 Feb. 2010. Web 8 March 2011.

[14] Izzo, Phil. "Short-Time Work Plans Saved Jobs." Editorial. WSJ.com. *Wall Street Journal*, 24 Jan. 2011. Web 8 Mar. 2011.

[15] Widner, Jakob. "Kurzarbeit: An Alternative to Lay-Offs." Editorial. InternationalLawOffice.com. International Law Office, 27 May 2009. Web 8 March 2011.

[16] Hassett, Kevin.

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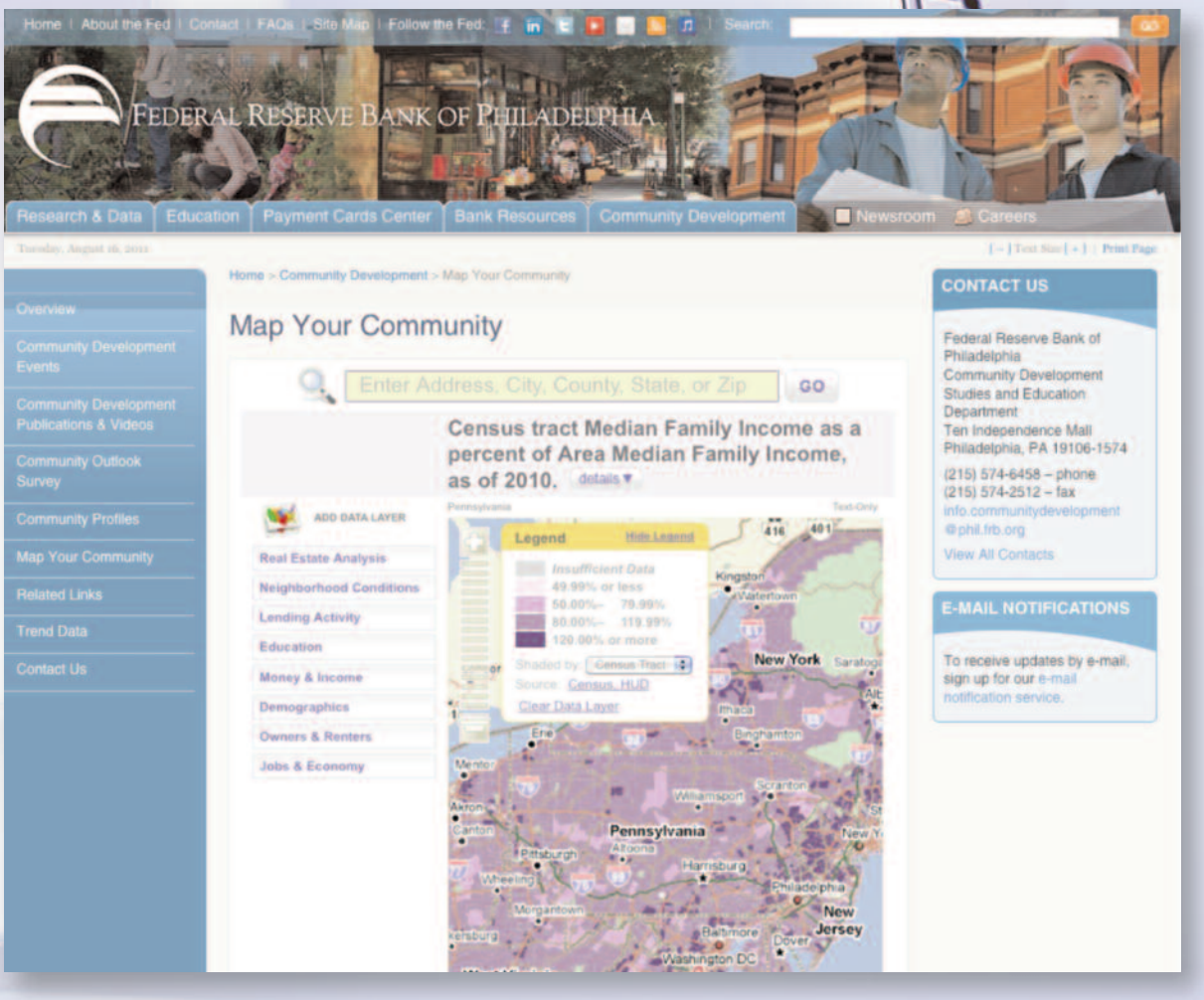

Who are the people in your neighborhood, really?

Virtual Fed has covered several great online data visualization tools before, and we're not embarrassed to keep doing it, as long as Fed district banks keep coming out with them.

To that end, we're happy to present the Philadelphia Fed's new web feature called "Map Your Community." The site allows users to create maps of economic and demographic characteristics such as income, poverty and property vacancy, detailed down to the neighborhood (census tract) level; changes in some variables can be tracked over time. Though the tool is designed with community development professionals in mind, it will be of interest to others who want to know more about their own part of town or towns nearby.

Explore your neighborhood—virtually—at http://www.philadelphiafed.org/community-development/map-your-community/.

—Joe Mahon