

What Do Worker Flows Tell Us About Cyclical Fluctuations in Employment?

BY SHIGERU FUJITA

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any official surveys give us important information about labor markets and unemployment, as well as other statistics.

However, these surveys reveal only the *net* gains or losses in employment over a given period. Consequently, how many *gross* hires and separations lie behind the net changes is missing from these statistical releases. Data on gross flows turn up additional valuable information. In this article, Shigeru Fujita uses such data to examine cyclical changes in the pace of the worker reallocation process and its effects on the U.S. labor market.

The number of jobs added or lost in the U.S. economy every month is one of the most eagerly awaited statistics among policymakers and market participants. For example, we may recall the recent episode of a “jobless recovery,” in which even though the recession was officially over in the fourth quarter of 2001, the apparent weakness of the labor market continued into 2002 and 2003. During that period, newspapers and magazines thoroughly scrutinized the job numbers from the Bureau of Labor Statis-

tics' (BLS) establishment survey, often called the payroll survey.¹

The payroll survey includes important information about labor market developments in the U.S. — not only the total number of jobs added or lost but also a detailed industry breakdown, hourly and weekly earnings, average workweek, and so forth. We can also look at the results from the BLS's monthly household survey, which tells us the unemployment rate and labor market participation rate, as well as other statistics. Undoubtedly, these statistics are very useful in assessing in a timely manner the current state of the U.S. labor market or, more generally, the well-being of the overall economy.

¹ In fact, *Time* (December 29, 2003) chose “jobless recovery” as one of the buzzwords that characterized 2003.

However, they reveal only the net gains or losses in employment over a given period, and therefore, how many *gross* hires and separations lie behind the net changes is missing from these statistical releases. Data on gross flows turn up additional valuable information that is buried in the monthly releases of those surveys. Specifically, think of the following two situations in the labor market. In the first scenario, firms increase the number of hires while the pace of separation of workers is held constant. In the second, the pace of separation of workers slows down while the pace of hiring stays the same as before. These two scenarios could yield the same number of net job gains, but their implications for the economy are very different. In particular, since workers and firms made very different decisions in the two scenarios, the distinction between the two is essential in tracing the true sources of job gains.

Another way of seeing the importance of gross worker flows is to notice the fact that finding a job is not an easy task. As an example, suppose that in one part of the country, a shopping mall is closed, laying off all the workers, while the same kind of shopping mall is opened in another location far away. Those who have lost their jobs may be qualified for jobs at the new location, but they may not be able to find those new job opportunities. Even if they do, they may not want to move to the new location for one reason or another. Because of the time-consuming nature of finding a job, those workers may be unemployed for a long time.

More generally, if separated workers, whether they quit or were fired,



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could find their next suitable job opportunities immediately, “unemployment” — defined as those who want a job but do not have one — would not even exist to begin with. But because reallocating workers across jobs is time consuming, unemployment always exists. We can see now that how smoothly workers are reallocated across jobs is an important factor in determining the amount of joblessness and thus of well-being in the economy. With the data on gross flows at hand, we can directly assess the pace of this time-consuming process. In particular, the pace of hiring and separation varies systematically with the state of the economy, as we will see in this article. Studying these cyclical changes in the pace of the worker reallocation process enriches our understanding of the U.S. labor market.

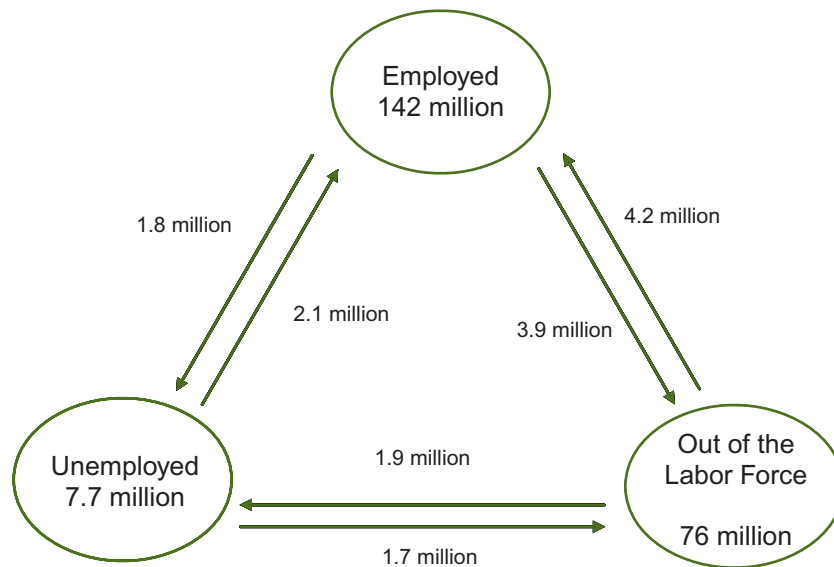
MAGNITUDE OF GROSS WORKER FLOWS

Before looking at movements of gross flows over time, let’s look first at how large the worker flows are relative to net changes in employment. At any point in time, workers are either employed, unemployed, or out of the labor force. We call this a worker’s labor market state. Figure 1 summarizes the average monthly worker flows among the three labor market states in 2005.² The numbers in the circles indicate the stock of workers in each corresponding state, and the numbers next to the arrows indicate the size of the flows.³ People are classified as unemployed if they do not have a job, have actively looked for work in the past four weeks, and are currently available for work. Those who have no job and are not looking for one are counted as not in the labor force. The

² Figure 1 is based on data presented in my recent paper with Garey Ramey.

FIGURE 1

Average Monthly Worker Flows in 2005



Average Net Monthly Employment Growth = 230,000 in 2005

Note: Based on the data constructed by Fujita and Ramey (2006).

figure indicates that there is a flow into employment not only from those who are officially unemployed but also from those who are out of the labor force. This flow looks strange because those who are out of the labor force are, by definition, not looking for jobs.

³ The data in the figure are originally taken from the Current Population Survey (CPS), which is often referred to as the household survey, mentioned in the introduction. The CPS, which is conducted by the BLS, is the source of the official measures of unemployment, labor force participation, and employment. Thus, we can associate the CPS-based gross flows directly with those official statistics. Further, we can compute the long-term and high-frequency (monthly) gross flows, which are useful in examining the cyclical regularities of gross flows of workers. The payroll survey, which was mentioned at the beginning of the article, is another source for gauging the national employment outlook. However, it does not help with the assessment of gross flows.

However, there are quite a few people outside the labor force who want a job but who, for one reason or another, are not reportedly seeking jobs.⁴ The CPS data suggest that this group of workers accounts for 6.5 percent of total non-participants in 2005.

Combining these two sources produces gross flows of 6 million workers (or 2.7 percent of the civilian population of 16 years and older) into new employment relationships every month. A somewhat smaller number of workers separate from their employers, either becoming unemployed or moving out of the labor force. Although these numbers are very large, they are still underestimated relative to the

⁴ Similarly, there are large flows from employment not only into unemployment but also into and out of the labor force.

“true” gross flows for this reason: They ignore the employment-to-employment flows that arise when people switch jobs without experiencing a period of unemployment. In fact, in their article, Bruce Fallick and Charles Fleishman show that, on average, 2.8 million workers changed jobs without experiencing unemployment spells in a given month between 1996 through 2003. Although the size of employment-to-employment flows is very large, in this article, we’ll ignore these flows because they do not affect the change in net employment, at least in a statistical sense.

Small Changes in the Pace of Hiring and Separation Generate Large Swings in Employment Growth. We can appreciate the size of the gross flows if we compare them with the size of net changes in employment. Consider the numbers in 2005. In that year, according to our data, average monthly flows out of employment amounted to almost 6 million workers, whereas the average net employment growth was only about 230,000 per month. This implies that a small change in the size of the gross flows may have a large impact on the net change in employment. Consider an example in which, in a particular month, 6,100,000 workers are hired and 6,000,000 workers lose their jobs, so that the net employment gain that month is 100,000 jobs. Suppose now that the number of hires decreases 1 percent, to 6,039,000, and the number of people who lose their jobs increases 1 percent, to 6,060,000. As a result, the net change in employment becomes negative. As noted earlier, the presence of large flows in both directions indicates that firms and workers face diverse economic situations. An important lesson to be drawn from this example is that a small shift in the pace of hiring and separation induced by some change in economic condi-

tions, such as a change in a surge in oil prices or a change in tax rates, could cause large swings in net employment. Let’s look at how these flows move in response to business cycles.

CYCLICAL PROPERTIES OF TRANSITION RATES

From here on, I will focus on the transition between unemployment and employment, ignoring the transition from out of the labor force into the labor force. That way, I can focus on the process of “job loss” (involuntary separation) and subsequent job finding. Accordingly, I use the term job loss in place of separation.

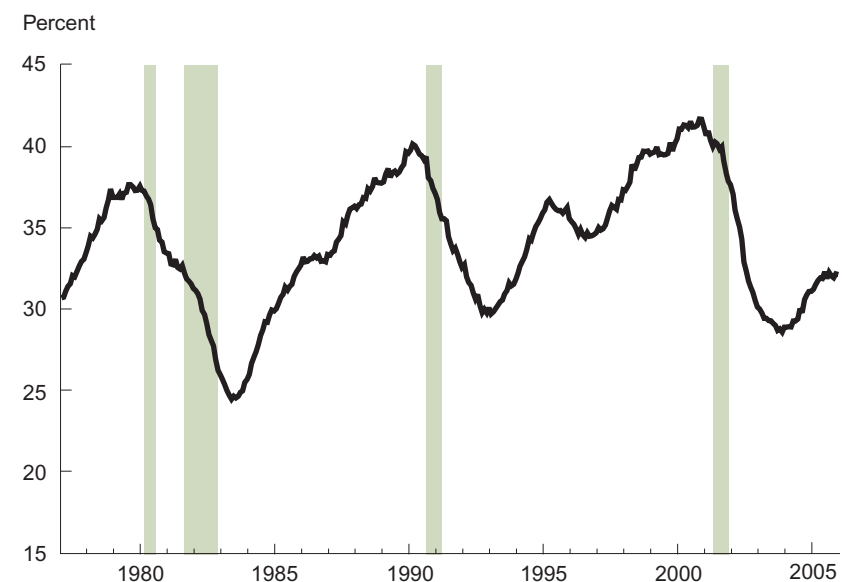
First, note that the stock of unemployment in a given month is determined by the level of unemployment in the previous month plus job losses that occurred in this month minus new employment relationships formed from

the unemployment pool. Furthermore, gross flows may be thought of as the product of the transition rate and the size of the pool. More specifically, gross hires can be considered as the product of the rate at which unemployed workers find jobs (the job finding rate) and the size of the unemployment pool. Similarly, gross job losses can be expressed as the product of the rate at which employed workers lose their jobs (the job loss rate) and the size of employment.

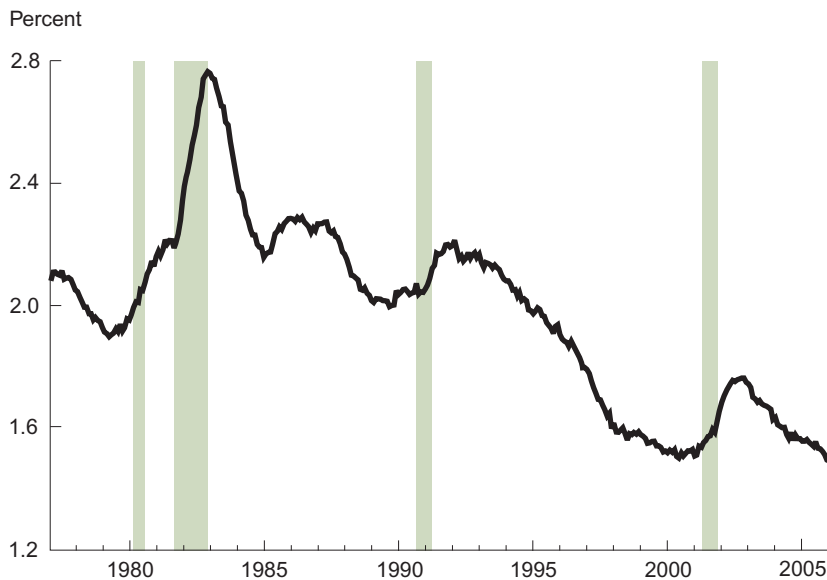
The Job Finding Rate Is Strongly Positively Correlated with Business Cycles. Figures 2 and 3 plot 12-month moving averages of the job finding rate and the job loss rate, respectively. Figure 2 shows that, historically, the job finding rate fluctuates around 30 to 35 percent. This means that of all unemployed workers, about 30 to 35 percent find their next job

FIGURE 2

Job Finding Rate of Unemployed Workers



Y-axis measures the probability that unemployed workers find jobs. 12-month moving average. The shaded bars indicate NBER-dated recessions.

FIGURE 3**Job Loss Rate into Unemployment**

Y-axis measures the probability that employed workers lose their jobs, becoming unemployed. 12-month moving average. The shaded bars indicate NBER-dated recessions.

within a month. Another feature we see in Figure 2 is that the job finding rate is procyclical; that is, it moves along with the business cycle, going up during economic booms and going down in recessions. (See *Explaining Fluctuations in the Job Finding Rate*.) This feature makes sense because during recessions unemployed workers have more difficulty finding jobs than in nonrecessionary times. Also, we can see that changes in the job finding rate over business cycles are considerable. In the most recent recession in 2001, it fell below 30 percent from a level of more than 40 percent in the pre-recession period.

The Job Loss Rate Is Trending Down as Labor Force Attachment Increases. Now, consider the job loss rate. Figure 3 shows that the number fluctuates around a much lower level.

To see why there is such a big difference in levels between the job finding rate and the job loss rate, notice that the job finding rate is calculated as a ratio to the unemployment pool and the job loss rate is computed as a ratio to the employment pool. Obviously, the size of the employment pool is much larger than the size of the unemployment pool. Thus, the level of the job loss rate is much lower than that of the job finding rate. A noticeable fact about the historical trend of the job loss rate is that it has been drifting downward since the late 1980s. The article by Hoyt Bleakley and co-authors and one by Robert Shimer (2005b) point to demographic factors in explaining this fact: The labor force has aged in the past two decades. Aging reduces turnover because older workers are more likely to stay with

a job, and younger workers engage in much more job shopping. Shimer also emphasizes the fact that as more women have participated in the labor force, women's labor force attachment has risen since the late 1980s, and turnover for men between the ages of 25 and 54 does not exhibit such a decline over this period.

The Job Loss Rate Moves Opposite to Business Cycles. Turning to how the job loss rate varies over business cycles, we can see that it moves countercyclically, which means that it goes down during booms and up during recessions. This pattern is again very intuitive because it implies that people are more likely to become unemployed during recessions and less likely to become unemployed during booms. Historically, the cyclicity of the job loss rate was less pronounced in the two most recent recessions, compared with the two recessions in the early 1980s. However, the job loss rate still exhibits clear countercyclicality. Steven Davis, Jason Faberman, and John Haltiwanger highlight two factors that contributed to the less dramatic increases in the job loss rate in recent years. The first is the shrinking employment share of goods-producing industries. Traditionally, goods-producing industries, in particular, durable goods industries, have been more susceptible to recessions than service industries, giving rise to bursts of employment outflows, mainly due to layoffs, at the onset of recessions. Given this pattern, the declining employment share of the goods-producing sector reduces the responsiveness of the job loss rate in the economy as a whole. The second factor is the mildness of the two recent recessions relative to preceding recessions. In particular, the authors point out that shallow recessions induce only (disproportionately) small rises in job loss, whereas deep recessions could

Explaining Fluctuations in the Job Finding Rate

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Figure 2 in the text shows that the job finding rate for unemployed workers changes dramatically over business cycles. In the academic literature, researchers often imagine that a large number of job seekers and employers form “matches” in the labor market and that the speed at which unemployed workers find jobs is positively influenced by so-called “matching market tightness,” that is, the level of vacant jobs relative to the number of job seekers. The theory says that when the ratio is high (the matching market is tight), the rate at which each job seeker finds a job is faster because many vacant positions are available relative to the number of job seekers. On the other hand, when the labor market is “crowded” with jobless workers relative to the number of available positions, each job seeker has difficulty finding employment.

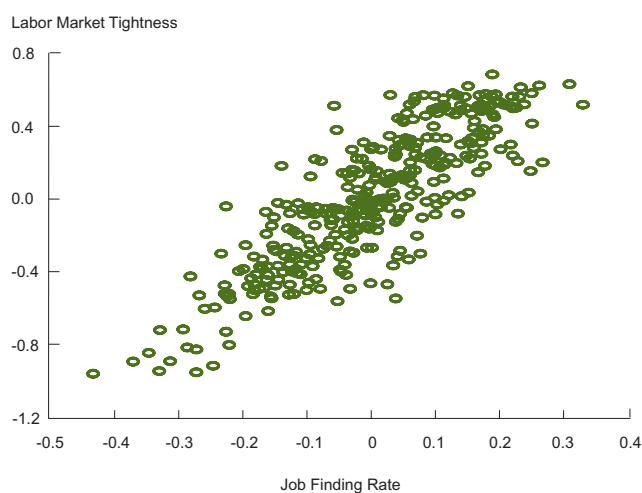
Labor market tightness may be measured by taking the ratio between the number of help-wanted advertisements^a and the number of people unemployed. Shimer’s article (2005b) shows that there is, in fact, a stable, positive relationship between the job finding rate and matching market tightness. The Figure is a scatter plot of the two variables, and it displays a strong positive relationship. Recent studies have devoted much effort to accounting for the cyclical behavior of matching market tightness. In particular, many researchers have investigated the sources of large fluctuations in firms’ recruiting efforts (represented by the level of job vacancies) over the business cycle.^b

^aOne may think that the number of help-wanted advertisements is a poor approximation of actual job vacancies. For example, each newspaper ad includes multiple job offers, and the number of help-wanted advertisements may reflect only a small fraction of actual job openings, especially since recruitment methods have been shifting toward Internet job postings in recent years. However, there is quite a bit of evidence that the cyclical behavior of the series tracks that of actual vacancies well. See Katharine Abraham’s article and the 2005a article by Robert Shimer.

^bFor example, see the study by Robert Hall (2005b).

FIGURE

Relation Between the Job Finding Rate and Labor Market Tightness



Each variable is logged first and then detrended by regressing it on time polynomials of up to second order. Each axis therefore measures deviations from the trends in log scale. For example, “0.1” means the data are higher than the trend level by approximately 10 percent.

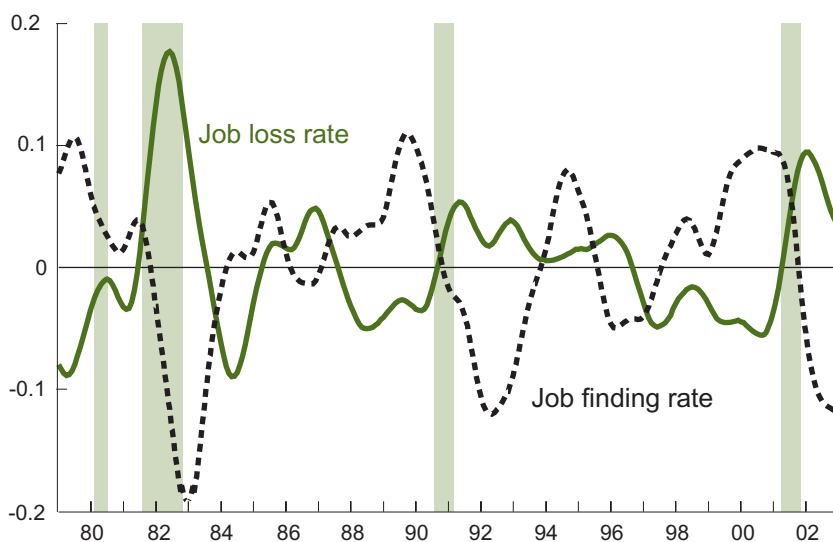
induce (disproportionately) sharp increases in job loss.

Which Is More Volatile: Job Finding Rate or Job Loss Rate? So far, I have shown that the job finding rate is procyclical and the job loss rate is countercyclical, both of which are intuitive phenomena. But which is more volatile? In my paper with Garey Ramey, we compute standard deviations of the business cycle components

of the two series. Since the two data series have different average levels, we take the logarithm of the series first and then use a method called band-pass filter to isolate only the variations that are useful for business cycle analysis.⁵ Figure 4 plots the isolated business cycle movements of the two series. Although both of the series are volatile,⁶ it looks like the job finding rate is somewhat more volatile than

⁵To extract the business cycle movements of the data, we use the band-pass filter developed by Marianne Baxter and Robert King. Intuitively, it takes a two-sided moving average of the series, but instead of taking a simple average with equal weights, the weights are computed in a way that isolates the business cycle movements of the data.

⁶In the paper, we show that the standard deviations of the two series are much larger than those of the index of industrial production, a typical measure of the economy’s production activity.

FIGURE 4**Business Cycle Movements of Job Finding and Job Loss Rates**

Business cycle component is extracted by using a method called the band-pass filter developed by Baxter and King (1999). The shaded bars indicate NBER-dated recessions.

the job loss rate. In fact, the standard deviation of the job finding rate is 35 percent more volatile than that of the job loss rate. Does this mean that the job finding rate is more important in explaining the unemployment rate? Not necessarily.

To see why, recall that the changes in unemployment equal the number of workers who have lost jobs minus the number of workers who have found jobs. Also, remember that the number of job losses can be expressed as the product of employment and the job loss rate, and similarly that the number of hires can be expressed as the product of unemployment and the job finding rate. What I have compared here is the volatility of the two transition rates, and what matters for the change in unemployment is the difference between the number of gross job losses and hires. Importantly,

the pool of employment is much larger than the pool of unemployment: In recent U.S. history, the unemployment rate has been less than 10 percent most of the time; thus, the rest of the workers in the labor force are employed. This fact implies that even a small change in the job loss rate will have a big impact on the number of job losers, whereas a large change in the job finding rate will not necessarily result in large changes in the number of hires.

CYCLICAL PROPERTIES OF GROSS FLOWS

To take into consideration the difference in pool sizes, our paper also computes the volatility of the business cycle movements of gross job losses and hires. The result shows that gross job losses are almost 40 percent more volatile than gross hires. This indicates

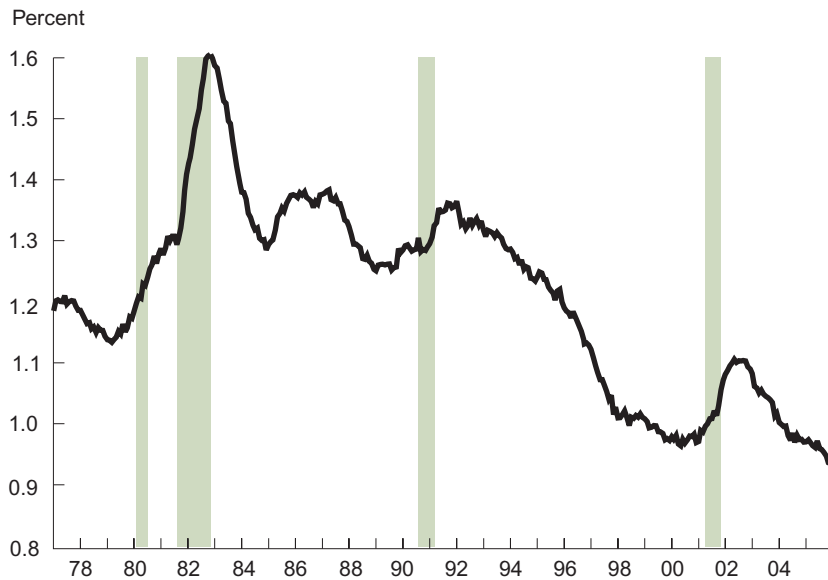
that the larger pool size produces greater volatility in job losses, even though the job loss transition rate fluctuates less than the job finding transition rate.

The Number of Hires Increases in Recessions. Our paper also points to another piece of evidence that indicates that fluctuations in the job loss rate are more important than the job finding rate in thinking about the driving force behind unemployment. To see this, Figures 5 and 6 plot gross job losses and hires, respectively. Figure 7 displays the business cycle movements of the two gross flow series together. Not surprisingly, these figures show that job losses rise during recessions. However, somewhat surprising is the fact that the number of hires also tends to *increase* during recessions. This is less intuitive because the job finding rate decreases by a large amount, as we saw above, but nevertheless the data indicate that the number of hires increases during times when economic activity is sluggish.

This pattern indicates that job loss is more important in driving unemployment fluctuations. Consider a thought experiment where the job finding rate does not move at all, whereas the job loss rate goes up in response to some kind of recessionary pressure, such as a slowdown in the housing market or higher oil prices. In this hypothetical case, the increase in the job loss rate is indeed the driving factor of labor market adjustments because the job finding rate is not moving. After the increase in the job loss rate, the number of job losses increases and thus unemployment goes up. However, those unemployed workers find jobs at the same rate as before. Because the increased job losses result in there being more job seekers (unemployment), the number of hires surely increases as well. This pattern of adjustments is consistent with the behav-

FIGURE 5

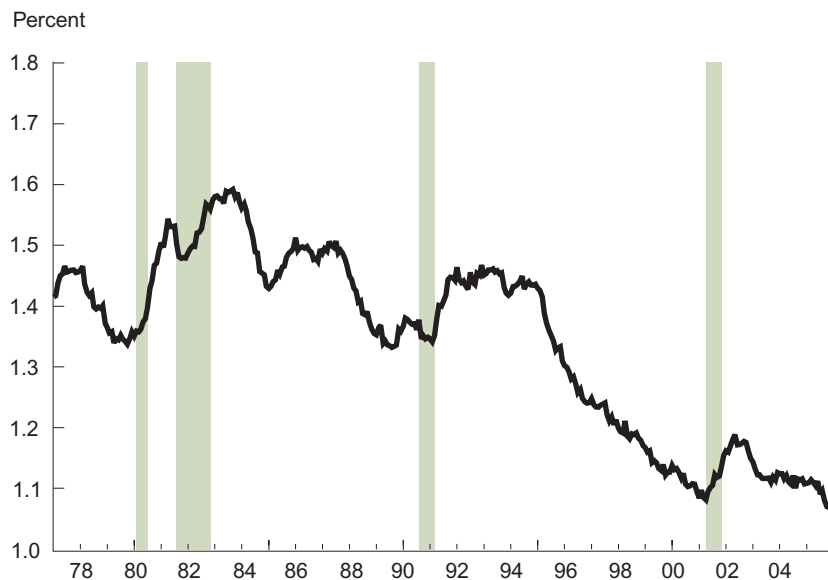
Gross Job Losses as Percent of Working-Age Population



Y-axis measures the number of employed workers who become unemployed each month, expressed as a percent of 16+ population. 12-month moving average. The shaded bars indicate NBER-dated recessions.

FIGURE 6

Gross Hires as Percent of Working-Age Population



Y-axis measures the number of workers who are hired from the unemployment pool each month, expressed as a percent of 16+ population. 12-month moving average. The shaded bars indicate NBER-dated recessions.

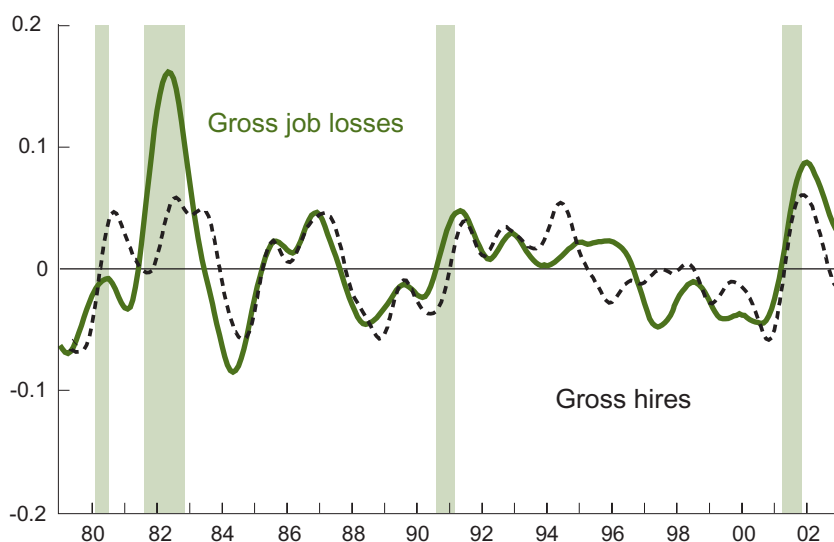
ior of the data described above. On the other hand, the actual behavior of the data is not replicated in the opposite thought experiment where the job loss rate is assumed fixed and the job finding rate moves as observed. In this opposite case, the lower job finding rate induces fewer hires, failing to replicate the observed pattern. The fact that the pattern of labor market adjustments can be reconciled only in the first case suggests that the job loss rate is likely to be playing a more important role in unemployment fluctuations.

TIMING OF CHANGES IN JOB LOSS AND JOB FINDING RATES: JOB LOSS RATE MOVES FIRST

Another important dimension we can investigate is the timing of changes in the variables of interest. My paper with Garey Ramey also computes another kind of statistic called cross-correlation coefficients. This statistic, simply a correlation coefficient between the two series, is computed by shifting one of the data series forward or backward. The correlation coefficient can be computed for each length of the shifts in the data series. In our paper, we compute cross correlations of each series plotted in Figures 4 and 7, with respect to the business cycle component of the index of industrial production, an often-used indicator of the business cycle.

Cross correlations between the job loss rate and the business cycle indicator reveal that the negative correlation between the two series is strongest when the job loss rate is lagged by three months,⁷ indicating that the job loss rate starts to rise earlier than the

⁷ Because the job loss rate is high when the business cycle indicator is low and low when it is high, the correlation coefficients are always negative. Thus, “lowest” means that the negative relationship is strongest between the two variables.

FIGURE 7**Business Cycle Movements of Gross Job Losses and Hires**

Business cycle component is extracted by using a method called the band-pass filter developed by Baxter and King (1999). The shaded bars indicate NBER-dated recessions.

production measure starts to decline. Moreover, the negative correlation is very strong (the lowest correlation is -80 percent). On the other hand, cross correlations between the job finding rate and the business cycle indicator achieve the highest level of 80 percent. However, this occurs when the job finding rate is shifted forward two months, implying that the movements of the job finding rate trail the business cycle indicator.

We also conduct the same calculations using the business cycle components of gross job losses and hires with respect to the business cycle indicator. As noted above, both of these series tend to go up during recessions; therefore, the cross correlations are negative. However, a noticeable fact is that gross job losses lead the business cycle indicator, whereas hires trail the business cycle indicator. This pattern


is also consistent with the view that job loss plays a key role in labor market adjustments.

CONCLUSION

In this article, I first showed that there are large flows of workers behind the net changes in employment and unemployment. I then discussed driving forces behind fluctuations in unemployment. Based on the evidence presented in my paper with Garey Ramey, I summarized the business cycle characteristics of labor market adjustments as follows: (1) During recessions, the job loss rate goes up sharply, whereas the job finding rate plunges. (2) At the same time, both gross job losses (flows into unemployment from employment) and gross hires (flows into employment from unemployment) increase. The fact that gross hires go up when the economy is sluggish can

be understood by noting that the size of the unemployment pool is larger in those times. This “pool size effect” outweighs the declines in the job finding rate. (3) The job loss rate and gross job losses start to react to recessionary pressures early in the business cycle, while the job finding rate and gross hires react later.

These findings strongly counter the view put forth by Robert Shimer (2005b) and Robert Hall (2005a) that emphasizes fluctuations in the job finding rate in accounting for fluctuations in unemployment.⁸ Undoubtedly, fluctuations in the job finding rate are important. However, it is misleading to dismiss changes in the job loss rate. In fact, our findings indicate that job loss is actually a more important factor.

Clearly, our statistical portrait of the worker reallocation process adds to the understanding of the sources of unemployment fluctuations. However, the simple analysis here has a number of limitations. One is that I look at the data as if everybody in the labor force faces the same job loss and job finding rate. This is problematic because workers are different along many dimensions. For example, as shown in my paper with Ramey, the labor force adjustment process is very different between young workers and prime-age workers. (See *Differences Across Demographic Groups*.) Another missing piece of the analysis is how worker reallocation interacts with workers’ wages and productivity. For example, I emphasize the fact that the number of hires increases during recessions, but the discussion ignores what kinds of jobs those initially displaced workers end up with. These issues are important topics for further research. 

⁸ For example, Robert Hall says in his article (2005a) that “recessions do not begin with a burst of layoffs. Unemployment rises because jobs are hard to find, not because an unusual number of people are thrown into unemployment.”

Differences Across Demographic Groups

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n my paper with Garey Ramey, we conduct the same analysis as in the main text after breaking down the data into different demographic groups. We find that there is a large difference in the labor adjustment

pattern across young workers and prime-age workers when we incorporate the transition rate into and out of the labor force.*

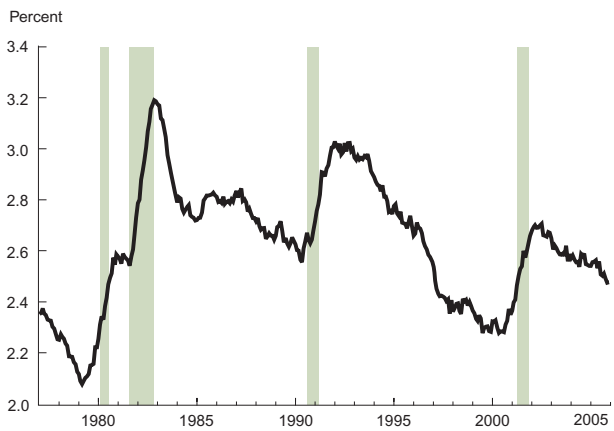
We find that all three points in the conclusion to the main text strongly hold among prime-age (25-54) male workers. For example, the countercyclicality of the job loss rate is very strong for these workers (Figure A). On the other hand, for young workers (16-24), movements of the job loss rate become less clear (Figure B). It no longer shows a clear pattern with respect to business cycles. Comparing the two figures, we can further see that the job loss rate among young workers is much higher than that among prime-age male workers, indicating an important difference in labor force attachment between these groups of workers. Our paper further shows that for young workers, gross hires go down in recessions as opposed to the overall picture. These characteristics in the data for young workers are consistent with the idea of job shopping, whereby young workers pass rapidly through multiple jobs over a short period of time, and this process is driven by firms' hiring attitudes.

The contrast of the worker reallocation process between prime-age workers and young workers may further indicate that different labor market policies should be adopted for each group of workers. For example, prime-age workers tend to be attached to long-term, high-wage jobs, and thus, job loss induces larger welfare losses for these workers. Therefore, a policy to reduce job losses during recessions may potentially be important. For young workers, a policy to expand available job opportunities during downturns may be effective.

* The labor force consists of those who are employed and are looking for jobs (unemployment). Thus, when workers lose (or quit) their jobs and do not look for new jobs, they are considered to be out of the labor force. Remember that the analysis in the text focuses on the transition between employment and unemployment.

FIGURE A

Job Loss Rate (Prime-Age Male Workers)



Y-axis measures the probability that prime-age (25-54) employed workers go to the unemployment pool or out of the labor force. 12-month moving average. The shaded bars indicate NBER-dated recessions.

FIGURE B

Job Loss Rate (Young Workers)



Y-axis measures the probability that young (16-24) employed workers go to the unemployment pool or out of the labor force. 12-month moving average. The shaded bars indicate NBER-dated recessions.

REFERENCES

Abraham, Katharine. "Help-Wanted Advertising, Job Vacancies, and Unemployment," *Brookings Papers on Economic Activity* 1987, 1 (1987).

Bleakley, Hoyt, Ann Ferris, and Jeffrey Fuhrer. "New Data on Worker Flows During Business Cycles," Federal Reserve Bank of Boston, *New England Economic Review* (July/August 1999).

Davis, Steven, Jason Faberman, and John Haltiwanger. "The Flow Approach to Labor Markets: New Data Sources, Micro-Macro Links, and the Recent Downturn," IZA Discussion Papers 1639 (2005).

Fujita, Shigeru, and Garey Ramey. "The Cyclical Job Loss and Hiring," Federal Reserve Bank of Philadelphia Working Paper 06-17 (2006).

Fallick, Bruce, and Charles Fleishman. "Employer-to-Employer Flows in the U.S. Labor Market: The Complete Picture of Gross Worker Flows," *Finance and Economics Discussion Series 2004-34*, Board of Governors of the Federal Reserve System (2004).

Hall, Robert. "Employment Efficiency and Sticky Wages: Evidence from Flows in the Labor Market," *Review of Economics and Statistics*, 87 (2005a), pp. 397-407.

Hall, Robert. "Employment Fluctuations with Equilibrium Wage Stickiness," *American Economic Review*, 95 (2005b), pp. 50-65.

Shimer, Robert. "The Cyclical Behavior of Equilibrium Unemployment and Vacancies," *American Economic Review*, 95 (2005a), pp. 45-49.

Shimer, Robert. "Reassessing the Ins and Outs of Unemployment," Working Paper, University of Chicago (2005b).

Collecting Consumer Debt in America

BY ROBERT M. HUNT

W

hy should economic scholars study the consumer debt collection process? First, the cost and effectiveness of the collections process has implications for the pricing and availability of consumer credit. Second, changes in technology and the structure of credit markets have transformed the collections industry. Small mom-and-pop operations are increasingly being replaced by firms operating nationally, collecting on billions of dollars in bad debt purchased from creditors. In this article, Bob Hunt explores how creditors and their agents attempt to collect past-due consumer debt, particularly unsecured debt. Creditors have a number of remedies open to them, but their effectiveness is limited by the fact that consumers can file for bankruptcy. Even outside of bankruptcy, consumers enjoy a variety of legal protections, including some they may not be aware of.

When consumers fall behind on their bills, their accounts are eventually sent to *collections*. Most lenders and some nonfinancial businesses have their own collection departments, but



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they also farm out collection work to independent contractors (collection agencies). Federal, state, and local governments are also increasingly turning to such agencies to collect past-due loans, taxes, and other fees. More recently, creditors have begun selling off some of their poorly performing accounts to firms that specialize in collecting debts.

All in all, consumer debt collection has become a big business. In 2005, third-party debt collectors recovered \$51 billion in delinquent debts of all kinds, returning \$39 billion to their clients.¹ They employ over 130,000

workers. Two-thirds of industry revenues are derived from collecting debts owed by consumers. For example, collection firms are actively seeking recoveries on \$200 billion in defaulted credit card debt. Today, debt collectors contact consumers over 1 billion times a year.

The effectiveness of the collection process has implications for the pricing and availability of consumer credit.² The more difficult (or costly) it is to ensure that a loan is repaid, the higher will be the costs of borrowing, and less credit will generally be available. But certain collection tactics can be hard on consumers, and regulations at the federal and state levels reflect this concern. Despite these concerns, the collections industry has received remarkably little attention from economic scholars.

In this article, we will explore how creditors and their agents attempt to collect past-due consumer debt, focusing primarily on unsecured debt.³ For the most part, they rely on (not so gentle) persuasion, but they can also use legal remedies, such as garnishment of wages — a court-sanctioned deduction from a consumer's paycheck

¹ These statistics are from a recent survey by ACA International, a collections industry trade association.

² There are also effects for firms that do not receive immediate payment for all the goods or services they provide to their customers. For example, hospitals devote significant resources to collecting unpaid bills that are not covered by health insurance.

³ For secured debts, the creditor at least has the hope of recovering the value of the underlying collateral, such as a car or home. For unsecured debts, this option is not available.

that is used to pay an outstanding obligation. The effectiveness of these tactics, however, is limited by the fact that most consumers have the option to file for bankruptcy. Even outside of bankruptcy, consumers enjoy a variety of legal protections, but they may not be aware of them.

CONSUMERS IN TROUBLE

The total indebtedness of U.S. consumers in 2006 was about \$13 trillion.⁴ At any point in time, a significant number of consumers are behind in their debt payments. Between 1992 and 2005, on average, 4 million households were 120 or more days late on a debt payment (Figure 1). Lenders must eventually write some of these debts off their books because it is very unlikely they will ever be repaid in full. In 2006, for example, commercial banks alone charged off \$29 billion in credit card debt.⁵

Many distressed consumers enter into bankruptcy in order to discharge their debts (under Chapter 7) or to establish repayment plans under the aegis of a court-appointed trustee (under Chapter 13). Others participate in *debt management plans* arranged by a nonprofit credit counseling organization.⁶ But many consumers who are behind on their payments do not seek bankruptcy protection or, at least, not immediately. In fact, only one-half (or less) of credit card debt written off by banks is triggered directly by a consumer's filing for bankruptcy.⁷ Thus,

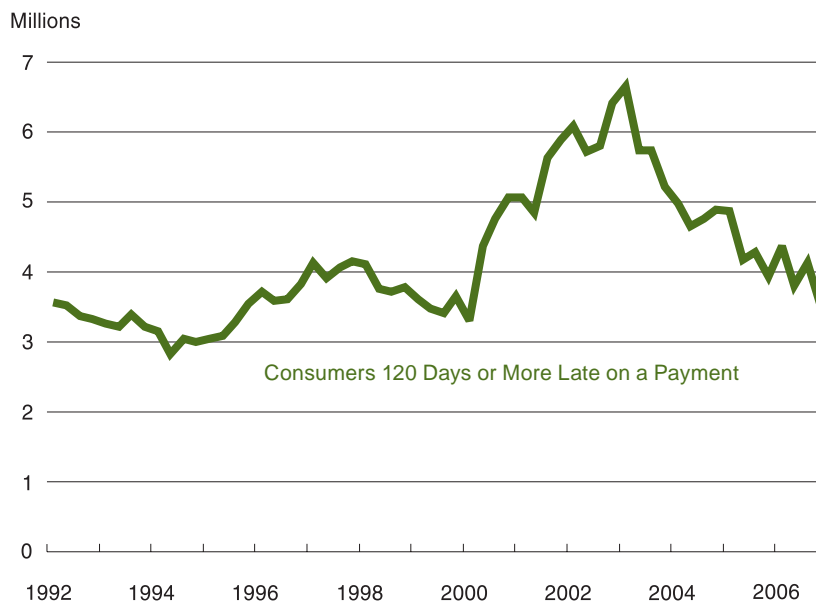
⁴ About \$9 trillion of this amount represents mortgages. These numbers are from the Board of Governors' Flow of Funds (Z.1) report.

⁵ These are the banks' gross losses. They do not reflect any recoveries from their collection efforts.

⁶ For more information on the role credit counselors play, see my 2005 *Business Review* article.

FIGURE 1

Consumers with Serious Delinquencies



Source: TrenData and author's calculations

for most borrowers in arrears, there is a considerable period in which creditors and their agents seek to recover past-due debts using persuasion as well as the contractual and legal remedies available. For secured loans, this can mean foreclosure proceedings or repossession. For unsecured loans, the legal remedies include court judgments and garnishment of wages.

Since the relevant law varies considerably across states, the effectiveness of these remedies varies as well. State laws have also changed over time or, in a few cases, have been superseded by federal law. A number of economic studies, which are described later, have

⁷ See the article by Michele White and the article by Lawrence Ausubel and Amanda Dawsey.

found that these variations across states or time may be reflected in the pricing and availability of credit.

WHAT IS THE DEBT COLLECTION INDUSTRY?

Creditors allocate significant resources to in-house collection departments with the goal of bringing their customers current or minimizing the losses on debts that will go bad. In-house collections tend to focus on short-term delinquencies. If they are unable to collect these short-term delinquencies, these accounts are eventually sent to third-party collectors, who are compensated with a share of the recoveries they obtain. In the case of credit cards, for example, creditors typically hire third-party collectors at 180 days, the point at which the creditor charges off the balance. But creditors

and other firms also sometimes rely on outside firms to assist in collections before chargeoff.

We do not know for certain why creditors choose to outsource a significant share of their collections work, but this pattern has existed for a very long time.⁸ It may simply be an example of the economics of specialization — firms focused exclusively on collections may somehow be better at it. They may enjoy superior technology, or they may be better at attracting employees who are especially adept at collections. A specialized firm may provide better incentives than a collections department in a larger organization that pursues many other objectives. Lenders may also worry more about risks to their reputation resulting from an aggressive collection strategy than a third-party firm specializing in the task. Finally, creditors usually place debts for collection only after their own efforts have failed. Perhaps another organization, with a different approach, will have more success.

In 2004, more than 450,000 people in the U.S. were employed as bill and account collectors. Collection agencies alone employed 94,000 debt collectors (21 percent of the total). Other leading employers include providers of financial services (20 percent), providers of health care (15 percent), and wholesalers and retailers (13 percent).⁹

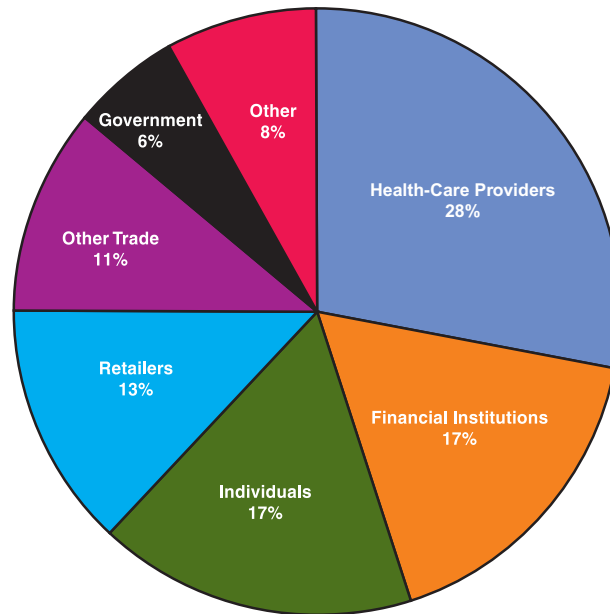
In 2002, approximately 5,250 firms operated as third-party debt collectors. In total, they employed about 130,000 people and generated sales of

⁸ William Krumbain's article dates the separation of lending and collections in the U.S. to 1880, or even earlier.

⁹ Issuers of credit cards alone employed nearly 18,000 collectors, 4 percent of the total. These data are from the Bureau of Labor Statistics' National Employment Matrix and Occupational Employment Statistics.

FIGURE 2

**Customers of Third-Party Debt Collectors
(percent of revenues, 2002)**



Source: Census Bureau and author's calculations

about \$8.5 billion (\$5.9 billion from collecting on consumer debts). By 2005, total revenues were \$11.4 billion. This is a growth industry. Between 1982 and 2002, total household debt adjusted for inflation doubled. Collection industry revenues (adjusted for inflation) increased 3.6 times and employment 2.5 times.¹⁰

Third-party debt collectors serve a diverse set of customers (Figure 2). In 2002, health-care providers represented the most important group of customers, accounting for more than a quarter of all revenues.¹¹ Financial institutions account for a smaller share, but, of course, many of these firms also maintain their own collections depart-

¹⁰ These statistics are derived from the Census of Services and the Services Annual Survey.

ments. Firms engaged in retail and wholesale trade account for about a quarter of the industry's revenues.

Statistics compiled by ACA International, an industry trade association, provide an interesting peek under the hood of the collections business.¹² The median firm generated an impressive \$402,000 in collection revenues for each full-time collector it employed in 2005. This amount was generated by making relatively small collections (a median of \$68) on a very large number

¹¹ The significance of this industry is underscored by the fact that the majority of references to accounts in collection in consumer credit bureau files are associated with medical bills. The second leading category is utility bills. See the 2003 article by Robert Avery and his colleagues.

¹² These statistics are from ACA's 2005 Benchmarking Survey.

of small accounts (with a median balance of about \$440). More than two-thirds of this amount was returned to the creditor (the median commission was 28 percent). After deducting the firms' expenses (a median of \$17 per account), the median profit on an account was about \$2.

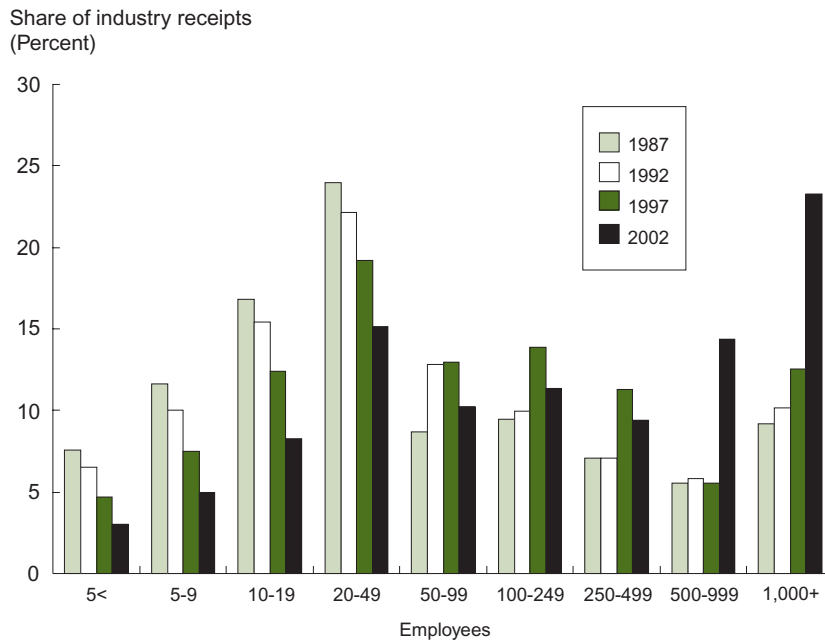
While the typical collection agency remains small, the industry has become more concentrated over time. The four largest firms took in 19 percent of industry receipts in 2002, compared with 11 percent in 1987. The largest firms generate at least \$100 million in revenue and employ more than 1,400 people each. A number of these firms are publicly held corporations. Since the early 1990s, these firms have increased their dominance of the industry (Figure 3). Given this rising concentration, we might expect the total number of active firms to decline. But in this industry, the number of firms and establishments has remained remarkably stable over time, suggesting significant ongoing entry into the collections business. In addition, many of the large collection firms outsource some of their work to smaller organizations.

One factor that may be contributing to the increasing scale of collection firms is the consolidation of consumer credit among the largest lenders in the country. For example, over the last decade, the share of credit card balances held by the four largest card-issuing banks has risen from just over 25 percent to over 85 percent.¹³ With every merger or sale of a credit card portfolio, there are fewer banks looking for collection services. Over time, these creditors have found it more convenient to work with fewer collection agencies, each collecting on a much larger number of accounts. A similar trend seems

¹³ This statistic is the share of card debt among banks and thrifts that file Call Reports.

FIGURE 3

Size Distribution of Collections Firms



Source: Census Bureau and author's calculations

to be developing among law firms that specialize in collections-related legal services on behalf of creditors.¹⁴

Buying and Selling Bad Debt.

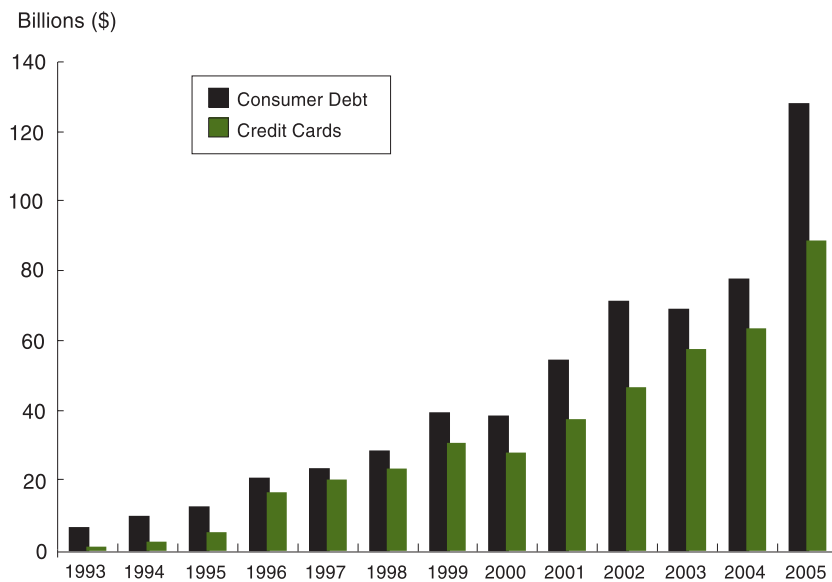
Traditionally, third-party debt collectors have worked almost exclusively on a commission basis, essentially sharing any recoveries with the creditor. But this began to change during the 1990s. Creditors began to sell their bad debt outright to firms, and this market has grown dramatically over time (Figure 4). Creditors also enter into agreements to sell a volume of bad debts to a debt buyer at specified intervals in the future.¹⁵

¹⁴ See, for example, the 2005 article by Darren Waggoner and the 2006 article by Jane Adler.

¹⁵ These are called *forward flow* contracts. See the article by Kate Fitzgerald.

The outright sale of nonperforming consumer loans was stimulated in part by regulators responding to the savings and loan crisis of the 1980s. As many thrifts failed, their assets were transferred to the Federal Deposit Insurance Corporation (FDIC). The FDIC and the Resolution Trust Corporation (RTC) began to sell off portfolios consisting of nonperforming loans, typically secured by commercial real estate. But the FDIC also found itself managing portfolios of nonperforming consumer loans, and these took up a disproportionate share of its managerial resources. So the FDIC sought out private buyers for those assets.¹⁶ Over time, these agencies were able to devel-

¹⁶ See Chapter 12 of the FDIC's book *Managing the Crisis*.

FIGURE 4**Sales of Bad Consumer Debt (face value)**

Source: *The Nilson Report*

op a significant market for small loans. Between 1986 and 1994 the FDIC sold some \$20 billion (face value) of these portfolios.

A little more than a decade later, in 2005, \$128 billion (face value) in nonperforming consumer debt in the U.S. was sold. Two-thirds of this amount (\$88 billion) was defaulted credit card debt. Most of the bad credit card loans (\$65 billion in face value) were sold directly by card issuers; the remainder was debt exchanged between different debt buyers.¹⁷ Card issuers received about \$3 billion, roughly 4.5 cents for each dollar of face value, for the defaulted loans they sold in

¹⁷ Bad debt is often sold more than once, typically at ever lower prices, as different buyers try to succeed where their peers have failed.

2005. Debt buyers currently hold about \$170 billion (face value) in uncollected credit card debt that is less than five years old (when legal remedies are typically no longer available).

While there are well more than 100 prospective buyers of bad consumer debts, the actual purchase volume is relatively concentrated. In 2004, for example, the 10 largest organizations accounted for the majority of all bad debts purchased and two-thirds of the bad credit card loans purchased.¹⁸ A number of the largest debt buyers are publicly held firms, and these alone account for at least one-fifth of debt purchases. To enhance their resources, a number of these firms issue securi-

¹⁸ The statistics in this and the preceding paragraph are from *The Nilson Report*, Nos. 806, 835, and 857.

ties backed by collections on the debt they have acquired. The growth of this market has also been stimulated by a significant inflow of capital from Wall Street.¹⁹ This, in turn, has stimulated demand for defaulted credit card portfolios, driving up prices and inducing debt buyers to seek out alternative portfolios, such as debts owed to hospitals. In a similar cycle, during the 1990s, some large purchasers of debt were unable to collect enough from the accounts to justify the prices they paid for the debt. They eventually failed, and competitors absorbed their assets.²⁰

Changes in Technology. The keys to collecting bad debt have not changed over the last 30 years: (1) locating the debtors and (2) efficiently distinguishing between those consumers who can't pay because they lack the resources to do so and those who won't pay even if they have the resources to make at least a partial payment. What has changed is the technology available to collection workers.

Thirty years ago, collectors worked primarily with paper records, typewriters, and telephones. The advent of affordable long-distance services (WATS lines) in the 1970s represented a major advance, permitting firms to collect accounts over greater distances at lower cost. Another advance was the automated dialer: A computer dials the numbers of delinquent consumers more rapidly than humans can and routes the calls that are answered to collectors organized into a call center.²¹ This significantly

¹⁹ In 2004-05 collection firms raised \$500 million from equity issues alone. See the article by Joe Chumblor.

²⁰ See the 2005 article by Jane Adler and the 2006 article by Darren Waggoner.

²¹ *The Nilson Report* No. 558 (1993) identifies Don Thorne as the inventor of this technology, which emerged around 1973.

increases the number of consumer contacts a collector can make in an eight-hour shift.

Over time, these systems have become more and more sophisticated (the latest generation machines are called predicative dialers). Computers determine the number of calls to make based on the time of day, the number of collectors logged on to the system, and variations in their average time speaking with consumers. These calculations are more accurate when more collectors are used and, combined with the high fixed costs of such systems, may explain part of the increasing scale of collection agencies. The latest systems are also integrated with the agency's consumer account systems and other programs. Today, a number of the largest agencies have call centers located in other countries and are experimenting with Internet technology that permits collectors to work from home.²²

Three decades ago, a leading textbook described the collections problem in the following terms: "Collection work would be easier and the results better if there were some magic way in which each account could be immediately and accurately classified as to the reason for nonpayment and the collection method which would be most effective with that particular debtor. Sorting devices to perform such miracles unfortunately are not yet available."²³

Since then, the industry has worked hard to develop better sorting technologies. Collection records are now computerized. Advances in information technology have made the process of skip tracing — locating a current address or phone number of

a consumer — more efficient. Techniques developed to quantify the risk of borrower default (credit scoring) are now being applied to evaluating the prospects for successful collections of individual accounts and the pricing of entire portfolios.²⁴ Given that collectors are generally able to obtain payments on only a small fraction of their

erable resources and investments in technology to separate the two groups based on the information they can collect (see the preceding section). Second, they apply additional pressure on consumers, essentially increasing the implicit cost of not repaying one's debt. This may induce those who won't pay to change their minds. But this also

To be effective, collectors must be able to distinguish consumers who *can't* pay from those who *won't* pay even though they have the resources to do so.

accounts, it is extremely important to know how to allocate collection resources across accounts. Among the accounts that do end up being paid, most are the result of an improvement in the borrower's financial condition, which can often take years. Thus, the ability to locate a delinquent borrower and monitor changes in his or her financial condition three or five years after the initial default can be extremely valuable.

REGULATING THE DEBT COLLECTION PROCESS

To be effective, collectors must be able to distinguish consumers who *can't* pay from those who *won't* pay even though they have the resources to do so. The problem that collectors face, however, is that consumers in these two categories look very much alike because those who won't pay have an incentive to present themselves as consumers who can't.

Collectors respond to this problem in two ways. First, they devote consid-

imposes additional distress on those who really cannot pay.²⁵

There is a related problem: Outside of bankruptcy, creditors have an incentive to *race* for the consumer's limited assets or income. When it becomes clear that a consumer is having difficulty paying his or her debts, creditors become concerned about their priority: What is the order in which creditors will be repaid from the consumer's assets or a garnishment of his or her wages? Knowing that other creditors are doing the same, each creditor has an incentive to seek immediate repayment of its debt even if it comes at the expense of other creditors or induces a sale of the consumer's assets at fire-sale prices.²⁶ Under these circumstances, creditors and their agents have a natural incentive to be aggressive in their collection efforts at the expense of both the consumer and

²² See the 2003 article by Jane Adler.

²³ See p. 371 of the book by Robert Cole.

²⁴ See the article by Amita Chin and Hiren Kotak, the article by Joanne Cleaver, and the one by Peter Lucas.

²⁵ For a thoughtful discussion of this problem, see the article by Arthur Leff. For real world examples, see the 1977 and 1992 congressional hearings on the Fair Debt Collection Practices Act.

²⁶ This phenomenon is explored in the book by Thomas Jackson and the one by Winton Williams.

his or her other creditors.

These problems can be mitigated. With the assistance of a nonprofit credit counselor, consumers can work out a debt management plan with their creditors. Alternatively, consumers can file for bankruptcy.²⁷ The immediate effect of a bankruptcy filing is that it forces creditors to cease collection efforts. The court then works out a plan for liquidating the consumer's nonexempt assets (Chapter 7) to pay the creditors or, alternatively, a plan for using the consumer's future income to repay some of his or her debts over time (Chapter 13). In either case, unsecured creditors are likely to lose some, perhaps all, of the principal loaned. The consumer will carry a bankruptcy flag on his or her credit report for 10 years.

Unfortunately, debt management plans are not always successful. And, as noted above, consumers often do not immediately file for bankruptcy — sometimes because they can't.²⁸ Thus, a rationale for government regulation of collection activities directed at consumers follows from these arguments: (1) there is excessive racing in collections by unsecured creditors, (2) creditors cannot easily distinguish between those who can't pay and those who simply won't pay, and (3) consumers are either unwilling or unable to file for bankruptcy.

First Steps Toward a Federal Role. Until the end of the 1960s, the regulation of consumer debt collection outside of bankruptcy was done

²⁷ For a discussion of the purposes and design of consumer bankruptcy law, see the *Business Review* article by Loretta Mester. The federal bankruptcy law was amended in 2005. For details, see the First Quarter 2005 issue of the Federal Reserve Bank of Philadelphia's *Banking Legislation and Policy*.

²⁸ Under U.S. law, consumers can obtain a discharge of their debts under Chapter 7 only once in eight years. There are also limitations on the frequency of discharges under Chapter 13.

almost exclusively at the state or local level. But this soon began to change, perhaps because of the development of the credit card market and, more generally, the gradual evolution toward a national market for consumer credit.²⁹

One of the first assertions of a federal role occurred in 1968 when the Federal Trade Commission (FTC) published guidelines describing explicit collection practices it deemed to be unfair or deceptive trade practices and

Until the end of the 1960s, the regulation of consumer debt collection outside of bankruptcy was done almost exclusively at the state or local level.

therefore subject to prosecution. In the 20 years ending in 1977, the FTC filed cases against approximately 10 collection agencies a year.

In 1970, a federal ceiling on wages subject to garnishment (at most 25 percent of take-home pay) went into effect.³⁰ The Fair Credit Reporting Act of 1970 limited how long adverse repayment behavior could be included in a credit report and provided a process for disputing inaccurate information contained in a consumer's credit report.³¹ In 1974, Congress passed the Fair Credit Billing Act — another

²⁹ For a description of the evolution of the credit card market, see the book by Joseph Nocera and the one by David Evans and Richard Schmalensee. In recent years, a similar process has occurred for residential mortgages.

³⁰ Title II of the Consumer Credit Protection Act of 1969 (Public Law 90-321, 15 USC 1601). At the time of enactment, this protection was more generous than what was available under the laws of about 25 states.

reaction to the rapid and sometimes clumsy growth of the market for general-purpose credit cards.³² This law establishes a process for consumers who have disputed billing errors on their credit card accounts. Until the billing error is resolved, consumers do not have to pay the disputed amount (or interest on that amount), and the lender is precluded from attempting to collect on it.

FAIR DEBT COLLECTION PRACTICES ACT (FDCPA) OF 1977

This law establishes a national floor for consumer protections from third-party debt collectors. The act's general thrust is to prohibit the harassment of consumers and the use of collection practices deemed to be unfair. (See *Fair Debt Collection Practices Act*.)

The Federal Trade Commission (FTC) primarily enforces the act, but authority is shared with the federal financial regulators and several other federal agencies. An important remedy is the right of consumers, either individually or jointly in a class action, to sue collectors for (limited) damages arising from violations of the act, plus reasonable attorney's fees. Thus, enforcement need not depend on the resources or interest of public agencies.

But there are a number of important limitations to the protections provided under the act. First, debt collectors are not liable for damages if they can show that the offense was unintentional and that they maintain policies and procedures designed to avoid such violations. In practice, the courts have interpreted this exception relatively narrowly, so there have been many damage awards over the years.

³¹ Public Law No. 91-508, 15 USC 1681 et seq. I review this legislation in my 2002 article in the *Business Review*.

³² Public Law 93-495, 15 USC 1666 et seq.

The Fair Debt Collection Practices Act^a

W

hat debts are covered? The act applies to personal, family, or household debts.

Who is a debt collector? The act defines a debt collector as any person who regularly collects debts *owed to others*. This includes attorneys who collect debts on behalf of others on a regular basis.

The act does *not* apply to creditors (or their affiliates) collecting debts exclusively owed to them. The exclusion also applies to the collection of debts acquired from another creditor, so long as the debt was not in default at the time of the sale. But the act applies to a creditor collecting its own debt using a different name, thus giving the impression that it is a third-party collector.

The act does not apply to process servers or nonprofit organizations providing bona fide consumer credit counseling services and administering debt management plans on behalf of the consumer.

May a debt collector contact anyone else about a consumer's debt? If the consumer has an attorney, the debt collector may contact only the attorney, unless the consumer otherwise consents or his or her attorney does not respond to the collector's calls or letters.

If the consumer does not have an attorney, a collector may contact other people, but only to obtain information about the location of the consumer (for example, an address or a phone number). Collectors usually are prohibited from contacting third parties more than once. In such communications, collectors must identify themselves but may disclose the name of his or her employer only if specifically requested. The collector may not disclose that the consumer owes a debt.

What information about the debt must be provided to the consumer? Upon initial contact with a consumer, the collector must indicate it is attempting to collect a debt and that any information obtained will be used for that purpose. Within five days of the initial contact, the collector must send the consumer a written

notice describing the exact amount owed, to whom it is owed, and that the consumer can dispute this information if he or she believes it is inaccurate. The consumer has 30 days to dispute this information (in writing). If the consumer disputes an alleged debt, the collector must cease collection efforts and verify the accuracy of the information. The collector may resume its efforts once it has verified the information and mailed proof of the debt to the consumer.

When may a collector contact a consumer? Collectors may not contact consumers at unusual times or at an inconvenient place, without prior consent. Hours between 8 a.m. and 9 p.m. are presumed to be convenient times. A collector may not contact a consumer at his or her place of employment if it has reason to know that such communications are prohibited by the employer.

How can a consumer stop the collector from contacting him or her? A consumer (his or her spouse or a parent of a minor) can terminate a collector's efforts to *contact* him by sending the collector a letter to that effect. Thereafter, a collector may communicate with the consumer only to indicate that (1) the collector is ceasing further collection efforts or (2) it (or the creditor) may or will take a specific action against the consumer (such as a garnishment of wages).

What types of debt collection practices are prohibited? Debt collectors may not harass, oppress, or abuse a consumer or any third parties they contact. For example, collectors may not use threats of violence or harm, publish a list of consumers who refuse to pay their debts (except to a credit bureau), use obscene or profane language, or repeatedly use the telephone to annoy someone. A collector may not circulate to any person credit information it knows, or should know, is false. This includes failing to communicate that a debt is being disputed by the consumer.

Debt collectors may not use any false representation or deceptive means to collect or attempt to collect any

^aPublic Law No.95-109 (1977). The law in its current form may be found in title 15, section 1692 of the U.S. Code. For more information see the FTC's website: www.ftc.gov.

debt or to obtain information concerning a consumer. For example, they may not misrepresent the name of the collection firm, the amount or legal status of a debt, or the legal status of forms sent to the consumer. They may not falsely imply that they are attorneys, government representatives, or employees of a credit bureau or that the consumer has committed a crime. A collector may not threaten to take an action it (or the creditor) does not intend to take or that is illegal.

A debt collector may not use unfair or unconscionable means to collect a debt. For example, a collector may not collect any amount (including any interest, fee, charge, or expense) that is not expressly authorized by the agreement creating the debt or permitted by law. Collectors may not deposit a post-dated check prematurely. Debt collectors may not communicate with a consumer about a debt via postcard. In letters sent to consumers, collectors may print only their address on the outside of the envelope.^b

In what jurisdiction may a debt collector sue a consumer? If the loan is secured by real property (a house or land), the collector must file in the jurisdiction where the property is located. Otherwise, the collector must file either where the consumer signed the contract or where the consumer currently resides.

What remedies are available to consumers? A consumer can sue a debt collector for violations of the act in

state or federal court. The statute of limitations runs for one year from the date of the violation. Consumers may recover actual damages and reasonable attorneys' fees. The court may award up to \$1,000 for additional damages for individual suits.

The act also allows for class action suits against debt collectors. In that case damages are capped at the minimum of \$500,000 or 1 percent of the collector's net worth. In determining the damages to award, the court will consider the frequency and persistence of noncompliance, its nature, and whether it was intentional.

A debt collector is not liable for damages if it can show the violation was not intentional and that it used procedures reasonably designed to avoid such violations. If a court finds that a suit was brought in bad faith, to harass a debt collector, the court may require the plaintiff to compensate the defendant for the (reasonable) attorney's fees incurred.

What federal agencies enforce the act? Most debt collectors may be sued for violations by the Federal Trade Commission, which may seek civil penalties and injunctions. Other federal agencies are responsible for enforcing the act among the firms they supervise.^c

What about state laws regulating debt collection? The act sets a floor of consumer protection from debt collectors. States are free to enact protections that are stronger than those provided in the federal law.

^b The envelope can include the name of the firm if it does not suggest that it is in the debt collection business. This restriction also applies to written communications to third parties.

^c These include the federal regulators of financial institutions, common carriers, and airlines.

More important, the act applies only to firms collecting debts on behalf of others — that is, to third-party debt collectors. The act does not apply to firms collecting debts owed to them as long as they use the firm's name in the collection process. Thus, most creditors are not considered debt collectors

when they contact their customers about a delinquency or a default.

Why 1977? Given the long tradition of regulating collection practices at lower levels of government, it is interesting to ask why Congress decided to act in 1977. A number of factors seem important. First, there was con-

siderable interest, and some research, on consumers having difficulties managing their debt and filing for bankruptcy. Some of the research resulted from studies commissioned by the National Commission on Consumer Finance, which Congress established when it enacted the Truth in Lend-

ing Act in 1968.³³ Second, many in Congress believed that the protections provided by state law were inadequate. At that time, 13 states had no laws that applied to debt collectors, and the laws in another 16 were considered too weak.³⁴ Finally, advances in telecommunications had reduced the cost of long-distance business calls, making it economical for firms located in one state to collect debts owed by consumers in other states. Few states had the legal remedies or sufficient resources to discipline collection firms located out of state.

Nevertheless, federal legislation in this area was controversial. Some viewed the act as an attempt to protect deadbeats that would reduce the efficiency of the credit market. Others argued it was another instance of federal intrusion into an area of policy that traditionally belonged to the states. The act passed by only one vote in the House of Representatives.

Protecting Unsophisticated Consumers. Shortly after the FDCPA was enacted, the courts developed the “least sophisticated consumer” standard to evaluate alleged violations of the FDCPA.³⁵ This is rather different from the approach used under many other federal consumer protection laws that apply to financial services. For example, laws such as the Truth in Lending Act or the Real Estate Settlement Procedures Act require that lenders disclose a good deal of information, and it is assumed the consumer is sufficiently sophisticated to make use of the information. In ambiguous cases, the

³³ See also the study by David Caplovitz and another by David Stanley and Marjorie Girth, which influenced the drafting of the Bankruptcy Act of 1978.

³⁴ See Senate Report 95-382.

³⁵ Some courts use a different standard, referring to an “unsophisticated consumer,” but there is little practical difference between the two.

consumer must demonstrate that the disclosures were somehow inadequate and this resulted in a loss to the consumer. In contrast, under the FDCPA, the question before the court may not be whether the plaintiff was actually deceived but rather whether the debt collector’s action would have confused “the least sophisticated consumer.”³⁶

Why Exclude Creditors? The rationale for the distinction between third-party and first-party collectors is somewhat convoluted. On the one hand, if the act had been written to include creditors, it is likely the bill

The FDCPA acts as a floor for consumer protections rather than as a ceiling.

would not have passed. On the other hand, a number of participants in the congressional hearings on the bill argued that the protections were primarily needed to address the activities of third-party collectors. The FTC took the position that it was easier for regulators to discipline financial institutions than to discipline debt collectors. It argued that barriers to entry into the collections business were so low that actions taken against existing firms did little to deter the behavior of new firms entering the business.

Others argued that financial institutions were already more heavily regulated, and the limited data available at the time suggested that most complaints were about the conduct of the third-party collectors.³⁷ Also, at that time, consumers borrowed almost

³⁶ This reasoning is contained in the 1991 case *Beattie v. D.M. Collections* 754 F. Supp. 383.

³⁷ But the latter claim was disputed at the time by ACA International (the Association of Credit and Collection Professionals) and others.

exclusively from lenders located in their state, so it was felt that state laws would be more effective in disciplining creditors than debt collectors located in other states.³⁸ A final bit of reasoning that was influential at the time was the idea that firms collecting their own debts were also collecting from their own customers and would be less willing to damage these relationships, or their reputation among potential customers, by using aggressive collection tactics.³⁹

Changes Since 1977. There have been relatively few changes to the act since 1977. The most significant change occurred in 1986 when Congress eliminated an exception to the definition of debt collector for lawyers collecting debts as an attorney on behalf of a client.⁴⁰

Unlike many other areas of federal regulation of financial activities, the FDCPA acts as a floor for consumer protections rather than as a ceiling. Thus, states are free to enact protections that are more extensive than the FDCPA’s and to apply them to a broader variety of collections activity. In the nearly 30 years since the enactment of the FDCPA, many states have adopted more extensive regulation of debt collection practices. Today, more than 40 states have laws that apply to third-party debt collectors, and more than 30 states have laws that can be applied to creditors collecting their own debts.⁴¹ Of course, there is still

³⁸ Of course, in just a few years it was common for consumers to use a credit card issued by a bank located elsewhere, primarily in Delaware or South Dakota.

³⁹ Richard Peterson’s 1986 study provides some evidence that creditors are less willing to use remedies consumers dislike the most — that is, unless the remedy is especially effective for obtaining repayment.

⁴⁰ Public Law 99-361, 100 Stat. 768

⁴¹ For more information on state debt collection laws, see the article by Elizabeth Bohn and Ari Gerstin and the book by Robert Hobbs.

considerable variation in the extent of protections offered at the state level.

Finally, in addition to regulation of the collections industry, contractual remedies available to creditors have also seen changes. After a decade of deliberations, the FTC issued its credit practices rule in 1985. Among other things, this rule made unenforceable a number of remedies lenders often included in their consumer credit contracts.⁴² The FTC ban includes waivers that permit creditors to automatically obtain a judgment against the consumer in court or waivers of asset exemptions provided under state bankruptcy law.⁴³ The rule prohibits creditors from deducting payments from the employee's paycheck without his or her permission and without first obtaining a court order. The rule also prevents creditors from obtaining a security interest in the consumer's *other* household goods as collateral for a loan.

A number of studies on the effects of these contractual restrictions have produced conflicting results.⁴⁴ Economists often measure the effects of legal changes by examining changes in demand and supply. On the one hand, reducing the options available to lenders may reduce the likelihood of repayment. This might induce lenders to charge higher interest rates and offer less credit than before. In other words, the supply of credit might fall. As an example, one study finds that, all else equal, mortgage loans are 3 percent to 7 percent smaller in states with a more lengthy and costly foreclosure

⁴² See 16 CFR Part 444. These restrictions were applied to banks under Regulation AA, issued by the Board of Governors of the Federal Reserve System. A number of these restrictions were recommended in the 1972 report of the National Commission on Consumer Finance.

⁴³ In bankruptcy, exempted assets are protected from creditors. These exemptions are sometimes important outside of bankruptcy, too.

⁴⁴ For a recent review of this literature, see the article by Richard Hynes and Eric Posner.

process.⁴⁵ Another study found that interest rates on individual personal loans were higher (and loan amounts were smaller) in states where a smaller share of take-home pay was subject to garnishment.⁴⁶

On the other hand, consumers might be unwilling to borrow when creditors have the option to use remedies they really don't like. In that case, restricting some remedies could increase the demand for credit so long as consumers are willing to pay for the protection. One study found that, all

Today, more than 40 states have laws that apply to third-party debt collectors, and more than 30 states have laws that can be applied to creditors collecting their own debts.

else equal, consumers were more likely to borrow, and borrow more, in states where less take-home pay was subject to garnishment, suggesting that at least some consumers were indeed willing to pay the additional cost resulting from the restriction.⁴⁷

Another interesting finding is that even in places where these remedies are available, creditors invoke them infrequently. One interpretation is that creditors are unwilling to use remedies that would damage their reputation with existing or potential customers. Another interpretation is that the remedies were effective in motivating repayment where it was feasible and, thus, did not need to be used very often.⁴⁸

⁴⁵ See the 2005 article by Karen Pence.

⁴⁶ See the 1983 article by James Barth and his colleagues and the 1973 study by Douglas Greer.

⁴⁷ See the 1990 article by Daniel Villegas. Note that Villegas examined the nonmortgage borrowing of consumers, while the article by Barth and his colleagues examined the characteristics of individual loans made by finance companies. These differences may explain why they obtained different results.

⁴⁸ See the article by Robert Scott.

CONCLUSION

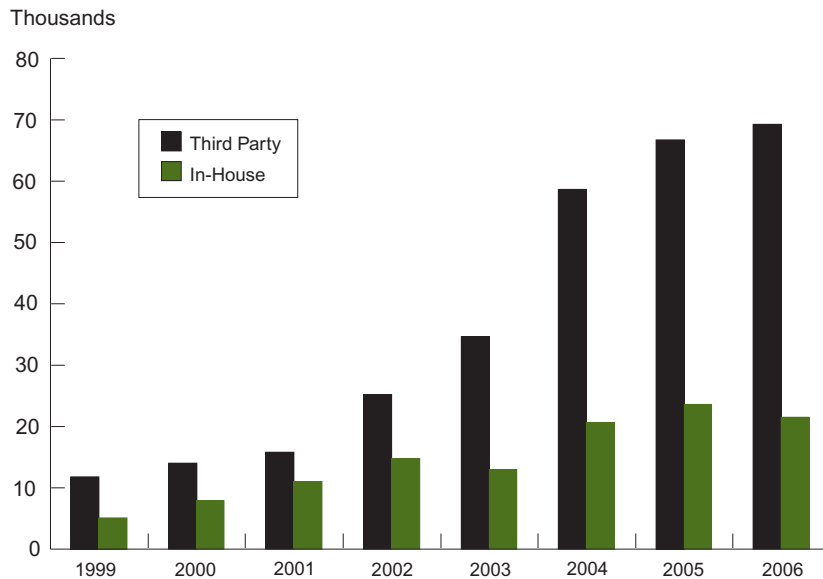
In an article published in 1924, William Krumbain concluded that "the large number of delinquent claims each year assigned to collection agencies indicate the need for some form of institution as a means of raising capital through bad debts, or as a means of reducing the enormous losses from this source. The question at issue, then, in considering the present-day collection agencies, is not whether they can actually justify their existence on economic grounds, but whether they perform

their function in such a manner as will net the largest possible benefit to society as a whole." The answer, according to Krumbain, depended on the kinds of firms that undertook the collections and how the original lenders held them accountable for their tactics.

That answer remains largely true today, subject to some qualifications. First, some collection firms are now also the owners of the defaulted debt they seek to recover. Second, the government plays a more active role in policing collections activity than it did prior to 1970.

So it is distressing to see a significant increase in consumer complaints about collections activity in recent years (Figure 5). In comparison, the FTC reported receiving about 5,000 complaints about debt collectors in the years before the passage of the FDCPA, followed by a decline to about 2,000 a year in 1983. By 1990, complaints had fallen to about 1,000 a year before doubling by 1992 — another period of recession.⁴⁹

⁴⁹ See the 1984 testimony of Ann Price Fortney and the 1992 testimony of David Medine.

FIGURE 5**Complaints to the Federal Trade Commission**


Source: Federal Trade Commission and author's calculations.

The recent increase in complaints may reflect a number of factors, for example, the recent recession and the resulting increase in delinquent debt flowing to collection departments or the increased ease with which consumers can register complaints via the Internet. At this point, we can't

be certain why there are now so many complaints and why they seem to be increasing.

Despite the prevalence of consumer collection activity, there is relatively little economic research on the topic, and much of what there is dates to the initial era of federal consumer protec-

tion regulation that began around 1970.⁵⁰ Economists have tended to focus on the related question of the effects of the bankruptcy system, leaving unexplored the question of what distressed consumers, and their creditors, do outside of bankruptcy. While there is a rationale for regulating the consumer collections process, we know little about the effects of these regulations. Are they too onerous? Are they too weak? How have creditors, debt collectors, and consumers responded?

In the three decades since the FDCPA was passed, consumer credit and the resulting collections process have changed considerably. Debt collectors are now big business, some trading on Wall Street. Lenders are comfortable selling off their bad debts, and a relatively deep market for these assets now exists. The IRS is experimenting with using private firms to collect some of the \$250 billion in delinquent taxes outstanding. The credit card market is now mature and relatively concentrated. Consumer bankruptcy law has recently been changed. It would seem this area is ripe for a new generation of research. 

⁵⁰ One exception is the forthcoming article by Richard Hynes.

REFERENCES

ACA International. *2005 Benchmarking and Agency Operations Survey*. Minneapolis, MN: ACA International, 2005.

ACA International. *Value of Third Party Debt Collection to the U.S. Economy: Survey and Analysis*. Minneapolis, MN: ACA International, 2006.

Adler, Jane. "Law Firms Balloon," *Cards and Payments*, 19 (April 2006), pp. 48-51.

Adler, Jane. "Alternative Assets," *Credit and Collections World*, 18 (February 2005).

Adler, Jane. "Offshore Collections," *Collections and Credit Risk*, 8 (July 2003), pp. 24-30.

Ausubel, Lawrence M., and Amanda Dawsey. "Informal Bankruptcy," mimeo, University of North Carolina, Greensboro (2003).

Avery, Robert B., Raphael W. Bostic, Paul S. Calem, and Glenn B. Canner. "An Overview of Consumer Data and Credit Reporting," *Federal Reserve Bulletin* (February 2003), pp. 47-73.

Barth, James R., Padma Gotur, Neela Manage, and Anthony M. J. Yezer. "The Effect of Government Regulations on Personal Loan Markets: A Tobit Estimation of a Microeconomic Model," *Journal of Finance*, 38 (September 1983), pp. 1233-51.

Barth, James R., Joseph J. Cordes, and Anthony M. J. Yezer. "Benefits and Costs of Legal Restrictions on Personal Loan Markets," *Journal of Law and Economics*, 29 (October 1986), pp. 357-80.

Bohn, Elizabeth M., and Ari H. Gerstin. "FDCPA Traps for the Unwary Nationwide Lender, Loan Servicer, and Debt Collector: Part II," *American Bankruptcy Institute Journal*, 24 (May 2005).

Bureau of the Census. *Census of Service Industries*. Washington: U.S. Government Printing Office, various years.

Bureau of the Census. *Current Business Reports: Service Annual Survey*. Washington: U.S. Government Printing Office, various years.

Caplovitz, David. *Consumers in Trouble: A Study of Debtors in Default*. New York: The Free Press, 1974.

Chin, Amita Goyal, and Hiren Kotak. "Improving Debt Collection Processes Using Rule-based Decision Engines: A Case Study of Capital One," *International Journal of Information Management*, 26 (2006), pp. 81-88.

Chumbler, Joe. "Debt Purchasing Outlook for 2005," *The Paper* (July/August 2005).

Cleaver, Joanne. "Collections Calls Go High Tech," *Credit Card Management*, 15 (July 2002), pp. 48-51.

Cole, Robert H. *Consumer and Commercial Credit Management*, 5th ed. Homewood, IL: Richard D. Irwin, Inc., 1976.

Consumer Credit in the United States: Report of the National Commission on Consumer Finance. Washington: U.S. Government Printing Office, 1972.

Evans, David S., and Richard Schmalensee. *Paying with Plastic: The Digital Revolution in Buying and Borrowing*. Cambridge, MA: MIT Press, 1999.

"Experian Software Evaluates Debt Portfolios," *Cardline*, 6 (February 2006).

Fair Debt Collection Practices Act. Hearing before the House Subcommittee on Consumer Affairs and Coinage of the Committee on Banking, Finance, and Urban Affairs, 102nd Congress, 2nd Session (September 10, 1992).

Fair Debt Collection Practices Act. Hearing before the House Subcommittee on Consumer Affairs of the Committee on Banking, Finance, and Urban Affairs, 95th Congress, 1st Session (March 8-10, 1977).

Fair Debt Collection Practices Act. Hearing before the House Subcommittee on Consumer Affairs of the Committee on Banking, Finance, and Urban Affairs, 95th Congress, 1st Session (May 12-13, 1977).

Federal Deposit Insurance Corporation. *Managing the Crisis: The FDIC and RTC Experience, 1980-1994, Vol. 1*. Washington: FDIC, 1998.

Federal Trade Commission. *Annual Report: Fair Debt Collection Practices Act*. Washington: Federal Trade Commission, various years.

Fitzgerald, Kate. "Going with the Flow," *Credit Card Management*, 12 (October 1999), pp. 65-68.

Flow of Funds Accounts of the United States. Washington: Board of Governors of the Federal Reserve System, 2006.

Fortney, Ann Price. Prepared Statement in Oversight Hearing on the Fair Debt Collection Practices Act. Hearing before the House Subcommittee on Consumer Affairs and Coinage of the Committee on Banking, Finance, and Urban Affairs, 98th Congress, 2nd Session (January 31, 1984).

Greer, Douglas F. "Creditor Remedies and Contract Provisions: An Economic and Legal Analysis of Consumer Credit Collection," in *National Commission on Consumer Finance, Technical Studies*, Vol. 5, Washington: U.S. Government Printing Office, 1973.

Hobbs, Robert J. *Fair Debt Collection*, 5th Edition. Boston: National Consumer Law Center, 2004.

REFERENCES

- Hunt, Robert M. "Whither Consumer Credit Counseling?," Federal Reserve Bank of Philadelphia *Business Review* (Fourth Quarter 2005).
- Hunt, Robert M. "What's in the File? The Economics and Law of Consumer Credit Bureaus," Federal Reserve Bank of Philadelphia *Business Review* (Second Quarter 2002).
- Hynes, Richard. "Broke but Not Bankrupt: The View from the State Courts," *Florida Law Review* (forthcoming).
- Hynes, Richard, and Eric A. Posner. "The Law and Economics of Consumer Finance," *American Law and Economics Review*, 4 (2002), pp. 168-207.
- Jackson, Thomas H. *The Logic and Limits of Bankruptcy Law*. Washington: Beard Books, 1986.
- Krumbein, William C. "Collection Agencies," *University Journal of Business*, 3 (1924), pp. 48-67.
- Leff, Arthur A. "Injury, Ignorance and Spite — The Dynamics of Coercive Collection," *Yale Law Journal*, 80 (1970), pp. 1-46.
- Lucas, Peter. "Letting the Numbers Tell the Story," *Collections and Credit Risk*, 11 (2006), pp. 37-39.
- Medine, David. Prepared Statement in *The Fair Debt Collection Practices Act*. Hearing before the House Subcommittee on Consumer Affairs and Coinage of the Committee on Banking, Finance, and Urban Affairs, 102nd Congress, 2nd Session (September 10, 1992).
- Mester, Loretta J. "Is the Personal Bankruptcy System Bankrupt?," Federal Reserve Bank of Philadelphia *Business Review* (First Quarter 2002).
- National Commission on Consumer Finance. *Technical Studies*, Vol. 5. Washington: U.S. Government Printing Office, 1973.
- Nocera, Joseph. *A Piece of the Action: How the Middle Class Joined the Money Class*. New York: Simon & Schuster, 1994.
- The Nilson Report*, various years.
- Pence, Karen M. "Foreclosing on Opportunity: State Laws and Mortgage Credit," *Review of Economics and Statistics*, 88, 1 (February 2006), pp. 177-82.
- Peterson, Richard L. "Creditors' Use of Collection Remedies," *Journal of Financial Research*, 9 (1986), pp. 71-86.
- Scott, Robert E. "Rethinking the Regulation of Coercive Creditor Remedies," *Columbia Law Review*, 89 (1989), pp. 730-89.
- Spencer, Jane. "A New Threat to Your Credit Rating — Unpaid Parking Tickets, Library Fees Start to Hurt Consumer Credit as Strapped Cities Seek Payment," *Wall Street Journal*, January 3, 2006.
- Stanley, David T., and Marjorie Girth. *Bankruptcy: Problem, Process, and Reform*. Washington: The Brookings Institution, 1971.
- Villegas, Daniel J., "Regulation of Creditor Practices: An Evaluation of the FTC's Credit Practice Rule," *Journal of Economics and Business*, 42 (1990), pp. 51-97.
- Waggoner, Darren. "Once Viewed as a 'Poison,' Bad-Debt Resales Are Booming," *Cards and Payments*, 18 (September 2005), pp. 42-45.
- Waggoner, Darren. "Is the Party Over for Debt Sellers?" *Collections and Credit Risk*, 11 (January 2006), pp. 29-34.
- Waggoner, Darren. "Banks Merge, Anxiety Grows," *Cards and Payments*, 18 (November 2005), pp. 38-42.
- White, Michele J. "Why Don't More Households File for Bankruptcy?," *Journal of Law, Economics and Organization*, 14 (1998).
- Williams, Winton E. *Games Creditors Play*. Durham, NC: Carolina Academic Press, 1998.

Gimme Shelter!

Rents Have Risen, Not Fallen, Since World War II

BY LEONARD NAKAMURA

Two recent studies have concluded that for roughly four decades the measure of inflation for rents in the U.S. consumer price index was substantially underestimated. Why should this mismeasurement be of concern? In this article, Len Nakamura explains that rents are important in measuring the price of housing services for homeowners as well as renters. They are also the main standard against which market participants and others weigh the reasonableness of house prices. In addition, such mismeasurement affected the estimated rate of overall inflation faced by U.S. households during this historical episode.

Measuring rental inflation accurately is important because rents are the largest component in the U.S. consumer price index, representing fully one-third of the consumption basket. This might seem surprising, since the U.S. is largely a nation of homeowners, not renters. However, government statisticians use rents as a proxy for the price of housing services consumed by owners, for reasons we explore in this article. A related reason for accurately measuring rental inflation is that rents

represent the main standard against which to measure the reasonableness of house prices.

According to official U.S. data, while all prices have been rising, rents have been rising more slowly than other prices. From 1942 to 2003, rents, as measured by the U.S. consumer price index, went up less than nine-fold, while the consumer price index, excluding shelter, went up more than 10-fold. Thus, the ratio of rents to other prices is 20 percent lower than it was in the 1940s. However, this relative decline took place roughly between 1942 and 1985 — a period during which, as two new studies suggest, rental inflation was underestimated. Figure 1 depicts this relative decline in prices by showing the ratio of rents to other prices, excluding shelter, in the falling beaded line.

These studies have concluded that

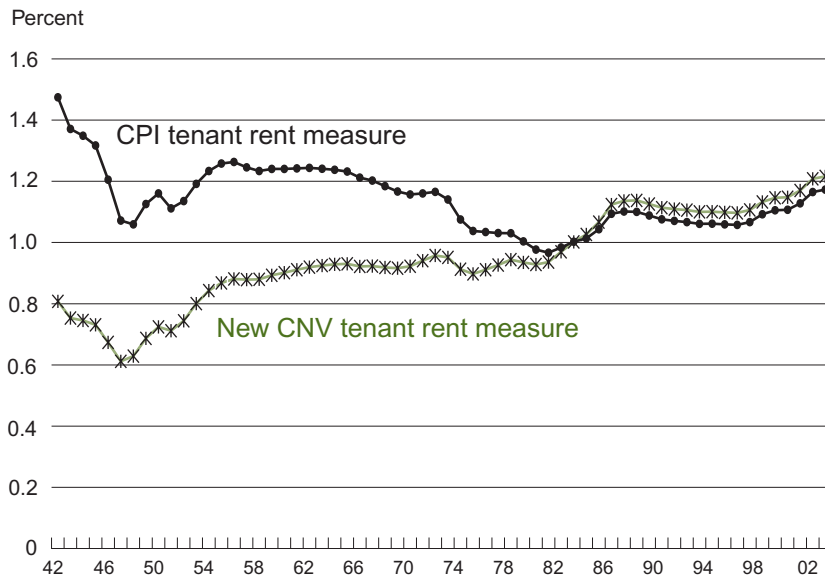
for roughly four decades, from 1942 to 1985, the measure of inflation for rents in the U.S. consumer price index was substantially underestimated. My study with Theodore Crone and Richard Voith finds an annual understatement of 1.4 percentage points for the rental inflation rate, while one by Robert Gordon and Todd vanGoethem argues for an understatement of 1.2 percentage points. Over time, these errors cumulate into large numbers and result in very different long-term relationships between rents and overall inflation in the U.S. Either set of estimates indicates that rents have generally risen faster than other prices throughout the postwar period; our estimates show rents rising relatively about 50 percent rather than falling 20 percent, depicted in the barbed green line.

Because of the large weight of rents in consumption and the substantial size of the bias, the estimated rate of overall inflation faced by U.S. households is visibly affected. One broad measure of the rate of inflation faced by households in the U.S. is the personal consumption expenditure (PCE) deflator. Many economists consider the PCE deflator to be the best overall measure of inflation.¹

¹ The personal consumption expenditure (PCE) deflator is produced by the Bureau of Economic Analysis as part of its quarterly estimates of gross domestic product from data collected by other agencies. One of those data-collection agencies is the Bureau of Labor Statistics, which is charged with collecting U.S. price data. The PCE deflator is considered better than the consumer price index for two main reasons. First, it is a broader measure of inflation that, in particular, includes more services, such as medical and financial services; second, it is revised historically to be more consistent and to eliminate past errors.



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FIGURE 1**Two Measures of Relative Rents***

Source: U.S. Bureau of Labor Statistics and Crone et al. (2006).

* Crone, Nakamura, and Voith and Official CPI Measures of Rent Ratio to CPI All Items (excluding shelter)

From 1942 to 1985, the PCE deflator, as currently measured, grew at an annual rate of 4.3 percent. If we use our study's (Crone, Nakamura, and Voith) estimate for rents, that deflator's rate of increase rises to 4.5 percent per year. Similarly, the real growth rate of personal consumption expenditures, as currently measured, grew at 3.8 percent; as revised, it would fall to 3.6 percent. (Real consumption growth per capita would fall from 2.5 percent to 2.3 percent.)

MEASURING INFLATION AND HOUSING SERVICES

How should we measure the part of consumer inflation represented by housing services? In the U.S. consumer price index, produced by the

Bureau of Labor Statistics (BLS), and in the personal consumption expenditure deflator, produced by the Bureau of Economic Analysis (BEA), tenant rents are used to measure the price of housing services. These agencies use this method, even though the bulk of housing is occupied by homeowners, who do not pay an explicit rent. To understand why this practice is standard, we need to analyze what the resident of a house consumes. In consumption terms, economists think of housing as providing a service: sheltering the residents and their possessions. This housing service is distinct from the value of the house as an investment. But for homeowners, the house is both a source of housing services and an investment. Therefore, to construct

a consumption inflation measure, we have to somehow estimate the value of the housing services consumption component.

Conceptually, a renter and a homeowner get the same housing services, regardless of the form of ownership, if the house is otherwise the same. The renter pays for the service directly. So if we can figure out what the house would rent for, we would know how much the shelter services should cost.² If we are lucky, we can find a rental unit just like our house and find out what renters are actually paying landlords. We can then use this as an estimate of the unit's shelter services. Of course, it is often not possible to find rental units precisely equivalent to owner-occupied ones. But since we are interested in the rate of inflation, not the level of prices, rentals that are reasonably similar to the owner-occupied units will be good enough. It is this latter principle that statisticians at the BLS invoke when they measure the housing services of owner-occupied units.

SOME DIFFICULTIES IN MEASURING RENT INFLATION

It would seem that measuring rental inflation should be straightforward, but as so often happens in economic measurement, the details turn out to involve some devilish problems. To measure tenant rents in the U.S., the BLS samples rental properties in urban areas (that is, cities and their surrounding suburbs). Generally speaking, the BLS price inspector obtains this information from the landlord

²Housing provides returns to the homeowner in two forms: housing services (or implicit rent) received during the period the homeowner occupies the house, and the value of the house when the homeowner sells it. In turn, the sale value of the house will be derived from the housing services the house provides thereafter.

or real estate manager. If rental units are vacant, their prices are estimated based on the inflation rate at similar units.

Measured Rental Inflation Lags Reality by Three Months. One unusual feature of rents compared with other prices is that the typical rental unit experiences a price change once a year. Thus, if the price inspectors were to check on a given unit every month, 11 times out of 12, the answer would be the rent hasn't changed. So BLS price inspectors collect data on rents only every six months from a given unit. The current monthly rate of rental inflation is then calculated as the average rate of inflation of the units surveyed in that month. One measurement problem shows up immediately: The actual rental price increase at these units could have occurred any time over the past six months, but the increase is included in the index as if it had occurred in the past month.³ On average, the rental price increase actually measured occurred three months ago; this tends to create a three-month lag in the average time it takes for an increase in rents to show up in the price index. This lag results in rental inflation being understated when it is accelerating and overstated when it slows. If rental inflation is changing rapidly, three months can be a long time, and the measurement error can be significant.

Comparability of Tenant and Owner-Occupied Housing Services. The U.S. consumer price index uses two main measures of housing services: rent of primary residence, for renters, and *owners' equivalent rent* of primary residence, for owner-occupiers. Both

³ The monthly inflation rate is taken to be the monthly rate that would compound to the six-month change. Technically, the monthly log change is calculated by taking one-sixth of the six-month log change.

are measured using tenant rents. However, owners' equivalent rent inflation differs from rent of primary residence inflation mainly for two reasons. First, owners tend to live in different places and in different types of units than renters. To remedy this imperfect comparability, the BLS gives greater weight to rental units that resemble owner-occupied units, such as single-family detached units, and that are in areas where housing is predominantly owner occupied, such as the suburbs.

Second, for many rental units, landlords directly pay some energy and other utility costs; therefore, these costs are indirectly included in rents paid by tenants. For example, for units

BLS data to measure inflation and to adjust economic growth for inflation, has consistently measured owner-occupied housing services with rents in the national income accounts as part of its measures of gross domestic product and personal consumption expenditures. Alternative measures of housing services are discussed in *Alternatives to Rent as Measures of Housing Services* and in the working paper by BLS economists Robert Poole, Frank Ptacek, and Randal Verbrugge.

Aging Bias. Aging bias is an additional issue that must be addressed in the data. Does a rental unit remain the same from year to year as it is rented, or does it deteriorate as it ages?

The U.S. consumer price index uses two main measures of housing services: rent of primary residence, for renters, and *owners' equivalent rent* of primary residence, for owner-occupiers.

that include fuel costs in the rent, rents tend to rise more rapidly when energy costs are rising. Owners, on the other hand, all pay their utility costs directly. To the extent utility costs are included in rents, the BLS has to subtract utility costs from rents to obtain the "pure rents" it needs to calculate inflation for owner-occupied housing.

The BLS has not always used rents to measure the housing services of owner-occupied housing in the consumer price index. From the early 1950s to the early 1980s, it used the so-called acquisition method, measuring house-price inflation, mortgage interest rates, and other out-of-pocket costs of homeownership, such as home insurance. But this method mixed investment returns with housing services' consumption costs, and economists widely viewed it as unsatisfactory. The BEA, which generally uses

If landlords' maintenance and repair activities are not sufficient to keep the average unit as good as new, how important is aging quantitatively? One way to answer this question would be to find two units that are exactly the same but built at different dates. If the older one fetches a lower rent than the newer one, the difference would be attributable to deterioration due to age. But such situations rarely occur and are unlikely to be representative of all units.

Another way to accomplish the same thing is to obtain rental data on a variety of different rental units, along with all of the units' relevant characteristics, and tease out from these data the average impact of aging on rents. The empirical method economists use to do this is called *hedonic regression*. The idea behind this approach is that any product is purchased because of

Alternatives to Rent as a Measure of Housing Services

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The Purchase Method. One way to measure owner-occupied housing services inflation is to look at the inflation rate of the houses themselves. We measure the rate of inflation for new cars, refrigerators, and furniture by using the prices of these durable goods, rather than trying to estimate the services we receive from them. So why not do the same for housing? Because, as we have argued, housing prices reflect investment, not just consumption. Moreover, estimating the inflation rate for new homes is actually quite difficult because new homes differ in location as well as in details of construction. In addition, the purchase price of houses doesn't include many of the costs of homeownership, such as taxes and insurance.

The Acquisition Method. As used in the U.S. consumer price index from the mid-1950s to the early 1980s, the acquisition method, also called the asset price approach, included the purchase price of houses, mortgage interest rates, taxes, insurance, and maintenance and repair costs. Among many criticisms of this approach is the fact that the effective cost of a given level of mortgage interest depends on the expected rate of inflation. A mortgage interest rate of 1 percent can be effectively more expensive to the consumer than a mortgage interest rate of 5 percent if the rate of inflation is expected to be negative in the first instance and very high in the second.

The User Cost Method. In this approach, cost depends on the interest and operating costs of the house, less the expected house-price appreciation. At any point in time, we take an individual unit, evaluate its price, and multiply that price by the interest rate less the expected appreciation rate, and add on the operating costs (taxes and maintenance). This is what the owner actually pays to use the unit; it is conceptually the same as the rent, provided there is no risk and no transaction costs. The interest rate calculation should take into consideration the tax treatment of mortgage interest, and the appreciation calculation, the tax treatment of capital gains.

Of course, the expected appreciation rate is never observed directly. Taking into account risks in the valuation of the house together with transactions costs is very difficult. As a consequence, a practical measure of user costs has yet to be set forth.

These difficulties explain why the Bureau of Economic Analysis and the Bureau of Labor Statistics regard tenant rents as the best practical measure of owner-occupied housing services. However, tenant-occupied units and owner-occupied units remain disparate, and as Federal Reserve Board economist Joshua Gallin has shown, the dynamics of owner-occupied house prices and rents are quite different. Thus, further research in this area remains an important item on the price-measurement agenda.

its desirable (or "hedonic") characteristics. For example, a car might have such characteristics as horsepower,

gasoline mileage, sunroof, trunk size, interior room, power seats, and so forth. Similarly, a house might have

characteristics such as square footage, number of bedrooms and bathrooms, total number of rooms, type of neighborhood, size of garage, central air conditioning, and so forth, as well as age. A hedonic regression would attempt to capture how all of an average unit's characteristics, including age, influenced the unit's rent. If one found that rents fell with age, controlling for changes in other characteristics, it might indicate that, on average, rental units are not maintained in the same condition as when they were first built.

However, using a hedonic regression to estimate the effect of physical deterioration on rents presents two potential problems. The first is the so-called *vintage effect*, which arises when new units have unmeasured quality characteristics that old units do not have. For example, the more extensive use of insulation in houses built after the 1970s may mean that newer houses have higher unmeasured quality — and, thus, fetch higher rents — than older units, but this is not due to the deterioration of older units. On the other hand, if higher quality units remain in the stock of occupied housing while lower quality units are demolished, this may raise the unmeasured quality of older units relative to new units and produce relatively higher rents. But this is not because individual units are getting better over time, just that worse units are disappearing. These so-called vintage effects are hard to separate from the aging effect per se — physical deterioration — on rent.

The second problem in estimating aging's effect on rent is that units of different types (e.g., apartments versus detached houses) may deteriorate at different rates, possibly because the incentives to maintain a unit may differ or maintenance costs may be lower.

In his 1988 articles BLS economist William Randolph took steps to solve

both of these problems in estimating the effect of systematic physical deterioration on rents. Randolph argued that including a sufficient number of housing and neighborhood characteristics in a hedonic equation would render the remaining vintage effect minimal.⁴ He included housing characteristics such as the presence of a dishwasher or washer/dryer and neighborhood characteristics such as the percent of the population with a college education. He also estimated different aging effects depending on the number of rooms in the unit, whether the unit was detached, and whether it was rent controlled. His resulting estimate of the *average* effect of aging on rent was -0.36 percentage point a year, meaning that the quality of the average unit deteriorated at that rate. This implied, for example, that if the rental price of an average unit rose 3 percent in a given year, the true rate of rental inflation was 3.36 percent. Since 1988, the BLS has used Randolph's estimating technique, updated over time, to calculate aging's effect, then uses that calculation to adjust the rent component of the CPI by adding on the aging bias. Generally speaking, BLS estimates of the average aging effect have changed very little. In the revised measure of rental inflation developed in our study, aging bias before 1988 is estimated by adopting Randolph's correction of -0.36 percentage point, and raising annual rental inflation rates by 0.36 percentage point.

NONRESPONSE PROBLEMS AND THE BLS CORRECTIONS

Now we turn to the biggest source of error in the historical CPI

⁴Gordon and vanGoethem argue that Randolph's methodology insufficiently accounts for quality improvements in housing. For example, Randolph's methodology will not capture the change in quality if homes are constructed with more thermal insulation.

measures of rent: nonresponse bias. Nonresponse bias is a subcategory of a more general kind of statistical bias: sample-selection bias. Generally speaking, whenever statisticians collect data, they are aware their work is potentially affected by *sample-selection* bias; that is, the data gathered do not reflect the population sampled. This is a problem even for censuses that attempt to reach the entire population, such as U.S. population censuses, which have been shown to have difficulty counting low-income neighborhoods.

When a rental unit changes tenants, there is a tendency for the price increase to be greater than if the tenant had stayed.

For the BLS inflation measures, an important difficulty is ensuring that the price movement of the items surveyed represents the price movement of the items households are actually consuming. For example, the BLS has been criticized for being too slow in introducing new items into its lists of products being priced, such as computers, whose prices decline rapidly when they are first introduced. In that case, the sample-selection bias has tended to cause inflation to be overstated, since prices of older computers fell more slowly than the prices of new ones. The rental sample-selection bias goes in the opposite direction, biasing inflation measures downward: Units where tenants have moved are undercounted, and rents rise faster at these units. Let's look at this problem in more detail.

Before 1942, the BLS gathered rental data primarily from landlords and real estate managers, as it does now. However, during World War II, rent controls were imposed across the nation. As a result, there was concern

that landlords and real estate managers might not report rents accurately if they had illegally increased rents. In fact, later analysis suggested that in many neighborhoods, there were more rent increases than had been authorized. So the BLS instructed rental price inspectors to ask tenants for the data and that is what they did from 1942 until the end of 1977.

This meant going to tenants and getting them to agree to an interview and inspection of their dwellings and to answer follow-up mail ques-

tionnaires every three months. (In the 1950s the frequency of the mail questionnaires was reduced to every six months.) When tenants moved, the BLS would have to find the unit's new tenants and get them to agree to participate, and the BLS would also have to reinspect the unit to see if the landlord or manager had made any changes to it. If the new tenant could not be contacted soon enough, or if the unit remained vacant in the price collection month, the BLS would not record information on rent at that unit, and any price increase at the unit would be lost. But tenants, when they move, usually move at the time of the unit's annual rent increase. The data lost when tenants move have a much higher probability of including a price increase than the data for a typical unit; therefore, this problem of non-response biases the rate of inflation downward. This *nonresponse bias* problem was revealed in a study by two BLS economists, Joseph Rivers and John Sommers, and my study with Crone and Voith.

Compounding this issue is another interesting problem revealed by the BLS data: When a rental unit changes tenants, there is a tendency for the price increase to be greater than if the tenant had stayed. Rents for units whose tenants change rise about one-third faster than rents for tenants who continue in residence. So not only were some rent increases lost, but the ones lost were generally larger. One possible reason for this phenomenon is that when landlords raise the rent too high, tenants leave. But that doesn't explain why the rental inflation rate tends to be low if the tenant continues to stay in the apartment, at least for a few years, or so the paper by Hebrew University professor David Genesove argues. Instead, he suggests, finding a good tenant is not always easy for landlords, and so landlords tend to keep the rent low for continuing tenants.

Many of these problems were solved in 1978, when the BLS made a major revision to the methods by which it collects the data for the consumer price index. The 1978 revision, perhaps the BLS's most expensive makeover ever of its consumer price index, was intended to place the consumer price index on as sound a statistical footing as possible. As part of this revision, the BLS elected to shrink the size of the rental sample but put more resources into obtaining high response rates from the units. One step was to permit the price inspectors to go back to surveying landlords and real estate managers as well as tenants; in practice, this meant surveying mainly landlords and managers.

The BLS also conducted a number of studies examining the impact of the revised methods. The paper by Rivers and Sommers was one result; they found that new tenants were indeed now being included in the survey and that the rents for these new tenants tended to reflect higher rates of

inflation than other units. They also pointed out that the new method still omitted price increases in units that remained vacant at the time of their price inspection, and they were able to show that this produced a continuing downward bias in the price index.

Their work also pointed up a second problem: *recall bias*. One part of the 1978 revision to rent increases was a very clever idea: asking whether the rent had increased in the past month. As pointed out earlier, using the six-month change as if it had occurred in the past month creates a lag in the data. In the 1978 revision, the BLS began using a weighted average of the past month's increase with the six-month increase to create a more current index. Indeed, the way the BLS planned to do this would almost completely eliminate the lag in the index. Unfortunately, it turned out that recall of rent increases in the past month was very poor, perhaps because respondents perceive the rent to increase when the former tenant moves out, rather than at the start of the new tenant's occupancy (the BLS's definition).⁵ Whatever the reason, adding the one-month rent increases created an additional downward bias. So even after 1978, there continued to be downward biases, which were only fixed at the beginning of 1985.

NEW MEASURES OF RENTS

From 1942 to 1985, primarily because of nonresponse bias, the rent measure was understated. But we have direct evidence of the size of the bias only for 1978 forward. What to do? Our study attempts to "backcast" the size of the bias by setting up a model of the BLS measurement process, including various measured characteristics of the housing market, such as how often tenants move, how long apartments are vacant, and how much rents rise when tenants move. Figure 2 summa-

rizes the contributions of nonresponse bias, as measured by our model, aging bias, and recall bias to our new estimate of rental inflation from 1942 to 1985.

Most of the aspects of this model are testable using BLS data on rents. Such a data set, from the period 1985 to 1988, was made available by Genesove, who had used it in his study of rent dynamics. My co-authors and I were able to show that our model would have given a good approximation of biases from 1985 to 1988, a period of relatively low inflation, even though most of the parameters were calculated based on data from the high-inflation period of the late 1970s and early 1980s. We predict, for example, how much the inflation rate should change if tenants who move are omitted from the sample and then we check whether the rate changes by that proportion in Genesove's data. That parameters taken from a high-inflation episode can be used to match data from a low-inflation episode provides some assurance that the model can be used across periods that include episodes of both types.

We then used the model to estimate that the CPI tenant rent inflation from 1942 to 1985 was too low by 1 percentage point annually because of nonresponse bias and recall bias. During this time, it appears that the BLS missed nearly one out of three rental increases. Given that an aging bias of nearly 0.4 percent was also present in these data, we conclude that the CPI for tenant rents was downwardly biased by 1.4 percentage points annually for

⁵ Recall bias was somewhat worse when landlords and managers were the respondents; since landlords and managers have good records upon which to base their answers, this suggests a conceptual confusion on the part of the respondents rather than a factual one.

more than four decades.

This is a very large bias, cumulated over time. As noted earlier, we find that rather than falling 20 percent, as in the BLS estimates, rents rose 50 percent relative to other prices from 1942 to 1985. A similarly large downward bias estimate has also been put forward by Gordon and vanGoethem, using entirely separate data.

A Second Measure of Rental Inflation. Our approach was to take BLS rental information, based on information for individual housing units over time, and correct its biases. An alternative way to measure inflation – the route taken by Gordon and vanGoethem – is to measure the average cost of all rental units at two different dates and ask how much the quality of the average unit changed between the two dates. For their purposes, the U.S. censuses of housing and population, conducted every decade, and the American Housing Surveys, conducted at first annually and now every two years, provide estimates of average rents going back to 1930. These censuses and surveys also provide data on various features of the housing units, such as the presence of indoor plumbing, central air conditioning, and so forth.

Unfortunately, as we go back in time, the censuses provide fewer details. The earliest census Gordon and vanGoethem use has very little in the way of detail. Somewhat more detail on rental characteristics is available from a study by Clair Brown that uses budget studies performed by the Bureau of Labor Statistics going as far back as 1918. To estimate quality with skimpier data, Gordon and vanGoethem analyzed more recent decades to put reasonable bounds on their estimates for earlier periods. The main quality adjustments are based on trends in plumbing, central heating, and electrification. They can test

their estimates by examining how far off they would be if they used them on more recent data; by and large, their estimates seem to be reasonable.

This admittedly crude methodology does appear to make the best possible use of data other than the consumer price index data we use. Gordon and vanGoethem indicate that from 1940 to 1985, annual inflation has been understated by 1.2 percentage points; this is not far from our study's estimate of 1.4 percentage points.

Gordon and vanGoethem confirmed their estimate by looking at information on rents from Evanston, Illinois, from 1925 to 1999. They used classified advertisements on rents from a local newspaper to construct a rental price index. They were able to collect not only rents, along with some information on quality (such as number of rooms), but also matching apartment

rents at specific addresses, which is close to the BLS procedure. They constructed two rental indexes using these two types of data and found that they broadly agree. From 1940 to 1985, rents in Evanston, Illinois, rose roughly 1.6 percent faster than CPI rent inflation. However, one might worry that Evanston, a relatively wealthy suburb, has done better than the average location in the United States.

Taken together, these studies paint a very broad picture of inflation bias in rents from 1940 to 1985. Two very different approaches find bias in the same direction and of the same general magnitude for this period.

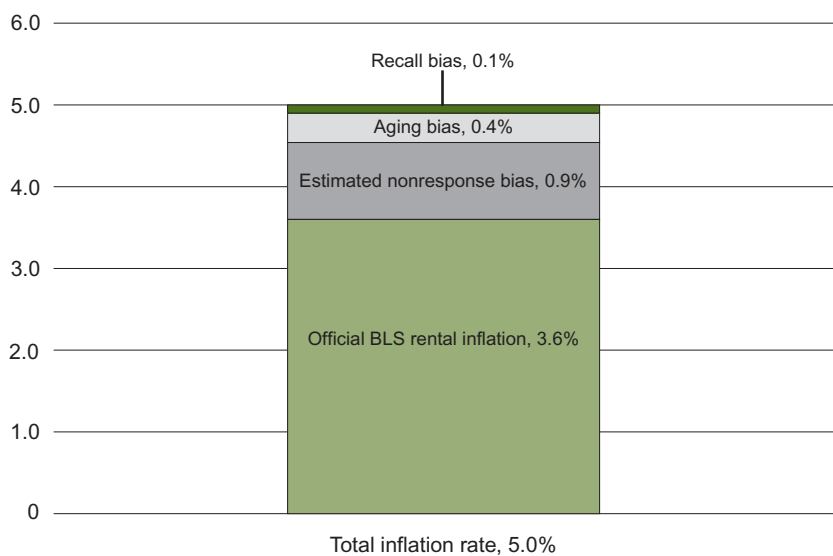
CONCLUSION

Housing services are an important part of what we consume. As we have seen, measuring inflation in housing services has, in the past, raised chal-

FIGURE 2

Components of Estimated Rental Inflation, 1942 to 1985

Annual percent changes (in logs)



Source: U.S. Bureau of Labor Statistics and Crone et al. (2006)

lenging problems that have not always been immediately recognized. One consequence is that our historical record of rents appears to be inaccurate. At the same time, we must recognize that this is an area in which the Bureau of Labor Statistics took vigorous steps to improve its measures. As a consequence, many of the problems that affected this measure have been solved.

We have argued that measuring rents accurately is important because housing services are a large part of consumption. Another reason accurately measuring rents matters is that since housing services are the benefit we receive from homeownership, rents are an important measure of house values. Inaccurate data on rents may generate conundrums when economists and others seek to understand house prices.


In a recent article in which he argues that house prices are now too high, Yale economist Robert Shiller

points out that since 1913, housing prices have risen relative to other prices, while rents have fallen. This is a puzzle because, over long periods, one might expect prices and rents to move together, since rents provide the economic basis for house prices. In fact, once we adjust for nonresponse and aging bias, both rents and house prices have risen over the past 90 years; this provides one possible solution to Shiller's puzzle.

In addition, having more accurate historical inflation statistics helps us better understand our economy. Many economic propositions depend on statistical models that can be accurately measured only with long data series. By improving this important economic series, we improve the ability of the economics profession to sort out good theories from bad ones.

Finally, economists have puzzled over the productivity slowdown that the U.S. experienced from 1975 to 1995, when output per hour in the

nonfarm business sector rose just 1.5 percent annually, compared with 2.4 percent annually from 1955 to 1975. If inflation has been understated, as I have argued it has for rents, then real output growth will tend to be overstated because for a given level of nominal rent payments, lower prices imply higher real consumption. While our new data do not make the post-1975 productivity slowdown vanish, they do reduce its size. In particular, our new data argue that output per hour was actually a bit lower from 1955 to 1975, growing 2.2 percent annually, the post-war average. However, the growth rate from 1975 to 1995 is also somewhat lower, at just 1.4 percent a year, since the data bias continued until 1985.

A difficult question that we have not fully faced up to in this article is: How accurately do rents for tenant units – even when adjusted as the BLS does – capture the housing services of owner-occupied units? This is an important area for future research. 

REFERENCES

- Brown, Clair. *American Standards of Living, 1918-1988*. Cambridge: Basil Blackwell, 1994.
- Chatterjee, Satyajit. "Homeownership, Taxes, and the Allocation of Residential Real Estate Risks," Federal Reserve Bank of Philadelphia *Business Review* (September/October 1996).
- Crone, Theodore M., Leonard I. Nakamura, and Richard Voith. "The CPI for Rents: A Case of Understated Inflation," Federal Reserve Bank of Philadelphia Working Paper 06-7 (January 2006).
- Crone, Theodore M., Leonard I. Nakamura, and Richard Voith. "Hedonic Estimates of the Cost of Housing Services: Rental and Owner-Occupied Units," in W. Erwin Diewert, Bert M. Balk, Dennis Fixler, Kevin J. Fox, and Alice O. Nakamura, eds., *Prices and Productivity Measurement*. Trafford Press, forthcoming.
- Davis, Morris E., and Jonathan Heathcote. "The Price and Quantity of Residential Land in the United States," Working Paper (October 2005).
- Gallin, Josh. "The Long-Run Relationship Between House Prices and Rents," Federal Reserve Board FEDS Working Paper 2004-50 (September 2004).
- Genesove, David. "The Nominal Rigidity of Apartment Rents," *Review of Economics and Statistics* (November 2003).
- Gordon, Robert, and Todd vanGoethem. "Downward Bias in the Most Important CPI Component: The Case of Rental Shelter, 1914-2003," in Ernst R. Berndt and Charles M. Hulten (eds.), *Hard to Measure Goods and Services: Essays in Honor of Zvi Griliches*. Chicago: University of Chicago, forthcoming.
- Haines, Michael R., and Allen C. Goodman. "A Home of One's Own: Aging and Homeownership in Late 19th Century and Early 20th Century America," in David I. Kertzer and Peter Loslett, eds., *Aging in the Past: Demography, Society, and Old Age*. Berkeley, CA: University of California Press, 1993.
- Nakamura, Leonard I., "Measuring Inflation in a High-Tech Age," Federal Reserve Bank of Philadelphia *Business Review* (November-December 1995).
- Nakamura, Leonard I. "The Retail Revolution and Food-Price Mismeasurement," Federal Reserve Bank of Philadelphia *Business Review* (May-June 1998).
- Poole, Robert, Frank Ptacek, and Randal Verbrugge. "Treatment of Owner-Occupied Housing in the CPI," BLS Working Paper at: www.bls.gov/bls/fesacp1120905.pdf.
- Randolph, William C. "Estimation of Housing Depreciation: Short-Term Quality Change and Long-Term Vintage Effects," *Journal of Urban Economics*, 23 (1988a), pp. 162-78.
- Randolph, William C. "Housing Depreciation and Aging Bias in the Consumer Price Index," *Journal of Business and Economic Statistics*, 6 (1988b), pp. 359-71.
- Rivers, Joseph D., and John P. Sommers. "Vacancy Imputation Methodology for Rents in the CPI," *Proceedings of the ASA Economics and Business Section* (1983), pp. 201-05.
- Shiller, Robert. "Long-term Perspectives on the Current Boom in Home Prices," *Economists' Voice* (March 2006).
- Sinai, Todd, and Nicholas S. Souleles. "Owner-Occupied Housing as a Hedge Against Risk," Federal Reserve Bank of Philadelphia Working Paper 05-10 (2005).



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HOUSEHOLD TRADING AND SEGMENTED MARKETS

The authors examine a monetary economy where households incur fixed transactions costs when exchanging bonds and money and, as a result, carry money balances in excess of current spending to limit the frequency of such trades. Since only a fraction of households choose to actively trade bonds and money at any given time, the market is endogenously segmented. Moreover, because households in this model economy have the ability to alter the timing of their trading activities, the extent of market segmentation varies over time in response to real and nominal shocks. The authors find that this added flexibility can substantially reinforce both sluggishness in aggregate price adjustment and the persistence of liquidity effects in real and nominal interest rates relative to that seen in models with exogenously segmented markets.

Working Paper 07-1, "Inflation and Interest Rates with Endogenous Market Segmentation," Aubhik Khan, Federal Reserve Bank of Philadelphia, and Julia Thomas, Federal Reserve Bank of Philadelphia

SEPARATION RATES AND UNEMPLOYMENT VARIABILITY: A REASSESSMENT

In a recent influential paper, Shimer uses CPS duration and gross flow data to draw two conclusions: (1) separation rates are nearly acyclic; and (2) separation rates contribute little to the variability of unemployment. In this paper, the authors assert that Shimer's analysis is problematic, for two reasons: (1) cyclicity is not evaluated systematically; and (2) the measured contributions to unemployment variability do not actually decompose total unemployment variability. The authors address these problems by applying a standard statistical measure of business cycle co-movement and constructing a precise decomposition of unemployment variability. Their results disconfirm Shimer's conclusions. More specifically, separation rates are highly countercyclical under various business cycle measures and filtering methods. The authors also find that fluctuations in separation rates make a substantial contribution to overall unemployment variability.

Working Paper 07-2, "Reassessing the Shimer Facts," Shigeru Fujita, Federal Reserve Bank of Philadelphia, and Garey Ramey, University of California, San Diego

OVERCONFIDENCE IN FINANCIAL MARKETS AND CONSUMPTION

Overconfidence is a widely documented phenomenon. Empirical evidence reveals two types of overconfidence in financial markets: investors both overestimate the average rate of return to their assets and underestimate uncertainty associated with the return. This paper explores implications of overconfidence in financial markets for consumption over the life cycle. The authors obtain a closed-form solution to the time-inconsistent problem facing an overconfident investor/consumer who has a CRRA utility function. They use this solution to show that overestimation of the mean return gives rise to a hump in consumption during the work life if and only if the elasticity of intertemporal substitution in consumption is less than unit. They find that underestimation of uncertainty has little effect on the long-run average behavior of consumption over the work life. Their calibrated model produces a hump-shaped work-life consumption profile with both the age and the amplitude of peak consumption consistent with empirical observations.

Working Paper 07-3, "Overconfidence in Financial Markets and Consumption Over the Life Cycle," Frank Caliendo, Colorado State University, and Kevin X. D. Huang, Vanderbilt University (formerly Federal Reserve Bank of Philadelphia)

CAPITAL AND MACROECONOMIC INSTABILITY

The authors establish the necessary and sufficient conditions for local real determinacy in a discrete-time production economy with monopolistic competition and a quadratic price adjustment cost under forward-looking policy rules, for the case where capital is in exogenously fixed supply and the case with endogenous capital accumulation. Using these conditions, they show that (i) indeterminacy is more likely to occur with a greater share of payment to capital in value-

added production cost; (ii) indeterminacy can be more or less likely to occur with constant capital than with variable capital; (iii) indeterminacy is more likely to occur when prices are modeled as jump variables than as predetermined variables; (iv) indeterminacy is less likely to occur with a greater degree of steady-state monopolistic distortions; and (v) indeterminacy is less likely to occur with a greater degree of price stickiness or with a higher steady-state inflation rate. In contrast to some existing research, the authors' analysis indicates that capital tends to lead to macroeconomic instability by affecting firms' pricing behavior in product markets rather than households' arbitrage activity in asset markets even under forward-looking policy rules.

Working Paper 07-4, "Capital and Macroeconomic Instability in a Discrete-Time Model with Forward-Looking Interest Rate Rules," Kevin X. D. Huang, Vanderbilt University (formerly Federal Reserve Bank of Philadelphia), and Qinglai Meng, Chinese University of Hong Kong

CYCLICALITY OF JOB LOSS, JOB FINDING, AND HIRING RATES

Drawing on CPS data, the authors show that total monthly job loss and hiring among U.S. workers, as well as job loss hazard rates, are strongly countercyclical, while job finding hazard rates are strongly procyclical. They also find that total job loss and job loss hazard rates lead the business cycle, while total hiring and job finding rates trail the cycle. In the current paper the authors use information from the Survey on Income and Program Participation (SIPP) to reevaluate these findings. SIPP data are used to construct new longitudinally consistent gross flow series for U.S. workers, covering 1983-2003. The results strongly validate the authors' findings, with two important exceptions: (1) total hiring leads the cycle in the SIPP data, and (2) the job loss rate is substantially more volatile than the job finding rate at business cycle frequencies.

Working Paper 07-5, "The Cyclicalities of Worker

Flows: New Evidence from the SIPP,” Shigeru Fujita, Federal Reserve Bank of Philadelphia; Christopher J. Nekarda, University of California, San Diego; and Garey Ramey, University of California, San Diego

THREE POINTS ABOUT PATENTS

The author uses intuition derived from several of his research papers to make three points. First, in the absence of a common law balancing test, application of uniform patentability criteria favors some industries over others. Policymakers must decide the optimal tradeoff across industries. Second, if patent rights are not closely related to the underlying inventions, more patenting may reduce R&D in industries that are both R&D and patent intensive. Third, for reasons largely unrelated to intellectual property, the U.S. private innovation system has become far more decentralized than it was a generation ago. It is reasonable to inquire whether a patent system that worked well in an era of more centralized innovation functions as well for the more decentralized environment of today.

Working Paper 07-6, “Economics and the Design of Patent Systems,” Robert M. Hunt, Federal Reserve Bank of Philadelphia

IMPLICATIONS OF URBAN DENSITY FOR LABOR MARKET SEARCH AND MATCHING

This paper generalizes and extends the labor market search and matching model of Berliant, Reed, and Wang (2006). In this model, the density of cities is determined endogenously, but the matching process becomes more efficient as density increases. As a result, workers become more selective in their matches, and this raises average productivity (the intensive margin). Despite being more selective, the search process is more rapid so that workers spend more time in productive matches (the extensive margin). The effect of an exogenous increase in land area on productivity depends on the sensitivity of the matching function and congestion costs to changes in density.

Working Paper 07-7, “Matching Externalities and Inventive Productivity,” Robert M. Hunt, Federal Reserve Bank of Philadelphia

MEASURING THE PERSONAL SAVING RATE

Is it possible to forecast using poorly measured data? According to the permanent income hypothesis, a low personal saving rate should predict rising future income (Campbell, 1987). However, the U.S. personal saving rate is initially poorly measured and has been repeatedly revised upward in benchmark revisions. The authors use both conventional and real-time estimates of the personal saving rate in vector autoregressions to forecast real disposable income; using the level of the personal saving rate in real time would have almost invariably made forecasts worse, but first differences of the personal saving rate are predictive. They also test the lay hypothesis that a low personal saving rate has implications for consumption growth and find no evidence of forecasting ability.

Working Paper 07-8, “Mismeasured Personal Saving and the Permanent Income Hypothesis,” Leonard I. Nakamura, Federal Reserve Bank of Philadelphia, and Tom Stark, Federal Reserve Bank of Philadelphia

BASEL II AND ITS POTENTIAL COMPETITIVE EFFECTS

The authors analyze the potential competitive effects of the proposed Basel II capital regulations on U.S. bank credit card lending. They find that bank issuers operating under Basel II will face higher regulatory capital minimums than Basel I banks, with differences due to the way the two regulations treat reserves and gain-on-sale of securitized assets. During periods of normal economic conditions, this is not likely to have a competitive effect; however, during periods of substantial stress in credit card portfolios, Basel II banks could face a significant competitive disadvantage relative to Basel I banks and nonbank issuers.

Working Paper 07-9, "Competitive Effects of Basel II on U.S. Bank Credit Card Lending," William W. Lang, Federal Reserve Bank of Philadelphia; Loretta J. Mester, Federal Reserve Bank of Philadelphia and The Wharton School, University of Pennsylvania; and Todd A. Vermilyea, Federal Reserve Bank of Philadelphia

FORGIVE AND FORGET?

In many countries, lenders are not permitted to use information about past defaults after a specified period of time has elapsed. The authors model this provision and determine conditions under which it is optimal.

They develop a model in which entrepreneurs must repeatedly seek external funds to finance a sequence of risky projects under conditions of both adverse selection and moral hazard. They show that forgetting a default makes incentives worse, *ex-ante*, because it reduces the punishment for failure. However, following a default it is generally good to forget because pooling riskier agents with safer ones makes exerting high effort to preserve their reputation more attractive.

The authors' key result is that if agents are sufficiently patient and low effort is not too inefficient, the optimal law would prescribe some amount of forgetting — that is, it would not permit lenders to fully use past information. The authors also show that such a law must be enforced by the government — no lender would willingly agree to forget. Finally, they also use their model to examine the policy debate that arose during the adoption of these rules.

Working Paper 07-10, "Bankruptcy: Is It Enough to Forgive or Must We Also Forget?," Ronel Elul, Federal Reserve Bank of Philadelphia, and Piero Gottardi, Università Ca' Foscari di Venezia

USING STATE-LEVEL DATA TO GAUGE EMPLOYMENT GROWTH VOLATILITY

This study documents a general decline in the volatility of employment growth during the period 1960 to 2002 and examines its possible sources. A unique

aspect of the analysis is the use of state-level panel data. Estimates from a pooled cross-section/time-series model indicate that aggregate and state-level factors each explain an important share of the total variation in state-level volatility. Specifically, state-level factors have contributed as much as 29 percent, while aggregate factors are found to account for up to 45 percent of the variation. With regard to state-level factors, the share of state total employment in manufacturing and state banking deregulation each contributed significantly to fluctuations in volatility. Among the aggregate factors separately identified, monetary policy, changes in the inventory-to-sales ratio, changes in the ratio of total trade to GDP, and oil prices significantly affected state-level volatility, although to differing degrees.

Working Paper 07-11, "The Long and Large Decline in State Employment Growth Volatility," Gerald Carlino, Federal Reserve Bank of Philadelphia; Robert DeFina, Villanova University, and Visiting Scholar, Federal Reserve Bank of Philadelphia; and Keith Sill, Federal Reserve Bank of Philadelphia

U.S. LABOR MARKET: JOB LOSS, JOB FINDING, AND VACANCIES

This paper establishes robust cyclical features of the U.S. labor market by estimating VAR models of the job loss rate, job finding rate, and vacancies. To identify the "aggregate business cycle shock," the author adopts the agnostic Bayesian identification approach developed by Uhlig (2005) and others. His approach traces not only responses of transition rates and vacancies but also those of gross job losses and hires and thereby the stock of unemployment in one unified framework. The author finds that when a negative shock occurs, (i) both the job loss rate and gross job losses rise quickly and remain persistently high, (ii) the job finding rate and vacancies drop in a hump-shaped manner, and (iii) gross hires respond little initially but eventually rise. He argues that these results point to the importance of job loss in understanding U.S. labor market dynamics. The

paper also considers the “disaggregate model,” which uses data disaggregated by six demographic groups and incorporates transitions into and out of the labor force. The author finds that job loss continues to play a dominant role among prime-age male workers, while, for other groups, changes in the job finding rate are more important.

Working Paper 07-12, “Dynamics of Worker Flows and Vacancies: Evidence from the Agnostic Identification Approach,” Shigeru Fujita, Federal Reserve Bank of Philadelphia

ESTIMATING POVERTY TRENDS AMONG WORKING FAMILIES

This study provides empirical evidence on recent trends in poverty among working families based on the headcount rate and a broader alternative that incorporates the headcount rate, the depth of poverty, and income inequality among the poor. Estimates

reveal that the indexes produce significantly different trends. The headcount rate indicates a reduction in overall working poverty for the sample period, while the alternative index showed no statistically significant change. The same result was found for various population subgroups. Decompositions of the index changes show that tax changes contributed to lower values for both the headcount rate and the alternative index, largely due to recent expansions of the earned income tax credit. Changes in transfer payments added to measured poverty, mirroring the retrenchment of welfare and other transfer programs. Shifts in market-based income decreased both indexes.

Working Paper 07-13, “A Comparison of Poverty Trends and Policy Impacts for Working Families Using Different Poverty Indexes,” Robert H. DeFina, Villanova University, and Visiting Scholar, Federal Reserve Bank of Philadelphia