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IN THIS ISSUE

- Where Does the Corporate "Health Dollar" Go?
- The Consumer Price Index Overstates Inflation
- Momentum Strategies Can Increase Returns

Where Does the Corporate "Health Dollar" Go?

Large corporations spend a great deal of money on health plans for their employees. In a recent study for the NBER, **Mark McClellan** and **David Wise** investigate how that money is spent. In **Where the Money Goes: Medical Expenditures in a Large Corporation** (NBER Working Paper No. 5294), they analyze detailed data on insurance claims from 1989-92 under the employer-provided health plan of an unidentified *Fortune* 500 company. The company employs around 300,000 individuals, and has distinct coverage for hourly versus salaried employees: the unionized hourly workers get "first dollar" coverage for virtually all health care; the salaried workers have annual deductibles of \$200 per individual or \$250 per family, a 20 percent coinsurance rate, and an out-of-pocket annual limit of \$500.

McClellan and Wise find that no individual health problem accounts for an overwhelming share of the company's total health care cost. However, the six most expensive diagnoses in order of total expenditures in 1990 were: substance abuse, ischemic heart disease, acute psychotic disorders (for example, delirium induced by alcohol, drugs, or psychological disturbances), pregnancy and childbirth, back and spine disorders, and neurotic disorders. Including substance

abuse, three of the top six diagnoses are mental health problems. Together they accounted for at least 10 percent of all costs in all groups under 45 years of age. Among hourly male workers, substance abuse claims accounted for 20 percent of the expenditures of those aged 18 to 34 and 18 percent of the expenditures of those aged 35 to 44.

Heart disease accounted for a

counted for 20 percent of expenditures in the salaried groups and 15 percent in the hourly groups. Together, pregnancy and childbirth comprised the fourth most expensive "health problem," representing about 25 percent of all health care costs for women aged 18 to 34.

On balance, McClellan and Wise find, health care costs for women employees were greater than for men, when retirees and others over age 65 are excluded. The medical

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major fraction of expenditures in males starting at age 35, reaching nearly one-third of expenditures for those aged 55 to 64. Cancer accounted for a large fraction of the claims of women. For younger women, the costs were associated mainly with preventive treatments, such as gynecological exams and mammograms. For women age 45 and over, cancer-related costs ac-

expenditures of the hourly working women typically were 5 to 7 percent higher than those of the men, although the difference was more than 20 percent for those in the prime childbearing years (ages 18 to 34). The salaried women aged 18 to 34 spent almost 80 percent more than the men in their age group. At age 35 to 44, salaried women spent 54 percent more than

men, while at age 55 to 64 they spent 16 percent less than men.

McClellan and Wise also find that employees with high expenditures in the first sample year (1989) are highly likely to have high expenditures in 1991. In 1989, about 80 percent of costs were incurred by 10 percent of enrollees. Fifty percent of employees incurred virtually no cost. Averaging costs over three years, the authors calculate, 10 percent of enrollees account for 65 percent of expenditures. The average expenditure for all enrollees (including family members) over the three years from 1989 to 1991 was \$1314 per year. Those in the most expensive 10 percent in 1989 spent over eight times the average in that year. Even averaged

over the entire period, those in the top 10 percent in 1989 spent about five times as much as the average employee.

The authors further find that only about 49 percent of the company's total cost is incurred by employees: \$230.6 million out of \$471.6 million. The rest is attributable to employees' family members. About 32 percent of total cost is attributable to retirees and their family members: \$149.3 million.

Finally, taking the actual costs of the hourly and salaried plans in the firm as a basis, the authors calculate the fair "premium" that would be needed for three alternative health insurance plans. If all employees had a plan with "first dol-

lar" coverage and no deductibles or copayments, the average premium to the company per individual would rise from an average \$1397 to \$1437. If the company implemented a plan with a \$1000 deductible, a 20 percent copayment, and \$4000 annual out-of-pocket maximum for the worker, the premium would be \$961. If the company put in place a "catastrophic" coverage plan with a \$4000 deductible, the premium per worker would be \$770. The latter two plans, the authors note, would provide a strong incentive to workers to limit their health-care spending. However, their calculation of the premiums takes no account of the impact of that incentive on actual medical spending. DRF

The Consumer Price Index Overstates Inflation

According to a recent NBER study by **Matthew Shapiro** and **David Wilcox**, the consumer price index (CPI) is one of the most carefully researched and best executed statistical programs in the United States. Nonetheless, it overstates increases in the cost of living by a considerable margin. In **Mismeasurement in the Consumer Price Index: An Evaluation** (NBER Working Paper No. 5590), Shapiro and Wilcox show that the midpoint (median) of the probability distribution for the overall bias in the CPI is just under 1 percentage point per year. About 80 percent of the distribution lies be-

ly calculated, overstates the rate of inflation by at least 0.6 percentage points per year.

Much of the current interest in measurement problems in the CPI is driven by its role in the federal budget. Social Security benefits are indexed to the CPI; tax brackets also are adjusted according to changes in the CPI. A 0.5 percentage point permanent reduction in the annual rate of growth of the CPI after five years would reduce the federal deficit by \$26 billion and the debt outstanding by \$67 billion.

Mismeasurement of the CPI also

inflation. This fact might underlie the willingness of some central banks to tolerate positive measured inflation while avowing price stability. For short- to medium-term monetary policy, the most important aspect of the bias in the CPI may be its year-to-year variation. Unfortunately, there is little evidence on this, but what there is points toward noticeable variability year-to-year.

Bias in the CPI also has implications for official statistics. A 1 percentage point error in measuring the CPI components that enter the national accounts would lead to an understatement of annual growth in real GDP by about 0.5 percentage points. Statistics based directly on the CPI—the real wage and the poverty level, for example—suffer a one-for-one effect from biases in the CPI. However, CPI biases do not explain the slowdown in the rate of growth of productivity and real wages, because these biases have been present throughout the sample period, and even may have diminished over time.

Some of the measurement prob-

"[T]he available evidence suggests a 90 percent probability that the CPI, as currently calculated, overstates the rate of inflation by at least 0.6 percentage points per year."

tween 0.6 percentage points per year and 1.5 percentage points per year. In other words, the available evidence suggests a 90 percent probability that the CPI, as current-

has implications for monetary policy. The existence of an upward bias in the rate of growth of the CPI implies that price stability corresponds to positive *measured* CPI

lems in the CPI can be addressed relatively straightforwardly. For example, the Bureau of Labor Statistics (BLS) could use currently available data from the Consumer Expenditure Survey to update expenditure weights more frequently. It also could change the way it combines different price observations on individual items, as well as the way it aggregates across items.

Other measurement problems—those involving new goods, new outlets, and quality change—are more difficult to address. Progress on these problems typically will require specific research on individ-

ual items. The medical care components of the CPI are likely to have serious shortcomings, and hence are a fruitful area for specific research.

In this paper, Shapiro and Wilcox study the price of cataract surgery as an example of the current mispricing of medical care and as a prototype of how the BLS might improve the CPI for medical care. The BLS prices medical services by measuring the cost of inputs—doctors' fees and hospital charges, for example—but the CPI fails to reflect the decline over time in the use of these inputs. In the early

1960s, a typical cataract patient spent seven days in the hospital; now cataract surgery is done on an outpatient basis. Shapiro and Wilcox find that a price index for cataract surgery constructed using CPI methodology increased 9.2 per year from 1969 to 1994, while they estimate that the actual price of cataract surgery increased only 5.1 percent per year. Moreover, this difference between the CPI methodology and the one that takes into account the decline in the use of inputs understates the bias in the CPI because it makes no attempt to account for the substantially improved outcomes of cataract surgery.

Momentum Strategies Can Increase Returns

The past doesn't foretell the future, but stock market investors often turn to history as the best available guide. One of the most popular stock-picking strategies, momentum investing, relies on a stock's recent performance as a predictor of future returns. Momentum investors assume that a stock that has outperformed the market recently will continue outperforming, and that shares in a company that has reported unexpectedly high earnings will do better than shares in other companies. Not all stock market players accept this theory. But after studying the behavior of the common stocks traded on the three largest U.S. exchanges, **Louis Chan, Narasimhan Jegadeesh, and Josef Lakonishok** conclude that momentum investors have a sound idea.

In **Momentum Strategies** (*NBER Working Paper No. 5375*), the three economists investigate whether momentum investing works and why. The answers are not intuitive, because momentum investors base their actions on two very different variables: past performance and positive earnings momentum. Neither variable should lead to unusually high returns if markets are fully efficient in incorporating new

information, because in that case prices should adjust immediately.

The three economists consider all of the common stocks traded on the three largest U.S. exchanges from 1977 to 1993, grouping them into ten portfolios based on various indicators of momentum. For example, when stocks are sorted by prior six-month return, they estimate spreads in returns of 8.8 percent between the top and bottom portfolios over the subsequent six months, and of 15.4 percent

lived than the earnings momentum effect from past earnings surprises.

"The bulk of the evidence suggests that the drifts in future returns are not subsequently reversed, so momentum does not appear to be entirely driven by positive feedback trading," the authors explain. The trends in prices are particularly notable for stocks with the worst past earnings performance, whose returns are below average for up to three years after the sample time period. The fact that

"[W]hen stocks are sorted by prior six-month return, they estimate spreads in returns of 8.8 percent between the top and bottom portfolios over the subsequent six months, and of 15.4 percent over the first year."

over the first year. Similarly, ranking stocks by past revisions in consensus estimates of earnings, they find spreads of 7.7 percent over the next six months and 9.7 percent over the first year. In general, the authors conclude that the price momentum effect from prior returns tends to be stronger and longer-

returns for the past winners are high only in the first subsequent year, but are not much different from the average in the second or third years, poses a challenge for risk-based explanations of the profitability of momentum strategies.

An alternative explanation is that the market responds only gradually

to new information. Since earnings provide an ongoing source of information about a firm's prospects, the authors focus on the market's reaction when earnings are released. Indeed, a substantial portion of the momentum effect is concentrated around subsequent earnings announcements.

Another piece of evidence compatible with the sluggish response of market participants is the prolonged adjustment of analysts' forecasts. The inertia in revising forecasts may hinder the market in assimilating new information in a

timely fashion. In particular, analysts are especially slow in revising their estimates in the case of companies with the worst performance.

When the authors disentangle the sources of the momentum strategies' performance, they find that each of the variables they analyze—prior returns, as well as each of the earnings surprise variables they consider—predicts only a portion of the postformation drifts in returns. Each momentum strategy thus draws upon the market's underreaction to different pieces of information.

One final note of caution is necessary, the authors write. The spreads that they document for momentum strategies may not be fully capturable. Given the constraints that many investors face, it may not be feasible to establish short positions in stocks with low momentum. A momentum strategy is trading-intensive, and stocks with high momentum tend to be smaller issues, whose trading costs tend to be relatively high. These implementation issues will reduce the benefits from pursuing momentum strategies. ML

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