Neutrino Economics ... Today's paper announced some big news about a little particle, the neutrino, that has transformed the universe—in theory. Physicists have a conventional model that describes the operation of the universe, but they have long argued about the basic laws of subatomic particles and their attracting forces. The disagreements are so fundamental that some eminent physicists believe the universe is expanding, others that it is shrinking. The standard model decrees that neutrinos have no mass. An international team of physicists' discovery that neutrinos do have mass (albeit very, very little) invalidates a key element of the standard model and creates a vacuum at its center.

Theoretical physicists may have been thrown for a loop over this neutrino business (“It shows us that we really just don’t know nothin’,” observed a Nobel physics laureate), but don’t expect planets to stop orbiting the sun, cellular telephones to break down, or magnetic resonance imaging equipment to overlook tumors. The standard model of particle physics and attracting forces has served to address a wide range of important questions, allowing physicists to advance our knowledge of the universe and contribute ideas that underpin many new products and services. By modifying standard theory to account for the nontrivial neutrino, physicists may attain vast new universes of knowledge.

Like physics, economics has a standard model representing the mainstream view of how the economy works. This model has evolved over time to reflect the latest advances in economic thinking (provided the new ideas fit historical data and provide plausible forecasts). Conventional wisdom holds that in the short run, output is determined by the strength of total demand, while in the long run, output is constrained by supply factors like labor force growth and productivity. Inflation is a monetary phenomenon, but in the short run, price-level movements can be affected by many special factors.

Large-scale macroeconomic models spell out the theory through a set of equations that are estimated using historical data. Forecasts are generated by making assumptions about variables’ future behavior and monetary policy actions. Although forecasts can go astray for many reasons, it is always useful to consider whether a model gives erroneous projections when the correct assumptions are made. Could certain features of the model’s structure be inaccurate? Is the theory behind the wage determination process wrong? Are foreign economic conditions inappropriately accounted for? Has the productivity trend escalated? These questions are equivalent to asking about the correct mass of neutrinos.

Although the current economic boom is terrific, it makes life difficult for economic soothsayers and those who rely on them. Forecasters and policy advisors who use the standard model have repeatedly been embarrassed by an economy that persists in expanding more vigorously—and with lower inflation—than the conventional wisdom would allow. With the business cycle stubbornly defying their logic, practitioners are in disarray. On television and in print, the revisionists fervently explain how the economy has changed, while the skeptics defensively assert that the change is only apparent.

Business cycle theory, like particle physics, is an incomplete science. Economists, like physicists, have long sought a unified theory to explain all the laws of motion elegantly, without introducing special factors or making ad hoc adjustments. So far, perfection has proven elusive. It is one thing, however, to realize that the conventional model cannot explain all phenomena, and quite another to discard that model with nothing better to replace it. Anyone can tell a plausible story that explains current data, and, as news reports verify, this creates many simultaneously plausible stories. The business of science is to construct superior models, but they take time to build and validate. The existence of the neutrino, for example, was theoretically posited in the 1930s, but it has taken more than 50 years to make an accurate estimate of its mass.

Had the Federal Open Market Committee been basing monetary policy solely on forecasts driven by conventional wisdom during the past several years, it would likely have acted already to head off expected inflationary pressures. That it did not suggests a willingness to chart its own course in an economic universe filled with black holes. Since economists probably will not repair the model fully in the near future, it would help if observers knew as much as possible about the Committee’s destination and assumptions. That knowledge may prove to be a matter of considerable gravity.
The Federal Open Market Committee (FOMC) has acted only once in the past 29 months to change its operating target for the federal funds rate. That action—taken in March 1997—increased the intended funds rate just 1/4 percentage point. By historical standards, the duration of such a passive stance is quite unusual.

To a large extent, the absence of action was made possible by persistent, deliberate efforts since 1979 to achieve progress toward price stability. The credibility gained through these efforts has created an environment in which inflation expectations do not influence private investment decisions. Consequently, market interest rate movements tend to be limited to variations in real economic conditions.

Although opinions on the direction of policy have vacillated in recent months, expectations of further actions have been restrained. The Fed funds futures market indicates that participants have not looked for any substantial changes over horizons of five months or so. In recent weeks, futures contracts reveal that no change in the funds rate is expected through November.

The long-term decline in inflation expectations has contributed to favorable capital market conditions. Bond rates are near their 30-year lows. This has been a key factor in the stock market's outstanding performance since 1982. The earnings/price ratio historically follows the 10-year Treasury yield. Falling rates have allowed stock prices to rise even faster than earnings, which have increased at a torrid pace.

Maintaining credibility is essential if the FOMC is to prolong the favorable financial conditions necessary for rapid output growth with low (continued on next page)
inflation. Hard-won gains in credibility could be forfeited if policymakers fail to head off potentially inflationary pressures swiftly. One concern is the upward trend in growth rates for the broad money measures.

M2, for example, has accelerated in each of the past four years. Thus far in 1998, it has increased almost 7%. Much of the run-up can be traced to the extraordinary increases in April tax bills due to unanticipated capital gains, and to refunds that are higher than normal. These effects have been winding down in late spring.

Although the role of the M2 monetary aggregate in policy deliberations has diminished since 1993, its historical relationship to economic activity has reemerged. Since 1994, M2 velocity—the ratio of nominal GDP to M2—has stabilized around a moderately increasing trend. One implication is that further increases in the M2 trend would ultimately be reflected in an acceleration of nominal GDP, a situation that is not consistent with price stability.

The MZM money measure equals M2 less small time deposits, but includes institutional money market mutual funds. Like M2, its sharp rise in early 1998 largely reflected tax payments. This is most evident in its savings deposit component, which displays a surge and a subsequent offsetting decline around the April 15 tax deadline.

The narrow monetary aggregates, which have been growing more slowly, are difficult to interpret. Their growth rates reflect increases...
in sweep accounts and foreign demand for currency. Sweep accounts effectively reduce the level of checking accounts relative to spending. For example, even though reserves declined in recent years, the economy accelerated. Adjustment for the effects of sweep accounts reveals that over the past two years, reserves would have grown a robust 6.5% in the absence of sweeps.

The U.S. economy’s relatively healthy state in the world arena has made the dollar an attractive store of value in countries whose economies or financial systems are unsettled. For example, currency growth surged after the Berlin Wall fell. An important positive effect is that foreign willingness to hold U.S. currency—a form of non-interest-bearing debt—reduces Treasury interest payments and hence the burden on U.S. taxpayers.

Foreign holdings, however, are inherently difficult to measure. Since their swings are generally not related to domestic economic conditions, they can obscure the informational value of the monetary base, which is largely composed of currency. Since 1994, annual monetary base growth varied between 2% and 10.5%. When adjusted for the effects of foreign currency demand and sweep accounts, the aggregate varies within a narrower range of 4.5% to 9.5%. Although its growth rate has been trending downward, the adjusted measure is still increasing at a robust pace.
Is the Stock Market Overvalued?

With the Standard and Poor’s 500 still near the record highs set earlier this year, analysts and investors alike are asking, “Are stock prices too high?” To answer this question, two adjustments are useful.

First, stock prices should be adjusted for inflation. By way of comparison, in measuring output, we typically focus on real output so that we do not get fooled by changes in the general price level. Making a similar adjustment for stock prices still leaves a marked upward trend.

Second, economic theory says that the “fundamental price” of a stock will depend on its dividends — or, more precisely, on the expected present discounted value of its dividends. This expectation is difficult to measure, but should closely mirror changes in real output over the long haul. This means that if stocks are rationally valued, the ratio of the Standard and Poor’s (S&P) 500 — an index of the market as a whole — to nominal GNP should be fairly stable.

By this measure, current stock prices are hardly remarkable. In fact, the ratio of stock prices to nominal GNP was far higher at the turn of the century than today. Were stocks overvalued then? Since World War II, the ratio has been fairly stable. Relative to output, however, stock prices were higher in the mid-1960s, a time of robust economic growth. Perhaps current stock prices are not so far out of line.

The ratio of the S&P 500 to nominal GNP is high when inflation is low, and vice versa, suggesting that low inflation is good for the market.
The yield curve remains relatively flat; short rates have moved up and long rates have moved down since last month. The often-watched 3-year, 3-month spread has narrowed from 64 basis points to 47, and the popular 10-year, 3-month spread has moved from 70 basis points to 48. Both remain well below their historical averages of 80 and 120 basis points, respectively. The middle range continues to show an inversion, with 7-year rates 8 basis points above 10-year rates.

Such a flat curve generally indicates slower economic growth, but the yield curve has been underpredicting GDP growth for about a year now. Previous episodes of flattening were driven by an increase in short rates; this time, however, the yield curve has flattened primarily because long rates have fallen. This trend is apparent in mortgages, municipal bonds, and utility rates, as well as in 30-year Treasury bonds.

Short rates appear rather quiet by other measures as well. The monthly variance of the 3-month T-bill yield (scaled to account for the fact that bigger changes occur more often at higher interest rates) has been remarkably stable since the spring of 1995. Some of this stability probably reflects monetary policy and the absence of recessions, as a glance at the turbulent years of 1979–82 will confirm. The most recent period indicates that rapid economic growth and wide swings in interest rates need not produce turmoil in the bond markets.
Gold prices have begun to rebound in 1998, reversing the downward trend that began nearly two years ago. Analysts have attributed this recent strength to reduced fears that central banks will sell off their gold, good U.S. economic news, and less selling pressure by speculators. Some have gone further, suggesting the possibility of an upward trend. These analysts argue that, by increasing the extraction price, environmental regulations are reducing the supply of gold. Furthermore, some mines are not making a profit at current prices and may be expected to cut output or shut down, further reducing supply.

Futures prices continue to track spot prices closely. The basis (the spot price minus the futures price) remains negative, as is usual for an easily storable commodity whose supply is large relative to annual consumption. This is predicted by the cost-of-carry model, which argues that the futures price will be the spot price plus the cost of storing the commodity.

Some people use gold prices to predict inflation, since gold has often signaled inflation rate changes over the past two decades. As the scatterplot makes clear, however, the relationship is closest for the high-inflation years of the early 1980s. In periods of low inflation, the relationship shows more uncertainty. Thus, the recent increase should be taken as suggestive, but not indicative, of higher inflation in the months ahead.
Retail prices took a step higher in April, as the Consumer Price Index (CPI) rose an annualized 3%—twice its average increase over the past 12 months. Excluding food and energy, the CPI jumped an annualized 3.5% during the month, another rather sharp rise from its recent trend.

The April retail price report is a departure from the startling drop in the inflation trend over the past year or so. In fact, the recent 12-month trend increase in the CPI is ½ percentage point below the lower end of the Federal Open Market Committee’s 1998 central tendency projection.

Economists anticipate that the CPI will gradually return to a trend growth rate near 2½% by the end of this year, although the range of opinion seems unusually wide. Pessimists see the inflation trend moving back above 3% by year’s end and continuing to inch upward over the course of 1999, while optimists expect inflation to remain below the 2% mark for the remainder of the century.

Economic pessimists might be swayed by persistent acceleration in the growth of the broader money measures since 1994. Few economists challenge the notion that over long horizons, the inflation trend closely follows the growth rate of the money supply. Still, measurement difficulties and the long, variable lags that are presumed to separate a money supply expansion from (continued on next page)
Inflation and Prices (cont.)

its ultimate influence on the price level cause the growth rate of the broad money measures to deviate from inflation for prolonged periods. This delay forces economists to rely on other “leading indicators” to gauge the economy’s future inflation trend. Unfortunately, these indicators have been sending mixed signals for some time now.

For example, the latest Blue Chip survey shows that households anticipate a small improvement in the inflation rate for the coming year as well as five to 10 years ahead. Wage demands seem to be on the rise, however, and economists are forecasting further acceleration in wage growth for 1999.

Commodity futures prices, often viewed as a bellwether of the inflation trend, have been on a downward trek since early 1996 and show little inclination to turn around.

Asset prices, which sometimes provide insights into the liquidity excesses that may ultimately show up as inflation, are inconclusive. Real estate indicators, like housing and farmland prices, have far outpaced the CPI trend in recent years. But gold prices, which many judge to be a good signal of the economy’s inflationary potential, have moved sharply lower.
Revised GDP estimates, recently released by the Department of Commerce, show that the economy grew 4.8% in the first quarter, more than a half-point higher than was reported earlier. The bulk of the revision can be attributed to a substantial upward revision to business inventories. Consumer spending also grew faster than previously estimated. A large downward revision to net exports, caused by higher-than-expected imports, partially offset these increases. Economists participating in the May 10 Blue Chip survey expect economic growth to slow to around 2.4% during the current quarter, and to 2.3% for the rest of the year.

The consumer sector continues to exhibit strength. In April, real personal consumption expenditures rose a robust 4.5% on a year-over-year basis. Real disposable personal income also continued to show healthy growth. Consumer confidence remains strong, reflecting optimistic expectations for the economy in coming months.

Although housing starts and building permits slipped somewhat in April, their levels continue to indicate a vigorous housing sector. These series are quite volatile, and data for the year have been affected by unusual seasonal factors. Mild...
Inventories surged $100.7 million in the first quarter. Stockpiling of goods is often an indicator of sluggish future growth. However, high inventory levels may be justified if they are accompanied by a correspondingly high level of sales. Inventory/sales ratios have remained low, with the only significant increases in the last few months occurring at the wholesale level.

The U.S. trade deficit in goods and services soared to a record high of $13 billion in March, marking its fourth straight monthly increase. Many forecasters warn that the U.S. trade balance will continue to deteriorate over the next year or so. Since 1991, real U.S. net exports have declined, largely in response to relatively fast growth at home. Typically, our trade deficit narrows when the growth differential between the U.S. and its trading partners exceeds approximately two percentage points. Recent growth projections imply a differential of less than that amount, suggesting that there will be no improvement in the trade deficit in the near term.
Labor markets remained strong in May, according to the latest report from the Bureau of Labor Statistics. Nonfarm payrolls rose 296,000 for the month, a far bigger increase than was widely expected. All the jobs growth came from the service-producing sector, which added over 300,000 positions. Specifically, services (narrowly defined) and retail trade showed big gains, increasing their payrolls by 135,000 and 69,000, respectively. The goods-producing sector actually cut payrolls by 36,000. Manufacturers eliminated 19,000 jobs in May, for a net loss of 3,800 so far this year.

The unemployment rate for May stayed at its 28-year low of 4.3%. When the jobless figure first reached this level in April, many people suspected that it was artificially low. However, this month’s release confirmed that the unemployment rate has reached a new modern nadir. The unemployment rate for 1998 thus far is 4.5%, the best five-month average since May 1970.

Average hourly earnings continued to grow at a strong pace last month, increasing 4.3% from May of last year. For the current business expansion, which began in March 1991, this May’s strong earnings growth is second only to April’s. Earnings of workers in the goods-producing sector increased 1.5 percentage points more slowly than those in the service-producing sector.
How will our economy look in 2006? Many sources of uncertainty confound long-run projections like the Bureau of Labor Statistics’ (BLS) estimates of employment patterns. Nonetheless, these prognostications can help employers, students, and even current workers because they are relevant to decisions on hiring, training, and retraining. To be useful, labor market projections should include estimates of both the supply of workers with various skills and firms’ demand for workers in each skill category.

The most reliable elements of the BLS estimates are the demographic patterns, which largely determine how many workers will be available. For example, today’s children turn into tomorrow’s workers, so larger or smaller birth numbers will yield more or less employment growth. Baby boomers alter the workforce’s age distribution by swelling the ranks of middle-aged and older workers and by producing boomer babies, whose numbers will enlarge the youngest categories of workers (16–24).

The other key demographic is the labor force participation rate, broken down by age and sex. Women’s growing participation has brought their share of total employment to almost half (46.2% in 1996). Simultaneously, men’s participation rates have fallen. The BLS expects these trends to continue, but to become more gradual over the 10-year forecast horizon.

For long-term predictions, business cycle patterns of strong or weak labor demand are far less

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relevant than the composition of U.S. industries. Here, the trend toward more service-sector employment and fewer manufacturing jobs is expected to continue. Indeed, all the fastest-growing industries are service producers, while all the fastest-shrinking industries are goods producers. These forecasts are strongly influenced by higher manufacturing productivity, which allows firms to create more goods with fewer workers.

Detailed forecasts by narrow industry are essential for identifying employers’ occupational needs. Current occupational requirements by industry are used as a baseline for future needs. The BLS adjusts these numbers to reflect present and expected trends. For example, in its most recent forecast, the BLS lowered its estimates of employment growth for administrators because corporate restructuring is eliminating many middle-management positions. More highly trained professional specialists are expected to be needed in many industries, but the most urgent demand will arise in education and health services. Overall, the prediction is that employment growth will be strongest in the high-skill occupations, but all broad occupational groups will realize some growth.

Similarly, the fastest growth will continue in jobs requiring advanced degrees. Most occupations now require no specific educational level, although having a degree may help secure a job even in occupations that the BLS considers to require nothing more than on-the-job training. Thus, the rising education requirements of the workplace probably translate into further increases in the general demand for educated workers.

One of Ohio’s most important commodities is wheat, which accounted for $246.9 million, or 15%, of its total agricultural exports in 1996—third only to feed grains and soybeans. In fact, Ohio ranked thirteenth nationwide in 1997 production of the crop.

The U.S. Department of Agriculture’s 1998 wheat outlook anticipates increased supply, lower prices, and heightened consumption. Production of both hard and soft winter wheat is expected to decline from 1997 levels because fewer acres were planted and because the yield is pegged to drop 3.1 bushels per acre. Even so, with beginning stocks 73% higher than a year ago and a steady year-over-year increase in imports, the U.S. wheat supply is forecast to rise 5%, reaching its highest level since 1990.

The hard red winter crop survived the cold weather but needs rain to mature, especially in Montana and Texas. Disease caused by excessive moisture is a concern in the soft red regions. As of May 24, however, 69% of the nation’s winter wheat crop was in good or excellent condition, far higher than last year’s 51%.

Wheat demand is projected to be fairly strong. Domestic feed and residual use should increase, with larger supplies keeping pressure on wheat prices and making wheat an attractive livestock feed this summer. U.S. exports of the crop are predicted to rise a healthy 9%, the result of thinner supplies from competitors like Argentina and Canada.

Ohio should benefit from these developments. More than 80% of its crop is rated good or excellent, and growers anticipate a yield of 62.0 bushels per acre—much better than the U.S. estimate of 41.9. Ohio’s 1998 winter wheat crop, forecast at 72 million bushels, would account for 16% of all U.S. soft red winter wheat production.
Many states are considering deregulating their electric utilities. California has already done so, and Ohio has placed legislation before both the Senate (SB 237) and the House (HB 732). Although the two Ohio bills differ, both are designed to subject the pricing and use of electricity to the market rather than to local regulatory agencies.

What does deregulation mean? Under the current system, Ohio’s local power companies produce electricity (or buy it from an outside producer), transmit it across their own lines, and distribute it to customers according to prices set by public utility commissions. Their ability to sell power outside the region is strictly limited. Under deregulation, consumers would use the supplier of their choice, buying either from new local companies or from companies outside the region. If a nonlocal company were used, it would transmit power over lines owned by a second company, often the local one. Companies would set their price structures, which could vary according to the time of day, the difficulty of delivering power, and demand conditions.

Northern Ohio has seen another response to market conditions: a merger of the major electric utilities into an investor-owned utility — the twelfth-largest in the nation. This may make the region an interesting example of how market forces interact, with the merger concentrating the number of suppliers in the short run, while deregulation expands the number in the long run.
Domestic Banking Conditions

In the last few months, large banks in the U.S. have eased their standards on commercial and industrial (C&I) loans to firms of all sizes. Participants in the Federal Reserve Board’s most recent Senior Loan Officer Opinion Survey attribute the change to increased competition from both bank and nonbank lenders. In fact, standards have been relaxing since 1996:IIIQ (the only exception was 1998:IQ). This trend remains a subject of concern to banking regulators, who are aware of the historical tendency of bank lending practices to become “too loose” just before financial calamities like that recently witnessed in Southeast Asia.

The percentage of respondents reporting stronger demand for C&I loans has been increasing since mid-1996. In the last two surveys, the increase has been ascribed to more borrowing for mergers and acquisitions, business fixed investment, and inventory investment.

In contrast to U.S.-owned banks, branches and agencies of foreign banks located in the U.S. reported continued tightening of C&I loan standards, but by less than in the previous quarter. This tightening began in 1997:IIQ.

A special survey question asked whether banks had changed their willingness to provide financing for firms engaged in trade with Asian countries affected by last summer’s economic disaster. Respondents said that requests for such assistance have increased, but they have become less willing to provide it.

Last summer's Southeast Asian financial problems were reflected in 1997:IVQ as a declining exposure of U.S. banks to countries in that region. (Exposure had increased in 1997:IIIQ for Indonesia and China.) Analysts have voiced concern that Latin America could suffer a contagion effect, but results have been mixed: Exposure to Brazil rose for the third consecutive quarter, while exposure to Mexico declined.

Interpretation of exposure, however, is complicated. First, the risks from separate economies are not easily distinguished if the economies rise and fall together. Second, exposure estimates are book values of loans and guarantees. Unlike market values, book values do not quickly reflect the market's assessment of uncertainties such as those surrounding the policy mix in Southeast Asia and Japan.

U.S. banks are also exposed through third-party credits. Reliance on public agencies to provide guarantees for U.S. loans changed little in 1997:IVQ.

Exposure through contingent claims (such as interest rate swaps and futures contracts) fell steeply across Southeast Asia in 1997:IVQ, but similar declines are also occurring in large industrial countries outside the region.

Money Center banks, accounting for more than 60% of lending from U.S. banks to Southeast Asia, cut back sharply in 1997:IVQ. At the same time, loans from banks in other categories increased for some countries in the region.
The Euro

On January 1, 1999, countries participating in the European Monetary Union will irrevocably link their currencies as a prelude to adopting a single currency, the Euro, in 2002. Many analysts wonder if the Euro will diminish the dollar’s role as an international currency—one held and used by nonresidents.

Although the U.S. and Europe account for roughly the same shares of global output and exports, the dollar is now the preeminent international currency. The integration of European markets probably will reduce the dollar’s role, but the International Monetary Fund expects any change to be modest relative to total U.S. international assets and liabilities ($3.35 trillion and $4.13 trillion, respectively, at the end of 1996).

A currency’s international usefulness depends primarily on the stability of its purchasing power. Although price stability is the European Central Bank’s key policy objective, Europe’s inflation rate has typically exceeded ours. Economic growth, a broad proxy for the expected real return on investments, is similar in the U.S. and Europe. Global investors’ concern about our country’s growing international indebtedness, however, could eventually prompt a dollar depreciation.