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**COVER STORY**

By Michael Mandel, with Steve Hamm in New York and Christopher J. Farrell in St. Paul, Minn.

## Why The Economy Is A Lot Stronger Than You Think

**In a knowledge-based world, the traditional measures don't tell the story. Intangibles like R&D are tracked poorly, if at all. Factor them in and everything changes**



You read this magazine religiously, watch CNBC while dressing for work, scan the Web for economic reports. You've heard, over and over, about the underlying problems with the U.S. economy -- the paltry investment rate, the yawning current account deficit, the pathetic amount Americans salt away. And you know what the experts are saying: that the U.S. faces a perilous economic future unless we cut back on spending and change our profligate ways.

**COVER STORY PODCAST**

But what if we told you that the doomsayers, while not definitively wrong, aren't seeing the whole picture? What if we told you that businesses are investing about \$1 trillion a year more than the official numbers show? Or that the savings rate, far from being negative, is actually positive? Or, for that matter, that our deficit with the rest of the world is much smaller than advertised, and that gross domestic product may be growing faster than the latest gloomy numbers show? You'd be pretty surprised, wouldn't you?



Well, don't be. Because the economy you thought you knew -- the one all those government statistics purport to measure and make rational and understandable -- actually may be on a stronger footing than you think. Then again, it could be much more volatile than before, with bigger booms and deeper busts. If true, that has major implications for policymakers -- not least Ben Bernanke, who on Feb. 1 succeeded Alan Greenspan as chairman of the Federal Reserve.

**Slide Show >>**

Everyone knows the U.S. is well down the road to becoming a knowledge economy, one driven by ideas and innovation. What you may not realize is that the government's decades-old system of number collection and crunching captures investments in equipment, buildings, and software, but for the most part misses the growing portion of GDP that is generating the cool, game-changing ideas. "As we've become a more knowledge-based economy," says University of Maryland economist Charles R. Hulten, "our statistics have not shifted to capture the effects."

The statistical wizards at the Bureau of Economic Analysis in Washington can whip up a spreadsheet showing how much the railroads spend on furniture (\$39 million in 2004, to be exact). But they have no way of tracking the billions of dollars companies spend each year on innovation and product design, brand-building, employee training, or any of the other intangible investments required to compete in today's global economy. That means that the resources put into creating such world-beating innovations as the anticancer drug Avastin, inhaled insulin, Starbucks's ([SBUX](#)), exchange-traded funds, and yes, even the iPod, don't show up in the official numbers.

Now, a generation of economists who came of professional age watching the dot-com boom and bust are trying to get a grip on this shadow economy: People like Carol A. Corrado and Daniel E. Sichel of the Federal Reserve Board, who, along with Hulten, figured out that businesses are spending much more on future-oriented investments than widely believed. In a way, these economists are disciples of Greenspan, who understood earlier than most that the conventional numbers don't capture the emerging knowledge economy.

Greenspan was continually digging into arcane factoids he hoped would give him a better insight into what was going on under the hood of the U.S. economy. And Bernanke seems to understand the importance of doing the same. In a speech last year, he said that intangible investments "appear to be quantitatively important." As a result, Bernanke noted, "aggregate saving and investment may be significantly understated in the U.S. official statistics."

## BEYOND WIDGETS

As Greenspan would be the first to tell you, it's a lot easier counting how many widgets the nation produces in a year than quantifying the creation and marketing of knowledge. After all, we're talking about intangibles: brand equity, the development of talent, the export of best practices.

This stuff is hard to measure, but to ignore it is to miss what the economy is telling us. And to miss that is to increase the likelihood of committing policy blunders. Including these intangible investments could provide a better picture of the economy, one that offers more advance warning of recessions, slippage in our ability to innovate, and other nasty surprises.

To understand why the government measures the economy the way it does, it helps to go back in time to the 1930s. The Great Depression had the nation in a death grip, and government planners and politicians lacked the tools to answer the big question of the day: Was the economy getting better or worse? To find out, the Commerce Dept. brought in economist Simon Kuznets, then at the National Bureau of Economic Research, to calculate for the first time the nation's income and output -- the purchasing power and production of the U.S. economy. Setting such a benchmark would allow the government to figure out if the economy was growing or shrinking.

Working with handwritten data, Kuznets and a small group of fellow economists began counting tangible things like machines and buildings as long-term investments. It made sense, since this was still the Industrial Age. And such calculations came in handy during World War II, when the Roosevelt Administration needed a fix on the nation's capacity to grind out tanks, ships, and planes.

## A BREAK WITH THE PAST

Kuznets' work set the tone for the rest of the century, not to mention helping win him the Nobel prize in Economics in 1971. Machines and buildings were counted as future-oriented investment, but spending on education, training, and R&D was not. No attempt was made to judge the social utility of expenditures. For example, the \$6 million cost of building the Flamingo Hotel, the Las Vegas casino opened by Bugsy Siegel in 1946, was tallied as an investment. But AT&T's funding of Bell Labs, where the transistor was invented around the same time, wasn't even included in GDP. Kuznets himself acknowledged the limitations of his system, yet it stayed basically the same for most of the postwar period.

By the early '90s, Greenspan was becoming increasingly frustrated by the official numbers' inability to explain a rapidly evolving economy. In 1996 and 1997 he refused to accept conventional data telling him that productivity growth was falling in much of the service sector, noting -- correctly, as it turns out -- that "this pattern is highly unlikely." He also pointed out that the official numbers for consumer inflation were too high.

At the Washington offices of the BEA, J. Steven Landefeld, who became director in 1995, felt pressure to include numbers that better reflected the knowledge economy. Landefeld isn't a rash fellow, and the pace of change at the BEA, while quick for a statistical agency, would be called deliberate by most. But in 1999 -- six decades after Kuznets laid the groundwork for calculating GDP -- Landefeld and the BEA decided to break with the past.

The BEA started treating business spending on software as a long-lived investment. The decision was overdue. Companies were spending more than \$150 billion annually on software, far more than the \$100 billion for computer hardware. And the software often stayed in use longer than the hardware. The fact that economists could go into stores and see software in brightly colored boxes reassured them that it was real. "Prepackaged software is a lot easier" to count, recalls Landefeld.

Silly as it may seem now, it was a revolutionary change at the time. But over the past seven years the economy has continued to evolve while the numbers we use to capture it have remained the same. Globalization, outsourcing, and the emphasis on innovation and creativity are forcing businesses to shift at a dramatic rate from tangible to intangible investments.

According to *BusinessWeek's* calculations, the top 10 biggest U.S. corporations that report their R&D outlays -- a list that includes ExxonMobil ([XOM](#)), Procter & Gamble ([PG](#)), General Electric ([GE](#)), Microsoft ([MSFT](#)), and Intel ([INTC](#)) -- have boosted R&D spending by 42%, or almost \$11 billion, since 2000. Yet over the same period, they have only increased capital spending by a meager 2%, or less than \$1 billion. So all together, these giants have actually increased their future-oriented investment by roughly \$12 billion -- most of which doesn't show up in the BEA numbers.

This shift to intangibles looks all the more remarkable when we look a bit further back. P&G, for example, has boosted its spending on R&D, which doesn't count as investment in the GDP statistics, by 39% since 1996. By contrast, the company's capital budget, which does factor into GDP, is no bigger today than it was back then. The same is true at spicemaker McCormick & Co. ([MKC](#)), where capital spending is basically flat compared to 1996 but R&D outlays to create new products have tripled over the same period.

Want to see how this works? Grab your iPod, flip it over, and read the script at the bottom. It says: "Designed by Apple in California. Assembled in China." Where the gizmo is made is immaterial to its popularity. It is great design, technical innovation,

and savvy marketing that have helped Apple Computer sell more than 40 million iPods. Yet the folks at the BEA don't count what Apple spends on R&D and brand development, which totaled at least \$800 million in 2005. Rather, they count each iPod twice: when it arrives from China, and when it sells. That, in effect, reduces Apple -- one of the world's greatest innovators -- to a reseller of imported goods.

That's why the new research from Corrado, Sichel, and Hulten is so important, and why building and improving upon it could become a key goal of economists in the coming years. Ultimately, we might end up with a "knowledge-adjusted" GDP, which would track the spending so crucial for global competitiveness.

Right now, though, rough calculations of these intangibles are all we have. To help come up with their \$1 trillion number for unmeasured business investment, for example, Corrado, Sichel, and Hulten counted the portion of advertising designed to have long-lived effects on perception (that would include the sort of corporate image advertising seen here at *BusinessWeek*). They also estimated the value of new product development in the financial-services industry, which current R&D numbers miss. "We had to hunt around for bits and pieces of data," says Hulten.

Assessing how much bang for the buck companies get from their spending on intangibles is even harder, especially in the fast-changing knowledge economy. Take employee training. In the old days, that required flying people to a teaching facility, which cost companies a lot of time on top of the cost of the instructors and real estate. Now online learning and other innovations are driving down the cost of training. At IBM ([IBM](#)), the training budget fell by \$10 million from 2003 to 2004, a 1.4% decline, while the number of classroom and e-learning hours rose by 29%. Are other companies seeing an equally dramatic decline in the cost of training? No one knows.

### CHANGING PERCEPTIONS

That's why the BEA doesn't want to move too fast. It plans to publish supplementary accounts for R&D in the next few years, which will track R&D spending without adding it into the official GDP numbers. Other intangibles, though, remain below the radar. "No one disagrees with this conceptually," says BEA chief Landefeld. "The problem is in the empirical measurement."

But look at how our perception of the economy changes once you add in things like R&D and brand-building. The published data show that total investment -- business, residential, and government -- has been falling over the past three decades as a share of national spending, while consumption has been rising. Add in the intangible investments provided by our three economists, and the picture changes completely.

Total investment rises, going from 23.8% of national spending in the 1970s to 25.1% in the early 2000s -- much higher than the 18.3% the conventional numbers show. That helps explain why the economy has sustained strong productivity growth, and why foreign investors continue to pour money into the U.S.

Factoring in the knowledge economy also helps us understand why the recession of 2001 seemed worse than the official statistics showed -- and why the recovery was so slow. According to the published numbers, the six-month recession of 2001 was so mild the business sector actually grew at a modest 0.4% pace that year. By 2003, however, more than 3 million private sector jobs had disappeared.

One reason for this disconnect is simple: Corporations hacked back their budgets for R&D, advertising, training, and so forth. Yes, that canceled out a ton of high-paying jobs, but had no direct effect on GDP. Remember that R&D and other intangible business investments are not currently counted as national output. Therefore, when a company laid off an engineer doing long-term product development but kept selling the same number of its old products, GDP stayed the same. Productivity even went up, because fewer workers were producing the same amount of output. And if that laid-off engineer went to work, say, building houses? National output might even have risen.

There's enough data available through 2003 to estimate how business intangibles would have changed the growth numbers. For our purposes, let's assume that overall intangible business investment followed the same path as industrial R&D and advertising, for which annual data are available. Crunch the numbers and it looks like the business sector really grew by only 0.1% in 2001, less than a quarter of the size of the official increase. Growth in 2002 now also looks slower than the published data.

By contrast, the conventional numbers may be understating the strength of the economy today. The BEA announced on Jan. 27 that growth in the fourth quarter of 2005 was only 1.1%. In part that was because of a smaller-than-expected increase in business capital spending. However, employment at design and management-consulting firms is up sharply in the quarter, suggesting that businesses may be spending on intangibles instead. Indeed, the consumer confidence number for January zoomed to the highest level since 2002, as Americans became more optimistic about finding jobs.

Then again, the economy may hit bigger bumps in the years ahead. When companies significantly trim their spending on R&D, design, training, and other knowledge-enhancing activities, as they did in 2001, the resulting pain in terms of job losses and

reduced innovation could deepen the next downturn.

Perhaps the trickiest and most controversial aspect of the shadow economy is how it alters our assessment of international trade. The same intangible investments not counted in GDP, such as business knowhow and brand equity, are for the most part left out of foreign trade stats, too. Also largely ignored is the mass influx of trained workers into the U.S. They represent an immense contribution of human capital to the economy that the U.S. gets free of charge, which can substantially balance out the trade deficit of goods and services. "I don't know that the trade deficit really tells you where you are in the global economy," says Gary L. Ellis, chief financial officer of Medtronic Inc., a world leader in medical devices such as implantable defibrillators. "We're exporting a lot of knowledge."

Time for another real-world example. In December, Intel Corp. ([INTC](#)) announced plans to build a new wafer-fabrication plant in Israel. To the statisticians, the value of that foreign investment is the book value of the plant -- that is, the cost of erecting the building and installing the chipmaking machinery.

Not counted is the systematic export of knowhow to Israel that enables that factory to operate profitably. At the core is a program called Copy Exactly!, which requires that a new fab duplicate an existing one that is working well, down to how often the plant's pumps are serviced. All of this critical information is documented and transferred from the U.S. to the new plant, but it is not picked up by the trade statistics.

The numbers don't catch Intel's exhaustive training program either. To get its new plants running quickly, the chipmaker brings 800 or 900 employees from the new fab to spend a minimum of six months in Hillsboro, Ore., where Intel develops new production processes. By the time they return home, these people will have picked up not just the details of the process but also tribal knowledge -- the unwritten lore of how Intel works. With that info in their heads, they're equipped to get the new factory up and running at high volume within a quarter, rather than taking a year or more. In economics speak, this is a classic transfer of human capital. So why isn't it called an export?

Ricardo Hausmann, director of Harvard's Center for International Development, believes it should be. He describes these cross-border flows of knowhow as "dark matter." Hausmann notes that U.S. multinationals consistently earn higher rates of return than their foreign counterparts -- an average of 6% on foreign operations since 2000, vs. the 1.2% foreign multinationals earn in the U.S., according to the latest BEA figures. From that, he infers that the multinationals are benefiting, in part, from knowledge exported from the U.S., a country with faster productivity growth than the rest of the industrialized world.

Using these arguments, Hausmann finds that the U.S. current account deficit actually disappears, averaged over time. "With globalization, you develop a blueprint and sell it in all countries," he says. "Countries that are good at creating blueprints get more exports of dark matter."

Admittedly, most trade experts are hostile to Hausmann's conclusions. A recent report from Goldman, Sachs & Co. ([GS](#)) likened Hausmann's dark matter to cold fusion. And the economists at the BEA worry that adding knowledge exports to the trade stats would make published data less useful. "I have a problem putting fabricated flows into exports," says Ralph H. Kozlow, who oversees international accounts at the BEA. "You get into an impossible statistical maze when you try to value all of this at anything that anyone would believe."

But even if Hausmann is overstating his case, he's on the right track. There's no doubt that the statistical problems are formidable, but it's also certain that the conventional trade statistics are missing a big portion of the knowledge flows that create value these days. Suppose we assume that U.S. multinationals can earn an extra percentage point of return on their foreign investments by being able to use business intangibles exported from the U.S. Then a rough estimate of the value of the unmeasured exports of knowledge is anywhere from \$25 billion to \$100 billion per year, depending on what assumptions are used.

And let's not forget about immigrants. The workers who move to the U.S. each year bring with them a mother lode of education and skills -- human capital -- for free. One celebrated example is Jonathan Ive, the man who designed the iPod and iMac. Ive was born in England and educated at Newcastle Polytechnic University of Northumbria before joining Apple Computer Inc. in California in 1992.

Ive is not unique. Most of the workers who immigrate to the U.S. each year have at least a high school diploma, while about a third have a college education or better. Since it costs, on average, roughly \$100,000 to provide 12 years of elementary and secondary education, and another \$100,000 to pay for a college degree, immigrants are providing a subsidy of at least \$50 billion annually to the U.S. economy in free human capital. Alternatively, valuing their contribution to the economy by the total wages they expect to earn during their lifetime would put the value of the human capital of new immigrants closer to \$200 billion per year. Either the low or high estimate would make the current account deficit look smaller.

These numbers may also seem squishy. Still, if Fed chief Bernanke, corporate executives, and ordinary investors want to know

where we've been, and where we're headed, tracking the creation and flow of knowledge is the only way to go.

The Blog: To discuss intangibles with Mandel, go to [businessweek.com/the\\_thread/economicsunbound/](http://businessweek.com/the_thread/economicsunbound/)

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