

**SUN SPECIAL REPORT | SHIFTING FORTUNES**

# A new era

## First of two parts: Maryland's evolution from a manufacturing to a knowledge economy brings both opportunity and heartache

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A few months after General Motors made its last van at the 70-year-old Broening Highway plant, a seed for Maryland's new economy sprouted across town in West Baltimore.

On a cold morning in October 2005, the governor and mayor heralded the opening of a biopark built by the University of Maryland, Baltimore - a place where researchers would pursue breakthroughs in treatments for diabetes, cancer and heart disease. One of the park's first tenants was a Japanese medical firm. Officials toasted the partnership with sake.

It could not have felt any further from the blue-collar manufacturing work at GM that provided a middle-class life for thousands of Baltimoreans, or from the furnaces at Bethlehem Steel, which went bankrupt in 2001.

Old-line manufacturing and industrial companies have failed, moved and contracted in rapid succession. But a new, knowledge economy has rushed in to replace the old, helping the Baltimore region add 70,000 jobs during the past seven years.

That shift appears poised to continue despite the country's financial and economic problems. Even as manufacturing job losses have accelerated, the metro area has more jobs now than it did at the beginning of the year - while U.S. employers have cut 760,000 from their payrolls.

Health care - less susceptible to downturns - and other knowledge fields have contributed to the growth. And while the widening credit crunch could stall projects and businesses, state officials hope their focus on such industries as science and health will help Maryland weather the turmoil.

A second biopark opened this year on the city's east side, and now cranes hover over depressed neighborhoods that many thought would never rebound. High-tech companies have moved downtown. Hospitals are expanding across the region. And Gov. Martin O'Malley has proposed spending \$1.1 billion over the next decade to boost the state's biotech industry - a plan his administration said last week that it still stands behind despite recent budget cuts.

These changes are drawing researchers from out of state. They believe in the region.

"For me, it's almost a matter of destiny," said Francisco Leon, a medical researcher from Spain who specializes in celiac disease - an area in which Maryland scientists have broken new ground.

Leon, who joined a Baltimore firm last year, is impressed with the state's commitment to biotech. "They have the political will. They are investing money."

In the new economy, factories are out. Computers, labs and researchers are in. Shin Nippon Biomedical Laboratories, which celebrated the biopark with sake, now owns the top two floors of the building.

"A decade ago, people said Baltimore was beyond the point of no return," said Anirban Basu, an economist and CEO of Sage Policy Group in Fells Point. "I don't think anyone would make that claim today."

The state's largest private employer is Baltimore's Johns Hopkins Institutions. Thanks to Hopkins, the state grabs the most federal research-and-development dollars per capita in the U.S. For every 100,000 workers, Maryland has more microbiologists than any other state, more physicists than any state but Colorado, and more database and network administrators than any place except Virginia and Delaware.

But for some, the changes have been wrenching.

Workers laid off from traditional manufacturing and industrial jobs see little personal benefit in the knowledge economy, which requires very different skills. And the blossoming biotech industry is no comfort to the Beth Steel retirees whose benefits disappeared a few years ago or the GM retirees who were told their health benefits will stop next year.

"We lost our health care, we lost our dental and optical and our life insurance," said Don Kellner, 70, president of a local Bethlehem Steel retirees association. "Everything."

The demands of the new economy are also roadblocks for thousands of residents who never worked in manufacturing but are being buffeted by the ripple effects of its long retrenchment. These are the workers with a high school education or less. They find themselves in jobs in hotels and other low-wage parts of the service sector, with no clear way out.

"Folks were able to provide for their families, they became homeowners, they sent their kids off to college - and these were manufacturing jobs," said Moses Hammett, director of work force development at the Center for Urban Families in the city. "When these manufacturing jobs left Baltimore, a lot of these opportunities left."

Knowledge jobs can leave, too, in good economic times as well as bad. The state's challenge is holding onto them, and growing, as competition increases.

### **The brain economy**

The new economy is not thousands of people streaming into a factory each morning. It doesn't always lead to products as tangible as automobiles.

But it's no less potent. Knowledge workers are researchers inventing cancer drugs, accountants uncovering fraud and ER staff saving lives.

Since 2000, the metro area has added 4,000 jobs in scientific research and development, 7,500 jobs in computer-systems design and 11,000 jobs in hospitals. The Sept. 11 terrorist attacks accelerated the shift, bulking up defense contractor employment. And the military's restructuring is expected to bring about 14,000 jobs to the area's two large Army bases.

"It's a brain economy, not a brawn," said Walt Plosila, who helped launch what is now the Tech Council of Maryland.

The most tangible signs of this transformation are the new bioparks on the east and west sides of Baltimore. Three buildings, outfitted with lab and office space, have opened at a cost of \$164 million, and 12 more are planned. The recent credit crunch hasn't affected those plans, officials said - at least not yet. A Massachusetts biotech firm signed a lease this month for 14,000 square feet in the west side biopark.

When work finishes in a dozen years, the parks will have 2.9 million square feet of space combined - the equivalent of 5 1/2 Legg Mason towers - along with an expected 6,000 jobs.

Alba Therapeutics, which is working on a treatment for celiac disease, is among the firms at the UMB biopark. The four-year-old company has 45 employees, many from out of state.

Alba's executive medical director is Leon, who received his Ph.D. and M.D. in Spain and worked at Bristol-Myers Squibb in New Jersey before coming to Baltimore. He switched jobs for the excitement of working at a startup like Alba and for the proximity to the National Institutes of Health in Bethesda.

Leon, 37, said attracting biotech workers to the area is tough: They worry that if their company fails, there aren't enough alternatives to jump to. But that's changing, he said. And he loves being here.

"It's a rough city, but it's alive, it's moving," said Leon, who lives in Federal Hill.

When companies are small, like Alba, they mostly employ people with advanced degrees. As they grow, they will need employees with specialized training that doesn't necessarily include college. At hospitals, the need for such workers is already constant - a way into the knowledge economy for some residents.

Loretta Holley, 37, is a high school graduate who worked for years in home health care and as a correctional officer before trying for a hospital job. Now a patient-care technician at the University of Maryland Medical Center, she will begin a community college program in January to become a registered nurse.

She won scholarships and will continue to work while in school. For the mother of three, it means a long-deferred dream finally seems possible.

"I've always wanted to be a nurse," Holley said.

### **Ahead of the curve**

In the late 1950s, before global competition and technology advances ate away at U.S. manufacturing jobs, 30,000 workers kept Bethlehem Steel's Baltimore County furnaces belching and molten iron flowing. By 2001, the company was bankrupt, its work force down to 3,500 at Sparrows Point.

The number of workers at the complex has since declined to 2,500 under a succession of owners.

It's a familiar tale. One out of every three local jobs in 1950 was in manufacturing. Now it's one out of 20, or about 70,000. In the past seven years, manufacturing jobs in the metro area dropped by 24,000.

The saving grace is that the biggest cuts came years ago, and employment in the overall economy is up, not down. For the Cleveland and Detroit metro areas, both more dependent on manufacturing, the pain is now. >From 2000 to 2007, as the Baltimore area added 70,000 jobs, Cleveland was losing nearly as many. Detroit shed almost a quarter-million.

Economists say the early hit that Baltimore took in manufacturing is part of the reason it's benefiting more now from the new economy. By the 1970s and '80s, the need for something new was apparent.

Some local governments, like Montgomery County, took active steps to recruit tech and biotech companies. The state's proximity to Washington and concentration of federal labs also gave it a head start over other states in the pursuit of knowledge jobs.

This year Maryland leapt to second on a Milken Institute ranking of high-tech states. It was fourth in the previous ranking in 2004.

"If those industries and the high-paying jobs that came with them were not being created, Maryland would be in a difficult situation," said Ross DeVol, Milken's director of regional economics. "That's pretty much where places like Ohio, Michigan and Indiana find themselves today."

The manufacturers left standing in Maryland are more new-economy than old, from medical device maker BD Diagnostic Systems in Baltimore County to radar maker Northrop Grumman in Anne Arundel. Most say they're having trouble finding enough skilled workers.

"Manufacturing is not dead. It has transformed," said Mike Galiazzo, executive director of the Regional Manufacturing Institute of Maryland. "They're hiring people with master's degrees and doctorates."

The new economy means schools are increasing their focus on science and math. Upscale grocers are coming into the city. And developers are planning shops and luxury apartments on three square blocks in East Baltimore that used to be untouchable.

David Holmes said he and a partner bought the land because it is catty-corner to the continually growing Johns Hopkins Hospital. He said his lenders are enthusiastic despite the national credit turmoil.

He hopes his \$230 million project will help tie together an impoverished neighborhood and a powerhouse hospital that have been worlds apart. The hospital's strength as an anchor will allow him to bring in the grocery store that neighbors want, he said.

"The community benefits," said Holmes, with Capital Development LLC of Baltimore.

But plenty of people feel left behind - or pushed out - by new-economy growth.

Lucille Gorham lived in the city's Middle East neighborhood for more than 30 years before the eastside biopark construction forced her from her home. "When I got my letter to move, it hurt," said Gorham, 77. "It was like sticking a knife in my chest."

East Baltimore Development Inc., the nonprofit managing the biopark, moved her from a rowhouse on East Chase Street into a larger single-family house in Northeast Baltimore. She has a big yard and a garden. The problem is, it's not home.

"You would think it's a step up," she said. "But I'm here and nobody knows I'm here. On Chase Street, I could open my front door and see everybody on my block. Here, I can open my front door and not see anybody for months."

For manufacturing workers and retirees, the new economy might as well not exist. Insult followed injury for Bethlehem Steel retirees: First they lost their benefits and had their pensions turned over to the federal Pension Benefit Guaranty Corp. when their former employer went bankrupt. Last year, many learned that those pensions would be cut because the government says it had overpaid them earlier.

Every month they pack a union hall in Baltimore for a retiree gathering. When a singer at their September meeting performed a stand-up-for-manufacturing song with the lyrics "it's time for us to fight for how we live," the room echoed with applause.

"I'm hoping things get better," said Gertrude Misterka of Dundalk. Supplemental insurance costs, once paid by the company, are more than her \$100-a-month pension as the widow of a Beth Steel worker.

### **Pain versus gain**

Add up the pain and the gain, many say, and both the region and state come out winners from this seismic economic shift. Median household income in Maryland isn't just higher than any other state, it's a full 34 percent more than the nation's. Manufacturing-heavy Michigan, one of the wealthiest states in the country four decades ago, is now below average.

Experts say the long shift to knowledge jobs - particularly ones tied to federal spending - is what helped protect the area from the 2001 recession. Basu, the Baltimore economist, warns that Maryland should not expect similar immunity from the current troubles, but he remains optimistic that the region will come through in decent shape, and prosper.

Others are less sanguine about the longer term.

Charles W. McMillion, chief economist of MBG Information Services in Washington, said Maryland has merely been "staying in place" in recent years. Some of the new jobs pay as well as or better than the manufacturing work being lost, he said; many don't.

Others warn that the new economy can move offshore just as surely as manufacturing. It started with repetitive, routine tech jobs. But it hasn't stopped.

"You're beginning to see some of the more innovative scientific work also being outsourced overseas," said C. Warren Mullins, vice president for business development at the Aberdeen branch of Battelle, an R&D nonprofit that does work in life sciences, defense and similar fields. "It's kind of like job creep moving up the food chain. That's a troubling thing."

With change coming faster, a business or region can quickly get left behind. Constant innovation is needed, companies and economists say, and the key is a work force that's both educated enough and numerous enough for the job.

Mullins worries about how the Baltimore area will meet that challenge. But he is also struck by how much it has evolved from its blue-collar roots - and how knowledge-job growth appears to be building on itself "like a snowball going downhill."

"We've become very high-tech now," he said. "We need to somehow figure out how to re-brand the region so we take advantage of who we are and not who we were."

Tomorrow: Workers need more education to keep up with the region's economy, but funding for job training is falling fast.

### **knowledge economies**

The Milken Institute's closely watched State Technology and Science Index - a measurement of knowledge-economy strength - ranked Maryland second this year:

1. Massachusetts
2. Maryland
3. Colorado
4. California
5. Washington state

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