

QUARTERLY ECONOMIC REPORT

PRODUCTIVITY IN MAINE

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MAINE
DEVELOPMENT
FOUNDATION



Introduction

Among its programs, the Maine Development Foundation (MDF) staffs the Maine Economic Growth Council, an independent body created in statute to develop a long-term vision for Maine's economic growth and develop a broad range of indicators to assess our progress toward that vision. The Growth Council issues the annual *Measures of Growth In Focus*, a reliable and trusted report measuring Maine's progress on 26 critical economic indicators. MDF has partnered with the University of Maine's School of Economics (SOE) on this quarterly newsletter, which explores these topics further and provides a timely look at the various elements of Maine's economy.

Improving Maine's relatively low level of productivity is critical to moving our economy forward and is a key focus of the Growth Council and MDF. This first newsletter, therefore, explores the issue of Maine's productivity in detail, and serves as the basis for future papers in this series.

Productivity in Maine

Economist Paul Krugman once wrote, "Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker." The same thing can be said for regions; that is, productivity in Maine—the amount of output generated per worker—will ultimately determine the vibrancy of our state's economy.

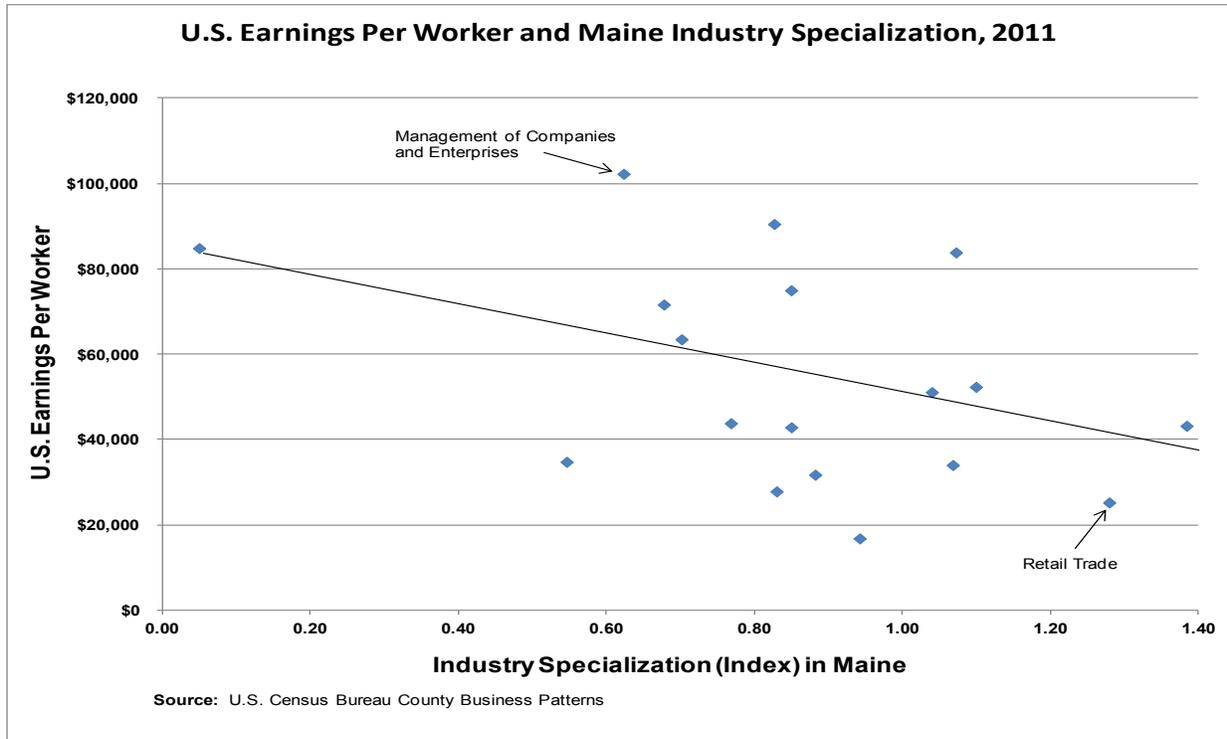
According to data from the U.S. Bureau of Economic Analysis, Maine workers generated an average of \$64,556 in gross state product per person in 2011. By this measure of productivity, the state is ranked 48th nationally—ahead of only Vermont and Montana. Between 2000 and 2011, real gross state product per worker grew by 3.49% in Maine, which places our state 38th nationally—below the U.S. growth rate of 5.77%. By these accounts, productivity in Maine is quite low and its growth is lagging.

To understand Maine's lackluster performance, we can examine the factors that economists believe to impact productivity. First and foremost, an economy's ability to produce stuff—whether it's making paper, harvesting lobsters, or preparing meals in a fancy restaurant—is largely determined by the amount of capital available per worker. Physical capital includes machinery, equipment and infrastructure (such as computers and access to high-speed internet services), while human capital refers to the skills and knowledge embodied in people (such as education and experience).

In the area of formal education, U.S. Census figures show that 28.4% of Maine's working age population has at least a bachelor's degree. The state is 20th nationally by this measure of human capital, which does not line up with its "bottom three" ranking in productivity. In fact, a basic statistical analysis predicts that the Maine economy could generate almost \$82,000 in output per worker based on its educational attainment—an estimated level of productivity that is considerably higher than the actual value of \$64,556 in gross state product per worker. This means that we can rule out the lack of college educated workers as the sole reason why productivity is so low in Maine.

Although the state is in the top one-half nationally in terms of college attainment, Maine workers are more likely to find jobs in low-skilled occupations—that may not match their educational backgrounds—than workers in more urbanized regions. Research that University of Maine SOE Professor Todd Gabe conducted with Jaison Abel (Senior Economist at the Federal Reserve Bank of New York) and Kevin Stolarick (Research Director, Martin Prosperity Institute at the University of Toronto) shows sizable differences in the skill content of work across the U.S. urban-rural hierarchy. Larger cities tend to specialize in high-skilled occupations such as engineers, scientists and executives, while rural areas typically have an abundance of lower-skilled jobs. This research also shows a notable earnings gap (an indicator of lower productivity) between large cities and rural areas that is explained, in part, by urban-rural differences in the presence of high-skilled jobs.

Another explanation for Maine’s lower productivity, closely related to the urban-rural difference in the availability of high-skilled jobs, deals with the types of goods and services being produced in the state. County Business Patterns data from the U.S. Census Bureau show that the Maine economy specializes in agricultural and related industries, health care and social assistance, retail trade, and (to a lesser extent) manufacturing. On the other hand, Maine has a relatively low percentage of employment in mining and extraction, and services such as administration, management, and professional and technical services. As it turns out, Maine tends to specialize in sectors paying low average wages nationally, and the state has a relative lack of employment in high-paying industries.



The figure above illustrates this explanation about how the types of goods and services made in Maine affect our productivity.¹ Maine’s economy is specialized in industries with index values of greater than 1.0, while values less than 1.0 indicate a lack of specialization. For example, the value of 1.28 for retail trade suggests that the share of Maine workers in this sector is 28% higher than the share of all U.S. workers in retail trade. The value of 0.62 for management of companies and enterprises indicates that the share of Maine workers in this sector is 38% lower than the share nationally.

As represented by the downward sloping trend line, earnings (and productivity) tend to be lower in some of the sectors that are in relative abundance in Maine. Even more harmful to productivity in Maine, the state’s economy is well below national averages in the shares of employment in the knowledge-based sectors of management of companies and enterprises, and professional, scientific and technical services.

This leads us to the \$17,000 question (the approximate difference between actual productivity in Maine and our estimate based on the state’s level of college attainment): Why is Maine so far below the national averages in high-productivity sectors? As it turns out, just as our research shows that urban areas tend to specialize in high-skilled jobs, cities are also more attractive than rural areas to many high-productivity sectors.

1 The industrial sector of agriculture, forestry, fishing and hunting is not shown because, with a specialization index value of 5.16, including it would spread out the figure to the point that the sectors with values around 1.0 would be difficult to differentiate. The agriculture and related industries sector is also an outlier in that average earnings are considerably higher than would be predicted by the trend line shown in the figure.

According to the 2010 U.S. Census, Maine is the second least-urbanized state (behind Vermont) as 65.2% of our residents live in rural areas. Statistical analysis of U.S. Census data shows that the knowledge-based management and professional (and scientific and technical) services industries—found to be among the most productive sectors of the economy—tend to make up a lower share of overall employment in rural states than in places with a higher share of city dwellers. These types of services often require dense, urban environments—not found in most of Maine—to thrive.

With all of this in mind, the challenges to increasing productivity in Maine are to identify the types of jobs and industries that can prosper in less urbanized areas, and then to enhance them through skill development, R&D and innovation, and providing complementary services—the kinds that increase the economic activity of cities—that can help them excel. This advice borrows heavily from the economic cluster concept popularized by Harvard Business School’s Michael Porter. But, when it comes to economic development, the idea of focusing on a region’s assets—its people and industries—and finding ways to raise their productivity never goes out of style.

About the Maine Development Foundation (MDF)

The Maine Development Foundation (MDF) is a private, non-partisan membership organization that drives sustainable, long-term economic growth for the State of Maine. MDF’s strategic focus is a productive workforce. We believe that a productive worker is one that is educated, healthy, innovative, and engaged in their community and the economy.

MDF stimulates new ideas, develops leaders, and provides common ground for solving problems and advancing issues by:

- **Empowering** leaders
- **Strengthening** communities
- **Guiding** public policy with trusted economic research

Created in statute in 1978, MDF is a unique and trusted non-profit 501(c)(3) corporation. MDF works statewide across all sectors.

About the University of Maine’s School of Economics (SOE)

The SOE serves as the University’s hub of economics research and teaching while also embracing broader social science perspectives through its primary and affiliated faculty in law, social psychology and human-ecology. The faculty works closely with stakeholder groups to generate information and policy recommendations to help solve Maine and national needs. SOE offers both undergraduate and graduate programs (such as resource economics and policy, financial economics, and international economics) that train students to think analytically and critically about social, environmental, and economic issues, and lead to careers in economics, law, public service, business, and other applied policy fields. Explore SOE’s website (<http://www.umaine.edu/soe/>) to learn more about their academic and research programs, and their faculty, staff, and students.

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