
Mississippi Economic Review and Outlook

Dear Readers,

Employment in Mississippi is rising, but so is the unemployment rate. Tax revenues are improving, but the budget squeeze continues. The state economy, in brief, is sending mixed signals. And we are here to help decipher the message.

An article on the national economic outlook examines the causes of the nation's slowing growth, and the article on the state economy includes a special spotlight on the manufacturing sector. The growing state debt is the subject of a brief report.

The benefits of education to society and to individuals are explored in two articles. Education has a positive impact in such policy areas as health, crime, family planning, home ownership, incomes and political participation, as Debra Anderson and I document, because education affects not only what a person does, but also how a person thinks.

Education imparts knowledge, but also results in the creation of knowledge. Robert Neal looks at the public and private returns to investment in education in his study.

Comments and feedback on this special issue are welcomed, and may be published as letters to the editor. To subscribe to this *Review*, see the form on the next page. National projections are based on the forecast of Global Insight, Inc. As always, the views expressed in the *Review* are those of the authors and do not necessarily represent the official position of the Center for Policy Research and Planning or the Mississippi Institutions of Higher Learning.

Marianne T. Hill
mhill@ihl.state.ms.us
Editor and Senior Economist
Center for Policy Research and Planning
3825 Ridgewood Road, 8th Floor Tower
Jackson, MS 39211

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Richard A. Crofts, Commissioner
Philip W. Pepper, State Economist

Debra E. Anderson, Econ. Dev. Planner
Deborah D. Bridges, Admin. Asst.
Marianne T. Hill, Sr. Economist
Barbara J. Logue, Sr. Demographer
Robert H. Neal, Sr. Economist
Christian D. Pruett, Economist
Gwendolyn R. Silas, Research Asst.
Peter J. Walley, Dir. Econ. Dev.
Darrin M. Webb, Sr. Economist

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NATIONAL ECONOMIC OUTLOOK: EMPLOYMENT PICKS UP; GROWTH SLOWS

Strong growth of business investment is expected to keep the growth rate of gross domestic product (GDP) above 3.0% this year, despite recent indications that the economic pace is slowing.

Employment, which has finally surpassed the 2001 peak, continues to rise at a healthy clip, and this will enable consumers to maintain solid increases in spending, despite high levels of consumer debt.

The federal deficit will force slower growth of federal spending. State and local governments, which are only beginning to recover from recent fiscal crises, are being cautious in their spending. As the fiscal situation improves, expect some pick-up in state and local government spending.

Oil prices were at \$50 per barrel in the first quarter, driving up energy and transportation costs. Overall inflation, as measured by the consumer price index, is likely to hit 2.9% for 2005, although the rate of increase should be dropping by the end of the year. Expect the Federal Reserve Board to continue gradually raising the federal funds rate, which is likely to reach 4.0% by the year's end.

The world economy is expanding at a moderate clip, although more slowly than in 2004. U.S. exports have been aided by the falling value of the dollar, but imports have been growing more rapidly, however, causing the U.S. trade deficit to expand. By 2006, the deficit is expected to stabilize.

The major risks to the forecast presented here come from two sources: first, the potential for mounting inflationary pressures, which would cause interest rates to rise and adversely impact spending, and second, from the slow growth of Japan and the Eurozone, which could also cut demand.

The once-jobless recovery has begun to create employment. The number of persons employed in the first quarter (Q1) of 2005 surpassed the previous peak reached in Q1 of 2001, and the economic expansion is now averaging over 100,000 new jobs a month. The upward path in employment has been somewhat wobbly, however, with employment growth as low as 0.1% (in March). The trend, though, remains upward. As the recovery enters its fourth year, the real growth rate of gross domestic product (GDP) will be lower than last year's 4.4%, but the expected 3.4% growth rate is a healthy one.

Spending by consumers and by government will continue to rise, but the 9% rate of increase of nonresidential fixed investment this year will be the force

propelling the growth of gross domestic product above 3.0% in 2005. **Investment spending**, the most volatile element of total demand in the economy, has been a critical factor in recent economic trends. In both 2001 and 2002, gross private domestic investment fell, while the upswing in 2003 was a modest 4.4%, after adjustment for inflation. The growth of GDP mirrored these trends, slowly rising to a 3.0% rate of growth in 2003. In 2004, a 13.2% increase pushed the real growth of GDP up to 4.4%. This year, the upturn in fixed nonresidential investment is forecast to continue as firms position themselves for anticipated growth of demand. Overall, both business investment and investment in residential housing are expected to remain high, although with growth rates

Table 1. **TRENDS IN EXPENDITURES BY SECTOR**

Billions of Constant Dollars Unless Otherwise Indicated

Description	2004	2004	2005	2005	2005	2005	2006
	QIII	QIV	QI	QII ^P	QIII ^P	QIV ^P	QI ^P
Gross Domestic Product (2000\$)	10,891	10,994	11,078	11,163	11,266	11,347	11,411
(% change)	3.9	3.8	3.1	3.1	3.7	2.9	2.3
Consumer Expenditures (2000\$)	\$7,668	\$7,747	\$7,814	\$7,865	\$7,917	\$7,970	\$8,007
(% change)	5.0	4.1	3.5	2.6	2.6	2.7	1.9
Gross Private Domestic Invest. (2000\$)	\$1,854	\$1,913	\$1,970	\$1,974	\$1,992	\$2,007	\$2,022
(% change)	2.4	12.7	11.9	0.8	3.8	3.1	2.9
Gross Fixed Nonresidential Investment (2000\$)	\$241	\$242	\$241	\$243	\$248	\$259	\$267
(% change)	8.3	12.6	7.7	10.9	13.6	21.6	15.9
Gross Fixed Residential Investment (2000\$)	\$557	\$561	\$569	\$581	\$584	\$574	\$563
(% change)	1.5	3.3	5.7	8.2	2.4	-7.2	-7.2
Real Change in Business Inventories (2000\$)	\$35	\$47	\$80	\$49	\$38	\$34	\$36
(% change)	-174.1	147.2	279.7	-155.2	-91.1	-42.0	20.2
Government Purchases (2000\$)	\$1,950	\$1,954	\$1,957	\$1,975	\$1,991	\$2,003	\$2,014
(% change)	0.7	0.8	0.6	3.6	3.3	2.5	2.1
Federal Govt Purchases (2000\$)	\$726.6	\$728.8	\$729.8	\$742.2	\$749.8	\$755.1	\$757.1
(% change)	4.7	1.2	0.5	6.8	4.1	2.9	1.0
Federal Defense purchases (2000\$)	\$491.5	\$490.7	\$491.0	\$502.4	\$508.0	\$511.3	\$511.5
(% change)	9.7	-0.7	0.2	9.2	4.5	2.6	0.2
State and Local Govt Purchases (2000\$)	\$1,223	\$1,225	\$1,227	\$1,232	\$1,241	\$1,248	\$1,256
(% change)	-1.7	0.6	0.6	1.8	2.8	2.3	2.7
Net Exports of Goods & Services (2000\$)	-\$583	-\$621	-\$663	-\$650	-\$635	-\$634	-\$632
(\$ change)	-2.0	-26.0	-27.1	7.8	9.7	0.1	1.6
Exports of Goods and Services (2000\$)	\$1,131	\$1,140	\$1,160	\$1,178	\$1,201	\$1,224	\$1,245
(% change)	5.8	3.1	6.8	6.5	7.8	7.5	6.8
Imports of Goods and Services (2000\$)	\$1,714	\$1,761	\$1,823	\$1,829	\$1,836	\$1,858	\$1,877
(% change)	4.5	10.9	14.0	1.3	1.6	4.9	4.0

P = Preliminary or Projected. Percentage change refers to seasonally adjusted average annual rate, based on quarter-to-quarter growth rates.

SOURCE: Global Insight, Inc., May 2005.

lower than last year's. But investment spending will gradually slow, and the economy along with it. See Table 1 for quarterly data and Table 3 for annual data, including Global Insight's forecasts for investment and GDP growth.

Employment Boosts Consumer Spending

Consumers have been doing more than their fair share to keep the recovery rolling: the growth of consumer expenditures has outpaced the growth of personal disposable income every year since 2001 and this is expected to continue. However, the growing levels of **consumer debt** have the potential to

dampen consumer spirits. Employment growth provides welcome relief, boosting wages and salaries, and permitting consumers to reduce their levels of outstanding debt without reducing their expenditures.

The rising employment level is also good news for state and local economies. **Government purchases** at the state and local levels slowed from an average annual 6.9% rate of increase over the 1995-2000 period to 3.8% in 2003 and 2004, as state and local tax receipts slowed to an average growth rate of 2.8% from 2000 to 2003. But in 2004, state and local revenues were up 7.2% nationally, with most states enacting some tax increases,

according to the Rockefeller Institute, and further improvement is expected this year. In 2005, real state and local purchases will grow about 5.5%, and next year about 5.7%.

The projected pick-up in state and local government purchases will offset to some extent the slowdown in **federal purchases**. State and local government purchases, at about \$1.2 trillion this year, substantially exceed the \$0.9 trillion in federal purchases, and the state and local growth rate is expected to remain higher than for federal purchases for several years. (These figures are for purchases only, and do not include expenditures on social benefit programs such as Medicare and Medicaid.) Slowing federal revenues, due largely to tax cuts, have meant a growing federal deficit, and, as a result, a slow growth of nondefense purchases. Federal defense expenditures are also stabilizing, at just over \$500 billion. Overall, growth of real federal spending will come in at only 1.1% over the next five years. By comparison, in 2003, federal expenditures grew 6.6%, and in 2004, 4.7%, in real terms.

World Economy and Oil Prices

Rising oil prices, which are increasing business costs and cutting into consumers'

disposable incomes, are also causing the U.S. trade deficit to balloon and adversely impacting the growth rate of the global economy. In Japan, the price of gasoline at the pump for consumers this spring was 17% higher than a year ago (about the same percentage increase seen in the U.S.). For most consumers in Europe, where taxes per gallon are as high as the price of fuel itself, the increase was lower in percentage terms, but the rise in prices was about the same. **Increased energy costs** help to explain the drop in the expected growth rate of our major trading partners from 2.6% last year to 2.1% this year. Other trading partners also are experiencing an economic slowdown, from a 5.8% pace of growth in 2004 to 4.6% this year.

While U.S. exports will be adversely affected by sluggish growth in the Eurozone and Japan, the **lower value of the dollar** has been stimulating exports. The purchasing power of major U.S. trading partners is now almost 30% higher than in 2000, and 14% higher than a year ago. Global Insight is predicting a 6.4% increase in real exports this year, which is a drop of about 2% from the 2004 rate, but holds out hope that exports will be increasing at an 8% rate in 2006 and 10%

Table 2. **OTHER QUARTERLY NATIONAL ECONOMIC INDICATORS**

	2004 QIII	2004 QIV	2005 QI ^P	2005 QII ^P	2005 QIII ^P	2005 QIV ^P
1. Establishment Employment (% change, SAAR)	1.2	1.7	1.4	1.5	1.7	1.6
2. Index of Industrial Production (% change, SAAR)	2.7	4.4	3.6	3.3	3.3	2.4
3. Index of Productivity (% change, SAAR)	1.2	2.1	1.8	1.4	2.4	1.7
4. Light Vehicle Sales, Millions, SAAR	17.1	17	16.4	16.7	16.8	17.1
5. Housing Starts, Millions, SAAR	2.0	2.0	2.1	2.2	2.1	2.0
6. Standard & Poors 500 Equity Price Index (% change, SAAR)	-6.7	21.0	10.3	-7.0	10.0	5.8
7. After-Tax Corporate Profits (2000\$) (% change, SAAR)	-23.5	43.2	130.2	2.6	1.7	-1.3
8. Crude Oil, West Texas Intermediate Average Price	44	48	50	50	50	50

SAAR - seasonally average annual rate, based on quarter-to-quarter growth rates.

^PFirst quarter data are preliminary numbers and estimates. Second to fourth quarter 2005 data are projections.

SOURCE: Global Insight, May 2005.

Table 3. **U.S. ECONOMIC FORECAST 2005-2007**
(Percent Change)

	2005	2006	2007
Gross Domestic Product (Percent Change)	6.1	5.1	5.0
Real Gross Domestic Product (Percent Change)	3.4	2.9	2.9
Price Level (Percent Change)	2.5	2.1	2.0
Real Private Domestic Investment (Percent Change)	7.7	2.4	2.1
Total Establishment Employment (Percent Change)	1.6	1.4	1.9
Manufacturing	-0.2	0.2	0.9
Business and Professional Services	3.0	3.0	0.3
Health and Social Services	2.2	1.8	3.1
Construction	3.1	0.6	1.2
Trade	0.9	0.9	0.2
Finance, Insurance, Real Estate	2.1	0.7	0.3
Transportation, Utilities	2.3	1.5	-0.6
Government	0.9	1.5	0.9
Unemployment Rate	5.2	5.2	5.3
Personal Income (Percent Change)	5.6	5.7	5.3
Consumer Price Level (Percent Change)	2.9	2.1	1.9
Prime Rate (Percent)	6.2	7.0	7.2

SOURCE: Global Insight, May 2005.

in 2007 – a growth rate which should be sufficient to finally reduce the trade deficit. A continuation of the gradual drop in the value of the dollar will be required to achieve this, however.

Federal Reserve Continues to Rein in Economy

The Federal Reserve Board increased the federal funds rate by 0.25% to 3% on May 3rd, the eighth such increase since last June. Global Insight expects similar increases throughout the year, so that by year-end the funds rate will be at 4.0%. This tightening of financial markets is driving up the cost of borrowing, but so far has had the effect desired by the Fed – moderating and prolonging the recovery by keeping the expansion in line with capacity, and so fighting inflation.

The overall **rate of inflation** remains below 3%, with businesses reluctant to pass on increased costs in face of intense competition. Airlines, for example, have been unable to raise ticket prices enough to cover rising fuel costs. The consumer price index (CPI), and its core index excluding food and

energy, both increased at an annual rate of 2.4% in Q1, while the GDP deflator rose 3.2%. Producer prices for finished goods, which rose 3.6% last year as they recovered from an earlier deflationary trend, are now rising at annual rates of just over 4%. This indicates that high energy costs are beginning to affect prices throughout the economy. The Fed continues to monitor these trends closely, and is likely to accelerate its increases in short-term interest rates if it detects an increase in inflation.

Key Assumptions Behind the Baseline Forecast

The baseline forecast of Global Insight, presented below, rests on assumptions about productivity, oil prices, Congressional tax measures, business investment, the value of the dollar and the growth rate of the world economy. Productivity is expected to grow at about 1.9% in 2005 and 2006; oil prices are expected to flatten out near \$50 per barrel this year and gradually fall but just slightly; Congress is expected to enact some increases in the personal income tax and slow the growth of spending so that the federal deficit

begins to drop; the growth of business fixed investment is predicted to increase, in real terms, from 11% this year to 14% in 2006 and 6% in 2007; the value of the dollar is expected to depreciate by 6% over the course of the year, followed by a similar decline in 2006; and current trends in the world economy are expected to continue, resulting in a growth of global trade comparable to that experienced this year. See Tables 1 and 2 for more detail.

Outlook for 2005 to 2007

A moderate, steady pace is projected for the U.S. over the coming period. The economy has been growing at the annualized rate of 3.1% in the first half, and for the year as a whole, the **gross domestic product (GDP)** is forecast to increase about 3.4%. This rate will drop to 2.9 in 2006 and 2007. See Table 3.

The economy will continue to add an average of 175,000 jobs per month in 2005, for a 1.6% growth rate of employment for the year. **Employment growth** will remain broad-based--most sectors except manufacturing are forecast to add jobs this year.

The strongest job growth over the next three years will be in business and professional services, which will add jobs at the rate of 3% per year. Almost a third of the jobs in this sector have been low-end temporary help and this may continue for a while. Health and social services will also show strong employment growth.

Construction employment is forecast to grow a strong 3.1% this year, boosted by high rates of residential and nonresidential fixed investment, but will grow at more modest rates in 2006 and 2007. Although the growth rate of industrial production has slowed somewhat from its increase of 4.1% in 2004, the outlook for jobs in manufacturing is improving; the number of jobs in this sector will drop slightly this year, but an upward trend beginning this summer will mean modest additions to employment in this sector in 2006 and 2007.

Despite strong growth of the labor force, the unemployment rate will drop to 5.2% this year and will remain at this level in 2006. The percentage of the unemployed who have been looking for a job for at least six months has been high during this recovery, at over 20%, but this will change as employment continues to grow.

The price of oil is expected to stabilize at just under \$50 per barrel, and remain in the upper forties over the forecast period. After an initial period of adjustment this year, the **rate of inflation** will slow, dropping from 2.9% this year to about 2.1% in 2006 and 2007, as measured by the consumer price index. Rising interest rates will help keep inflation low: the federal funds rate is forecast to rise to 4.0% by the end of the year, with the prime rate going from 6.2% this year to 7.0% in 2006 and 7.2% in 2007.

Personal incomes will rise by 5.6% in 2005, and by 5.7% in 2006, with wage and

Table 4. **ALTERNATIVE SCENARIOS AND PROBABILITIES IN NATIONAL ECONOMIC FORECAST**

	Rate of Growth of Real GDP			Probability
	2005	2006	2007	
Baseline	3.4	2.9	2.9	60%
Pessimistic	3.1	1.5	1.7	20%
Optimistic	3.7	4.0	3.5	20%

SOURCE: Global Insight, May 2005.

salary income growing by 5.4% in 2005 and 5.7% in 2006. Income from interest, rent, and profits is forecast by Global Insight to increase by over 5% each year from 2006 to 2010, after a 3.1% increase this year.

Alternative Scenarios

The probability is 20% that the economy will grow significantly more rapidly than the baseline forecast predicts. Similarly, the probability of a lower growth rate is also 20%, according to Global Insight forecasters. See Table 4.

Optimistic Scenario: A higher growth of productivity than in the baseline forecast, a lower price of oil, or judicious use of monetary and fiscal policy tools abroad, resulting in a more rapid growth of the world economy, would have a positive impact on growth. This could result in a growth rate as high as 3.7% this year and 4.0% next year.

Pessimistic Alternative: On the other hand, there is also potential for a higher rate of inflation, which would trigger a more rapid rise in interest rates as the Fed takes steps to control inflation. Political developments that raise uncertainty about oil supplies would be one possible route to higher energy prices and higher rates of inflation. Rising energy costs would also slow the growth rates of major U.S. trading partners, adversely affecting U.S. exports of manufactured goods, agricultural products and services. A slowing world economy could also reduce predicted rates of investment. A growth rate as low as 3.1% this year and 1.5% next year is possible.

Written by Marianne Hill, with input from members of the Center of Policy Research and Planning.

Sources

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MISSISSIPPI ECONOMIC OUTLOOK: MIXED SIGNALS AS MARKETS IMPROVE

The upturn in employment in the state has been broad, and the number of persons employed is expected to rise about 1.2% this year. For more than 12 months now, employment levels have been above those of the same month a year ago. The unemployment rate has increased to 7.2 %, however, as more workers have entered the labor force.

The most rapid growth of employment has been in the service sector, where jobs in the first quarter (Q1) in professional and business activities grew 4.6% and in food services, 5.1%, compared to Q1 of 2004. Construction employment was up a modest 1.3%, while the number of persons employed in manufacturing dropped slightly.

Tourism appears to have been hurt by record gasoline prices, but employment in transportation grew a surprisingly strong 4.3% in comparison to Q1 of 2004. The average price of a gallon of regular gasoline was \$2.01 as of May 23 in the state, while the national average was \$2.12.

Fiscal pressures have resulted in a state budget that may mean the loss of jobs in some state agencies and some shift of responsibility for funding of K-12 education towards the local level. State general fund revenues through May are up 8.7% over last year, however, improving the state's fiscal position.

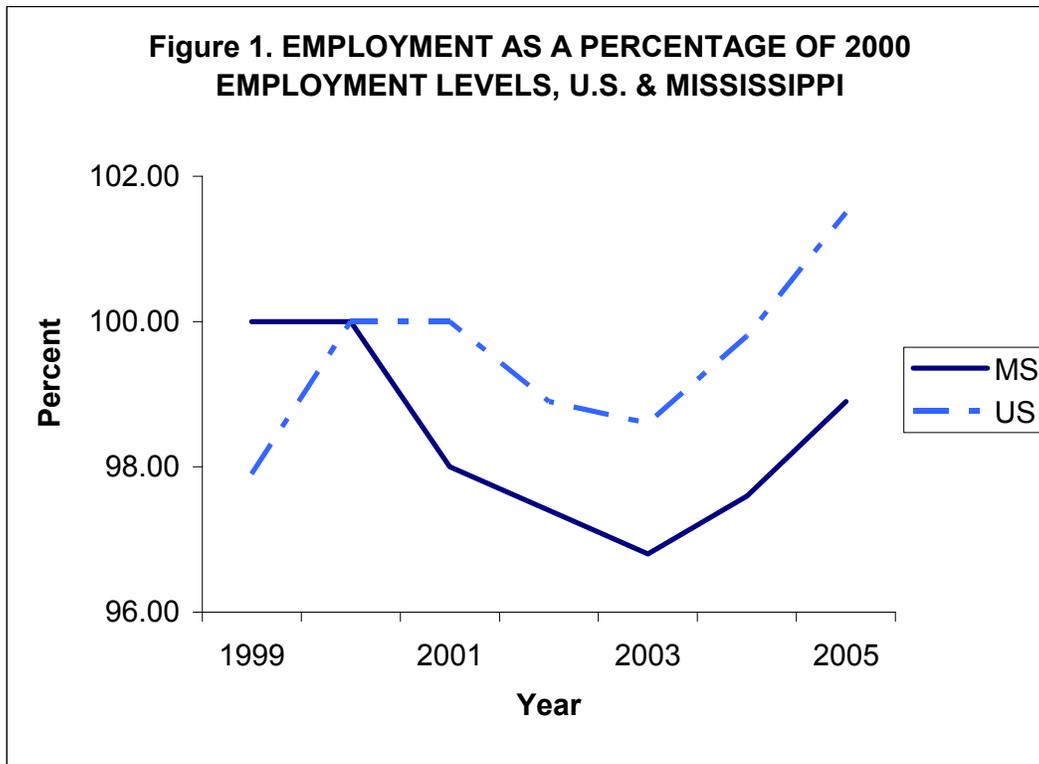
Consumer confidence in the state was up in April, while business confidence dropped: the percentage of respondents who expected business conditions to stay the same or improve in the coming months rose among consumers but fell among businesses.

The upturn in the state's economy continues, but the return to 2000 levels of employment is taking longer than in the country as a whole. As Figure 1 illustrates, U.S. employment surpassed 2000 levels early this year, but employment in Mississippi has not yet done so. The downturn in the state's economy, which began in 2000, was sharper and deeper here than in the country as a whole, due to Mississippi's heavy reliance on lower-skill manufacturing. The recovery is taking longer as a result. By 2006, however, the state will surpass 2000 employment levels, and begin creating additional jobs.

Recent economic indicators for Mississippi show that the upswing in the economy continues. Revised figures for 2004 employment and income show the state economy was growing at a faster pace last year

than originally estimated, thus boosting upward the Center's estimates of Mississippi's growth rates in 2004. However, the expected growth rate of gross state product (GSP) for 2005 remains at 2.9%. The added momentum going into 2005 has been offset by adverse trends in the national and international economies.

Revised labor market numbers show that employment grew 0.9% in 2004, up from the original estimate of 0.7%. Employment growth rates for business and professional services, health care and transportation and utilities were substantially higher than in original estimates. However, the growth rate of manufacturing jobs was revised downward to 0.2%, from 0.7%. Retail trade, construction and government employment figures for 2004 were also revised downwards.



SOURCE: Center for Policy Research and Planning, April, 2005

Personal income figures from the U.S. Commerce Department show a 5.8% growth rate of **personal income** in Mississippi in 2004, compared to the Center's preliminary estimate in December of 4.7%. The growth of non-labor income was more rapid than had been anticipated. In line with the improvement in incomes, data from the Federal Deposit Insurance Corporation show that bankruptcies in the state declined 5.1% in the state in 2004.

Other recent data on the state's economy are presented in Figures 2a to 2h. The trend in **total nonagricultural employment** has been upwards, as shown in Figure 2a, while manufacturing employment in recent months remains close to or below year-ago levels (Figure 2b). The value of **building permits** issued (Figure 2c) has been above levels for the same month of the previous year for several months, which bodes well for construction. **General fund revenues**, shown in Figure 2d, have also been showing positive growth, with general fund collections for FY2005 8.7% ahead of those for FY2004 (July through May). This increase would have been higher with a better showing by the

personal income tax. As Figure 2e reveals, revenues from this tax have fluctuated, and were only slightly higher this fiscal year than last through March. Collections in April and May boosted the growth rate for this fiscal year to 7.1%, however. The slow growth of state revenues over the FY2001-FY2004 period continues to impact the state budget, and is expected to result in further reduction of services offered by some state agencies, and additional layoffs at both state and local levels.

Retail sales have shown only modest growth over year-ago sales (Figure 2f), but employment figures, given in Table 1, confirm that there has been some expansion in this sector. Gaming revenues both on the Coast and on the Mississippi River (Figures 2g and 2h) have been remarkably stable over the past few years, drifting upwards only gradually. State revenues from gaming have increased only 3% so far this fiscal year.

State Economic Indexes

Other indicators are consistent with this picture. The index of **coincident indicators** published by the Center for Policy Research

Table 1. MISSISSIPPI EMPLOYMENT BY SECTOR

RESIDENCE BASED DATA¹	Jan - Mar 2005	Jan - Mar 2004	Percent Change
Civilian Labor Force	1,335,330	1,313,400	1.7%
Unemployed	96,230	74,270	29.6%
Percent of Labor Force	7.2	5.7	xxx
ESTABLISHMENT BASED DATA¹			
Total Nonfarm Employment	1,127,370	1,114,170	1.2%
Goods Producing Industries	234,330	234,400	0.0%
Natural Resources & Mining	8,500	8,630	-1.5%
Construction	47,900	47,300	1.3%
Total Manufacturing	177,930	178,470	-0.3%
Durable Goods Manufacturing	116,070	115,230	0.7%
Wood Product Manufacturing	12,870	12,830	0.3%
Fabricated Metal Products	10,800	11,030	-2.1%
Machinery Manufacturing	11,830	12,070	-2.0%
Transportation Equipment	29,570	27,430	7.8%
Motor Vehicle Parts	7,300	7,330	-0.4%
Ship and Boat Building	14,800	14,200	4.2%
Furniture and Related	26,930	28,230	-4.6%
Nondurable Goods Manufacturing	61,870	63,230	-2.2%
Food Manufacturing	26,770	26,530	0.9%
Animal Slaughtering	19,400	19,170	1.2%
Paper Manufacturing	5,430	5,800	-6.4%
Chemical Manufacturing	6,730	6,930	-2.9%
Plastics and Rubber	9,100	9,230	-1.4%
Service Providing Industries	893,030	879,770	1.5%
Trade, Transportation	219,570	217,770	0.8%
Wholesale Trade	34,800	34,730	0.2%
Retail Trade	137,400	137,230	0.1%
Transportation, Warehousing & Utilities	47,370	45,800	3.4%
Information	14,330	14,830	-3.4%
Telecommunications	7,270	7,770	-6.4%
Financial Activities	46,000	45,500	1.1%
Finance and Insurance	34,030	33,770	0.8%
Real Estate, Rental and Leasing	11,970	11,730	2.0%
Professional and Business Services	84,570	80,830	4.6%
Professional, Scientific, Technical Services	30,730	30,170	1.9%
Administrative and Support	43,870	40,700	7.8%
Educational and Health Services	121,670	118,800	2.4%
Educational Services	16,100	15,400	4.5%
Health Care and Social Assistance	105,570	103,400	2.1%
Hospitals	28,970	29,100	-0.4%
Nursing and Residential	21,070	20,630	2.1%
Leisure and Hospitality	123,600	121,270	1.9%
Arts, Entertainment, and Recreation	11,770	12,470	-5.6%
Amusement, Gambling	11,070	11,600	-4.6%

Table 1. **MISSISSIPPI EMPLOYMENT BY SECTOR** (continued)

	Jan - Mar 2005	Jan - Mar 2004	Percent Change
Accommodations	35,870	36,500	-1.7%
Food Services	75,970	72,300	5.1%
Other Services	37,230	37,670	-1.2%
Total Government	246,070	243,100	1.2%
Federal Government	25,070	25,170	-0.4%
State Government	62,230	61,400	1.4%
State Education	21,830	21,330	2.3%
Local Government	158,770	156,530	1.4%
Local Education	86,430	85,130	1.5%

SOURCE: Mississippi Employment Security Commission, May 2005. Preliminary figures.

¹Residence employment estimates are based on household surveys, whereas establishment data are based on jobs reported at places of work. A person with two jobs will generally be counted twice by establishment data, but not by the household data. A person residing in Mississippi but employed outside of the state will be included in residence-based data, but not in establishment data. The self-employed are also better captured by residence-based data.

and Planning shows a gradual upward trend since mid-2003, stabilizing near 105 in 2005. At the same time, the index of **leading indicators**, designed to indicate the direction of the economy, rose slightly in March after declining in both January and February. The upturn was due to a spike in building permits, a drop in initial unemployment claims, and a slight increase in the length of the manufacturing workweek. “The outlook for modest growth has not changed”, summarized economist Darrin Webb, who publishes these indexes for the Center.

This spring, consumers nationally expressed concern about rising gasoline prices, higher interest rates and higher rates of inflation, which may portend an increasing conservatism in consumer spending for the rest of the year. In Mississippi, **consumer confidence** has been fluctuating from quarter to quarter but was up in April, while **business confidence**, which had been flat throughout most of 2004, dropped. The percentage of respondents who expected business conditions to stay the same or improve in the coming months rose among consumers but fell among businesses.

Employment Growth by Sector

Although the overall trend in total employment has been consistently positive, the news has not been as good for specific industries. Table 1 provides employment data for the first quarter (Q1) of 2005 in comparison to Q1 of 2004. Total nonfarm employment was up 1.2%, with growth limited to service-producing industries.

Employment in **goods-producing** industries was stable, but did not increase. The national recovery in manufacturing employment stalled at the end of 2004, and remained weak in the first quarter of 2005. Mississippi’s manufacturing employment was affected: the number of persons employed in manufacturing here in Q1 was down 0.3% versus Q1 of 2004, the net result of a 0.7% increase in durable goods employment and a 1.2% drop in nondurables. Natural resources/mining employment was down 1.5%, despite record-high oil prices. Construction employment grew 1.3%, and, in line with the increase in building permits shown in Figure 2c, a positive growth of employment in this industry is expected to continue into 2006.

Figure 2a. Nonagricultural Employment

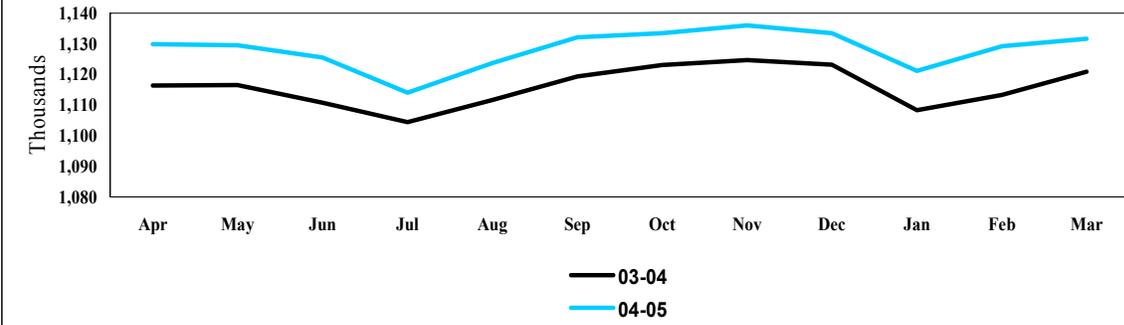


Figure 2b. Manufacturing Employment

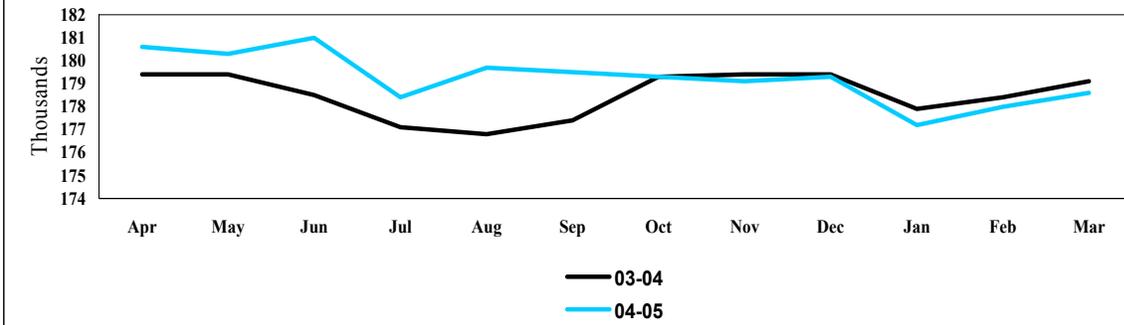


Figure 2c. Value of Building Permits

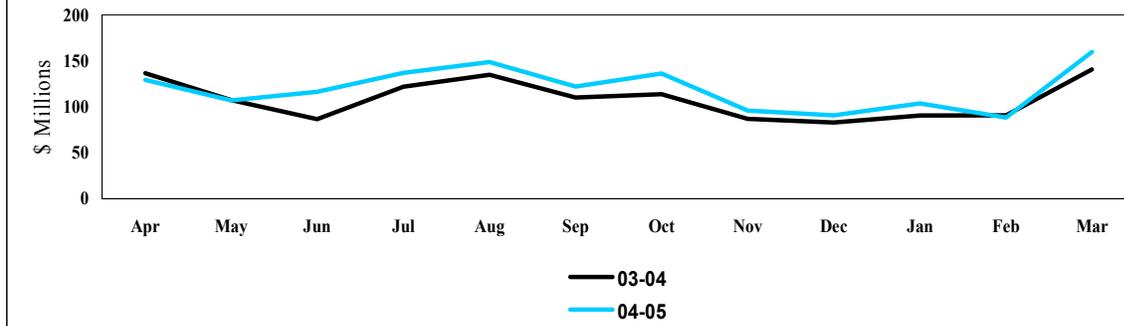


Figure 2d. General Fund Revenues

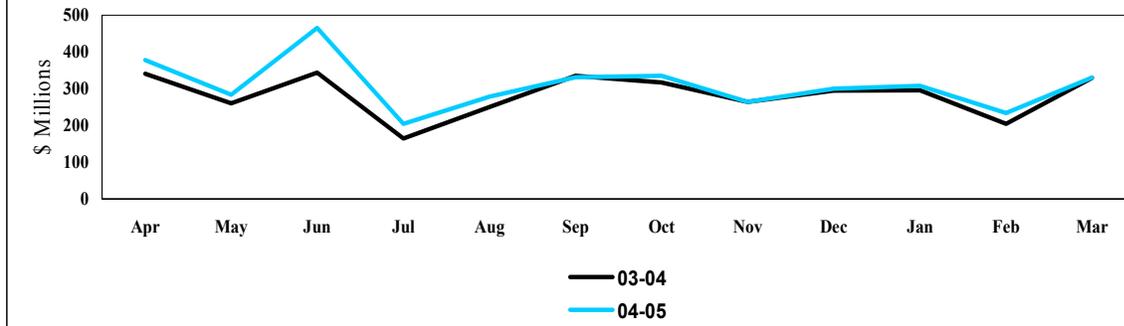


Figure 2e. Personal Income Tax Revenues

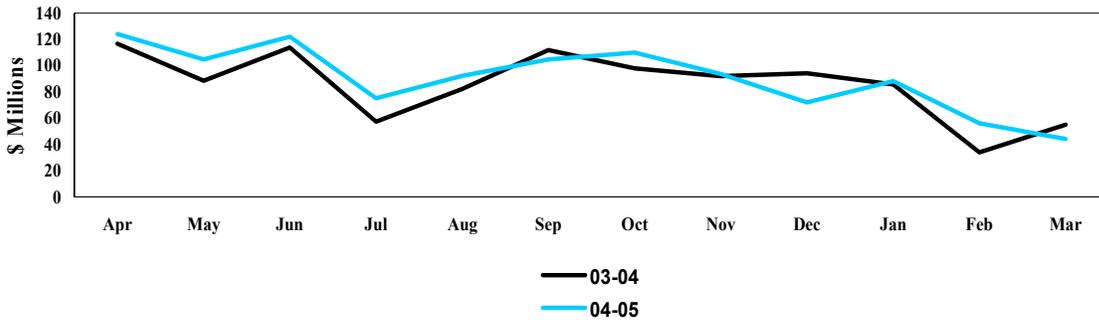


Figure 2f. Retail Sales

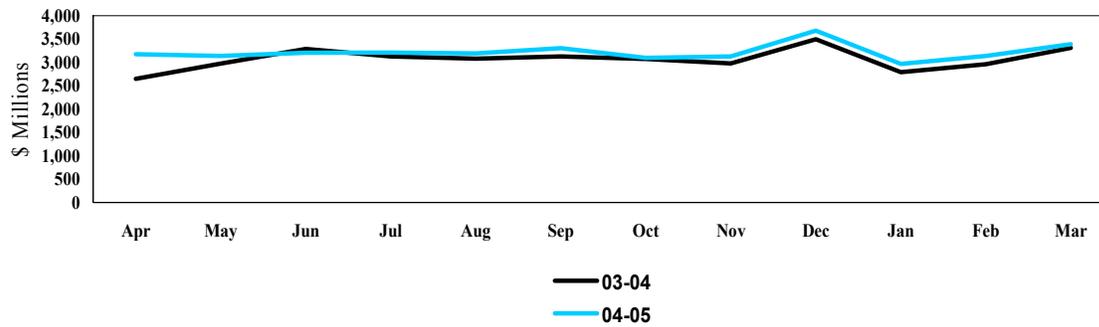


Figure 2g. Gaming Revenue -- Coast

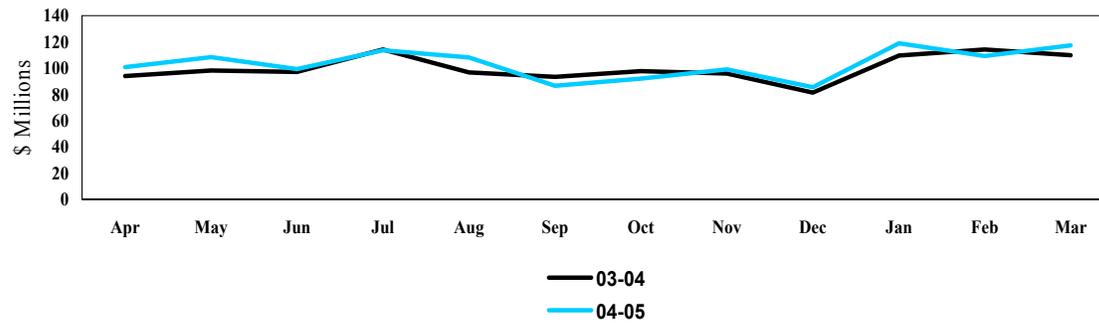
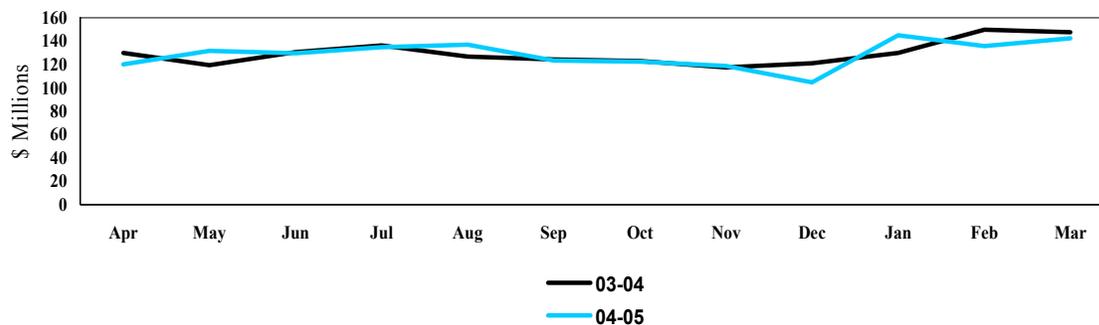


Figure 2h. Gaming Revenue -- River



A closer look at **durable goods** employment shows that there was a strong 7.8% jump in jobs in transportation equipment. This increase, however, was dwarfed by last year's 16% rise, which was fueled by the new Nissan auto plant and several defense contracts at Northrop Grumman.

The remarkable growth of employment in the transportation equipment industry last year was sufficient to boost manufacturing employment in durable goods by 3.2%, compared to the 0.7% increase so far this year.

Electrical equipment employment rose a strong 6.1% in comparison to Q1 of 2004, but drops in furniture, fabricated metal products and machinery manufacturing reduced the overall growth of durable goods employment.

Employment in **nondurable goods** continues to decline overall. Although food manufacturing added 240 jobs, for a 0.9% increase, paper, chemicals, plastics and rubber, as well as apparel, all employed fewer persons in Q1 of 2005 than in Q1 of 2004.

Retail and wholesale trade have added only a few jobs so far this year, but improvement is forecast. Transportation has added over 1,500 jobs, for a growth rate of 4.3% over Q1 of 2004, despite higher gasoline prices. No jobs were added in utilities. A 2% increase in employment is forecast for the transportation and utilities sector in 2005, dropping closer to 1% in 2006, based on national trends.

Turning to **service** industries, the highest growth rate was in professional and business activities, at 4.6%. This increase was due largely to the 3,170 jobs added in administrative and support, which includes temporary workers, a job category which has been one of the fastest-growing categories in the past few years. Health care and social services added 2,170 jobs, boosting the employment growth rate for educational and health services to 2.4%. Food services employment rose 5.1%. Jobs in leisure and hospitality grew 1.9%, but employment in the subcategory of amusement and gambling dropped.

Financial activities' growth rate of 1.1% was fueled by a 2.0% increase in real estate services employment. A jittery stock market, low interest rates and a continuing strong demand for housing are expected to maintain the growth rate of employment in real estate services at this level for the rest of the year, before it begins to slow in 2006.

Employment in **government** was up 1.2% over Q1 of 2004, but this figure may be revised downward a bit: the preliminary estimate of this growth rate in 2004 was 1.0%, but the final figure came in at 0.7%.

State Budget Outlook: Not Yet Out of the Woods?

Slow growth of state revenues over the FY2001-FY2004 period continues to impact the state budget, and the state may not yet be out of the woods. The current improvement in revenues across the nation is viewed as a brief reprieve by many experts. All but 14 states are projected to be facing budget deficits in 2009, if not sooner – an indication that structural reform of state budgets, which rely heavily on sales tax revenues, is needed.

Mississippi's growth of state and local expenditures has been typical – from FY1997 to FY2002, state and local expenditures increased 38.5%. The increase for the U.S. as a whole was 38.7%. (*CQ State Fact Finder 2005*, Table G-8.) Revenues have not been keeping pace, however. Groups like the National Association of State Budget Officers and the Multistate Tax Commission have studied the problem and have made recommendations that are likely to find receptive audiences, should the deficits they project materialize.¹

State Economic Forecast

The state economy will grow at a moderate pace in 2005, slowing only a bit in 2006 and 2007. The growth rate of output in 2005 as measured by the **gross state product**, (GSP), will be about 2.9% in real terms, just below the estimated increase of 3.1% in 2004. A 2.7% increase is forecast for 2006, and 2.6% for 2007. See Table 2.

Table 2. **ECONOMIC FORECAST FOR 2004-2006**

	2005	2006	2007
Mississippi			
Gross State Product (Percent Change)	5.2	4.7	4.7
Real Gross State Product (Percent Change)	2.9	2.7	2.6
Price Level (Percent Change)	2.2	2.0	2.1
Establishment Employment (Percent Change)	1.2	1.0	0.9
Unemployment Rate	6.3	6.0	5.7
Personal Income (Percent Change)	5.1	5.0	4.8
Consumer Price Level-South (Percent Change)	2.7	2.1	2.1
United States			
Gross State Produce (Percent Change)	6.1	5.1	5.0
Real Gross State Product (Percent Change)	3.4	2.9	2.9
Price Level (Percent Change)	2.5	2.1	2.1
Establishment Employment (Percent Change)	1.6	1.4	0.9
Unemployment Rate	5.2	5.2	5.3
Personal Income (Percent Change)	5.6	5.7	5.3
Consumer Price Level-South (Percent Change)	2.9	2.1	1.9

SOURCE: Center for Policy Research and Planning, Mississippi Institutions of Higher Learning, May 2005. Global Insight, May 2005.

Increased economic activity this year and last has brought more workers into the labor market. The **number of persons employed** this year is expected to be 1.2% higher than in 2004, with employment growth slipping to 1.0% in 2006 and 0.9% in 2007. The labor force has grown more rapidly than employment in recent months, however, so that, for the year as a whole, the unemployment rate is not expected to drop. By 2006, though, the unemployment rate will most likely fall to about 6.0%, with further improvement in 2007.

The rise in employment will have a positive impact on wages, salaries, and other labor income. Wage and salary income will increase 4.0% in 2005, compared to an increase of 3.6% in 2004, and even more rapid growth is forecast for 2006 and 2007. However, the pick-up in payrolls will be counter-balanced by slower growth of farm proprietors' income and of transfer payments, with the net result that the growth rate of **total personal income** will drop from the 5.8% of 2004 to 5.1% in 2005. A 4.8% increase is predicted for 2006.

The rate of **inflation** will hit 2.7% this year, as measured by the consumer price index

for the South. Although energy prices have stabilized, the higher energy costs will continue to push up prices for a few months. By 2006, the rate of increase in prices will drop to about 2.1%, and a similar rate of increase is expected the following year. The full economic forecast for Mississippi presented in Appendix Tables 1 to 7.

For the southeastern region as a whole, employment is forecast to grow 1.7% in 2005, faster than the rate for Mississippi, and 2.0% in 2006, after an increase of 1.0% in 2004. According to the April forecast of the Economic Forecasting Center of Georgia State University, gross regional product (GRP) will climb 2.8% in 2005, improving to 3.1% in 2006.

Forecast for 2005 - 2010

The average annual increase of 2.6% in gross state product (GSP) forecast for 2005 to 2010 is a welcome change from the 1.3% rate characterizing the previous five-year period. For both periods, though, the growth rate for Mississippi will be lower than that for the U.S. See Figure 3. At least as welcome as the higher growth rate of output, the employment outlook is also improved. The number of

persons employed fell at an average annual rate of 0.5% over the 1999-2004 period, but will rise at an average 0.8% rate over the coming five years, as shown in Figure 4.

Figure 5 provides average annual growth rates of **employment in the major sectors** of the state economy over the coming five years. The growth of employment will be most rapid in the services-providing industries: 2.0% in health and social services, 1.1% in leisure and hospitality, 0.7% in transportation/communication/utilities, and 0.6% in retail and wholesale trade.

Jobs in the goods-producing industries will also increase although not as rapidly. The highest growth rate among these industries is the 0.7% average annual increase forecast for construction. The rate forecast for manufacturing is 0.1%; for mining, 0.3%; and for agriculture, 0.4%.

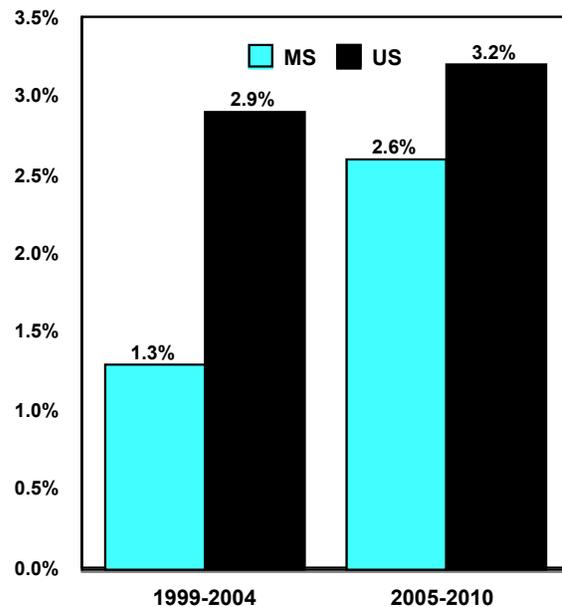
The full forecast for the state, presented in the Appendix, can be used to estimate trends in **productivity** for the state. Output per worker will increase approximately 1.7% annually over the forecast period, compared to an expected rate of increase of 2.1% for the U.S. as a whole. As Mississippi shifts towards higher-skill and newer technology - intensive industries, productivity growth will improve.

Written by Marianne Hill, with input from members of the Center for Policy Research and Planning.

Notes

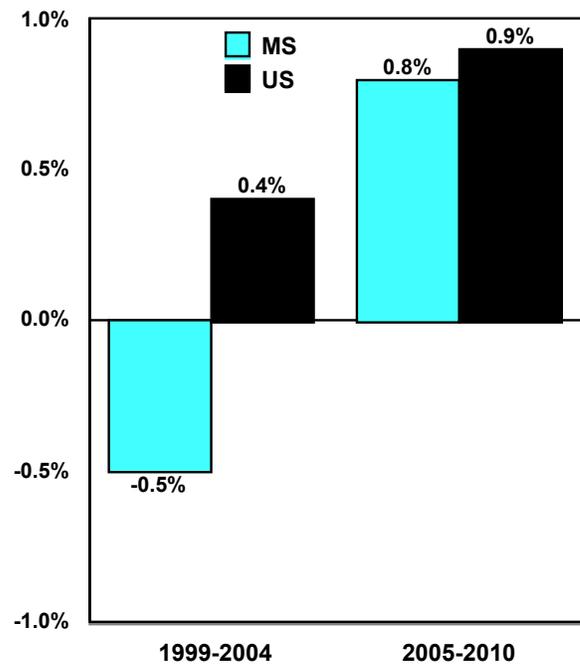
¹Fourteen states ranked lower than Mississippi in projected state budget deficits as a percent of baseline revenues (Table G-22). Mississippi is ranked 42nd by CQ on its state solvency index for 2003 (a measure which compares assets versus liabilities of the state Table G-16). The state also ranked 42nd in terms of state reserve balances as a percentage of expenditures (at 1.3% in FY2004). The projections of deficits were made by CQ's *State Fact Finder 2005* using methodology developed by State Policy Research, Inc. Recommendations made by NASBO are available at www.nasbo.org.

Figure 3. ACTUAL AND PROJECTED ANNUAL CHANGES IN REAL GSP AND REAL GDP



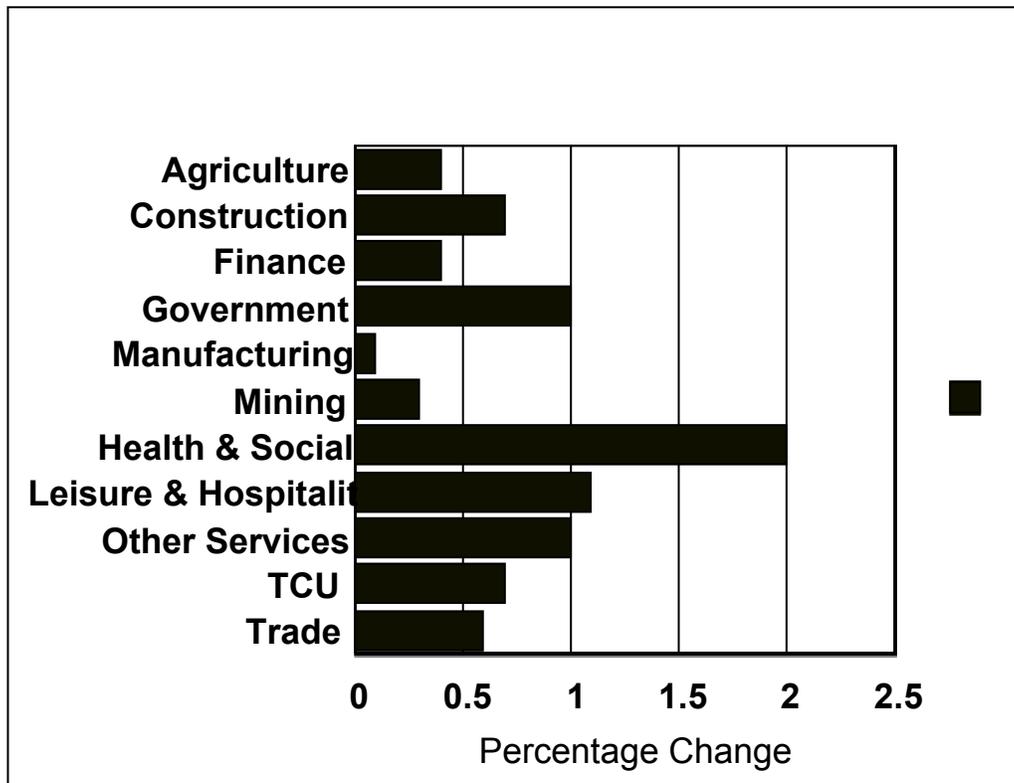
SOURCE: Center for Policy Research and Planning, May 2005. Global Insight May 2005.

Figure 4. ACTUAL AND PROJECTED ANNUAL CHANGES IN EMPLOYMENT



SOURCE: Center for Policy Research and Planning, May 2005. Global Insight May 2005.

**Figure 5. MISSISSIPPI EMPLOYMENT PROJECTIONS
AVERAGE ANNUAL GROWTH RATES 2005-2010**



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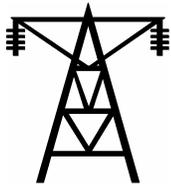
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Spotlight

LONG-TERM OUTLOOK FOR MANUFACTURING

Nationally, manufacturing employment posted positive growth for two consecutive quarters in 2004, the first time this has occurred since 1997, and the number of manufacturing jobs is expected to grow slowly until the end of 2007, when Global Insight forecasts this expansion will end. Despite the loss of over 3 million jobs in this sector since 1998, output has continued to rise, due to strong **productivity** growth. This is true of Mississippi as well as of the U.S. as a whole. Output per hour in manufacturing rose at an average annual rate of 5.4% nationally between 1999 and 2004. This tremendous growth of productivity has been critical to the continued profitability of the sector, which has faced rising costs and falling real prices of its products.

Rising **prices of oil and natural gas** have hit manufacturing hard, since it is more energy-intensive than other industries. The price of natural gas in Q1 of 2005 was 75% higher than in Q1 of 2000, although this price has fluctuated, while the price of oil (per barrel of West Texas intermediate) was 73% higher. The price of steel (per ton of hot-rolled steel) was more than twice as high in April this year than in June of 2003. The long-term trend in the prices of oil and gas is upward, so rising energy costs will continue until alternative energy sources become more available and cost-efficient.



The price of **steel** may moderate some, but future prices depend largely on developments abroad -- high global demand, particularly from China, is expected to keep the pressure on for the foreseeable future. Also, rising energy prices, linked to world demand, increase the cost of steel production, and so the cost of the final product. Finally, the falling value of the dollar is another factor affecting steel prices, driving up the cost of imported steel.

Other cost factors hurting U.S. business in general also affect manufacturing -- most notably rising **health care costs**. The National Association of Manufacturers (NAM) found that only 10% of members surveyed had increases in health care costs of less than 6%, while about 80% had increases of 6% to 19%. Cost pressures from regulations, litigation and taxes also impact manufacturing.

An expected **shortage of workers** is another issue facing corporations. The U.S. labor force grew at an average annual rate of 1.1% during the past ten years, but this growth rate is projected to shrink to 0.3% and falling by 2015 -- a result of demographic changes including lower birth rates. At the same time, demand for U.S. products will be rising, driven in part by an expected 50% increase in the world's population (2000 - 2050), and the increasing incomes of many of the world's economies. To meet the demand, U.S. corporations expect to draw on the international labor force, hiring immigrant workers and expanding their presence abroad. As of 2000, about 30% of U.S. population growth was due to immigration, and future immigration policies will be critical to the industry.



MANUFACTURING FACING STRUCTURAL CHANGE

The key role that manufacturing plays in the economy cannot be understood simply by looking at the percentage of employment in manufacturing or the percentage of gross domestic product (or gross state product) due to manufacturing.¹ The new technologies upon which most of U.S. GDP growth is based are generally embodied in manufactured goods. The development of new products and technologies in manufacturing, the marketing, financing, transportation and distribution of manufactured products; training and administration; computer programming and servicing, facility design and other activities serving manufacturing account for more employment and value-added than the production of manufactured goods itself. Even when U.S. companies produce abroad, many of these related jobs remain in the U.S.

The role of manufacturing in the U.S. economy will remain vital and irreplaceable, but manufacturing, both in Mississippi and nationally, is facing structural change. The average skill and educational levels required of production workers in the U.S. have been increasing and will continue to rise. As the National Association of Manufacturers (NAM) notes, the composition of manufacturing products in the U.S. is shifting towards five types: 1. Complex, value-added products and systems; 2. High-tech, higher (profit) margin products; 3. Production serving protected markets; 4. Big, bulky items that are costly to ship; and, 5. Perishable items, such as bread.

Issues and Implications

Issues that concern NAM include health care, social security, national energy policy, immigration policy, tax reform, regulation, and the value of the dollar (lowering the value of the dollar boosts manufacturing exports).

Some implications for Mississippi include: 1. Many of the jobs created by manufacturing are not directly in production, but are in related activities. The state's ability to provide more of the goods and services needed before and after production will enhance the impact of its manufacturing sector. 2. In fact, to thrive, manufacturing states must focus not only on production itself, but also on the development of those services (finance, marketing, product development, facility design) that enable participation in cutting-edge competition, and 3. Policies that address the issues facing the industry – from immigration to energy policy -- also warrant attention.



Note

¹The decrease in the size of the manufacturing sector in Mississippi, the U.S. and abroad is due in large part to increasing productivity per worker, although in several industries the relocation of plants abroad and increased global production are also factors. Recall that a hundred years ago, a third of the U.S. workforce was employed in agriculture, compared to less than 3% today. Real output per worker-hour in manufacturing today is over three times what it was as recently as 1969, so it is not surprising that the percentage of the labor force employed in manufacturing has dropped to 11%, less than half the percentage of thirty years ago, and is not expected to increase.

Between 1995 and 2002, 23% of the state's manufacturing jobs were lost, and for the U.S., the drop was 11%. The global decline was 11%. Even in China, where many jobs have emigrated from Mexico, the percentage loss was a surprising 15% as new technologies were introduced, according to the Global Economic Research department of Alliance Capital.

A 2004 survey by the Mississippi Manufacturers Association found that, when a reason was given, the most common reasons for plant closings here in 2004 were "consolidation" (25%), followed by "business slow" (21%), "foreign competition" (11%), and "moved out of the U.S." (6%). Other reasons, cited less frequently, were lost contract, increased health care costs, facility burned and Federal regulations. Rising productivity and output globally are likely behind many of these closings.

HIGHLIGHTS FROM RECENT NEWS ON MISSISSIPPI'S ECONOMY

See the website of the Mississippi Development Authority, www.mississippi.org, for more information about recent economic developments in the state, or contact Scott Hamilton, Communications Division, at 359-3041.

New and Expanded Facilities

A total of \$518 million in new investments were announced in the first quarter (Q1) of 2005 by the Mississippi Development Authority, an increase of 18% over Q1 of 2004. Over 80% of these investments were in non-manufacturing facilities.

The largest single investment was \$215 million for the Concourse at Colony Park, an office building complex to be built in Madison County. The **largest job creator** was Client Logic Corporation, which is locating its (inbound) telemarketing service in Oktibbeha County. About 400 jobs will be created.



Other major job creators are Yoroyce Automotive, which will employ 196 persons producing vehicle suspension systems in Warren County; Baldor Electric Company, which will employ 150 persons producing motors and generators in Lowndes County; and Townhouse Home Furnishings, which will provide 145 jobs producing upholstered, wood household furniture in Monroe County.

In other major investments, **Weyerhaeuser** is planning a \$30 million pulp fiber modification plant at its Lowndes County location, while Kingsford Manufacturing Company will build a \$20 million facility in Alcorn County to produce wood chemicals and hardwood distillation products.



Prime Automotive Warehouse and Cooper Tire and Rubber Company are investing in facilities in DeSoto and Lee Counties, respectively. Several institutions of higher education are expanding. The University of Mississippi, Southwest Mississippi Community College, and Mississippi College School of Law are each investing approximately \$3 million in new facilities.

Cutting Edge

The **John Stennis Space Center** in Hancock County will be the site of NASA's new administrative center that will merge transactional and administrative duties now being done at 10 centers across the country. The new center will be housed in a \$20 million-plus building and will bring 470 jobs to the coast. The total value of the contract is projected to be \$230 million over 10 years. Lockheed Martin and Virginia-based Computer Sciences Corp. are the contractors. Mississippi's Stennis Center was in competition with six other research and space centers across the country for the contract. In favor of the Mississippi site, 33 companies are located in the area.



This May, France-based EADS, owner of Airbus, named the Stennis International Airport as one of four finalists for location of its \$600 million refueling tanker factory. The final decision will be made in July. Also this year, **Rolls-Royce North America** announced a planned investment of \$42 million in facilities for the testing of aircraft engines. Completion is slated for 2007.

Northrop Grumman Integrated Systems is already planning to expand the unmanned aerial vehicle (UAV) manufacturing facility it is currently constructing on the Mississippi Gulf Coast. The expansion will make it possible for the plant to handle subassembly of the **Global Hawk**, a high-altitude fixed-wing reconnaissance system designed for use by the Air Force. Employment at the facility will climb from the previously announced 40 employees to between 100 and 160 persons, depending on demand in coming years.

Construction began at the Trent Lott International Airport earlier this year and completion is scheduled for November.

In fiscal 2004, the **Nissan Motor Company** sold over a million vehicles, a record for the company. Despite high gas prices, sales in February and March continued at double-digit growth rates. Earlier this year, Nissan reported a 15% increase in sales, compared to an industry-wide increase of only 2% (for January of 2005 over January 2004). The Titan, Nissan's first full-sized pickup, and a line of sport utility vehicles, contributed to the increase.



The National Association of Government Vending's web-based interchange opened in December in the **Howard Technology Park** in Ellisville. The interchange will allow a nonprofit entity to shop electronically for items and find service providers. The company will offer a 15% cost savings for governmental entities and nonprofits on supplies and services. Within the next five years, the company expects to employ 300, though it now employs only 17. A separate membership office in Jackson will employ 60 when it opens in the third quarter of 2005. The average salary will be close to \$40,000 per year. NAGV can be accessed at the following site: www.nagv.org.

Tourism

A \$250 million **Hard Rock Casino Hotel** is set to open in August on the Mississippi Gulf Coast and other new attractions will soon be up and running as well, including the \$20 million Ohr-O'Keefe Museum and the \$30 million



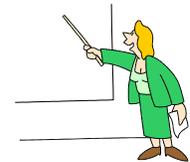
Fallen Oak golf course. In addition, investments in condominiums on the Mississippi Gulf Coast have been on the rise, and could exceed \$2 billion over the next five years

Mississippi and the Nation

The **Dixie National Livestock and Rodeo Show**, January 28 to February 20 in Jackson, drew more than 150,000 visitors who spent approximately \$25 million. Patrick Sullivan, spokes-man for the Mississippi Department of Agriculture and Commerce, said the event is the largest rodeo held east of the Mississippi River.



IMS Engineers, a Mississippi company that began in 1996 with three employees and now employs 300, has been rated the 32nd fastest growing urban firm by *Inc. Magazine's* Inner-City 100 list. About half of the employees of this Jackson firm are engineers or engineering-related personnel. To be rated, companies must have revenues of more than \$1 million annually. IMS began with the goal of creating a pool of minority engineers and professionals, whose services are often sought by larger contractors.



Oxford was highlighted as an ideal destination and a "cosmopolitan Mayberry" by Kiplinger's *Personal Finance* magazine this March. Oxford, home to the University of Mississippi, boasts attractions such as the Gertrude C. Ford Center for the Performing Arts, a range of cultural events including a pedestrian-friendly city-center, and brown-bag luncheon lectures from visiting scholars.

TAX-SUPPORTED DEBT RISES IN STATE

Marianne Hill

Mississippi's total bonded indebtedness tripled between FY1994 and FY2004, rising from \$0.9 billion to \$3.1 billion. As a result, per capita debt levels, which had been below the U.S. median at the start of this period, had jumped to twice that median by 2002, or \$1,200 per capita. (This number has since fallen, to \$1,116 in 2004.) In addition, \$1.1 billion of additional debt has been authorized but not yet issued. Is this increasing debt a cause for concern? In brief, the answer is "Not necessarily", but increased focus on the questions of how much debt, and what kinds of debt, the state should take on is warranted.



The state typically borrows money by issuing bonds, thereby taking on the obligation to repay the value of those bonds including interest. This enables the state to finance projects over a period of time, rather than simply relying on current revenues. In many cases, this debt finances infrastructure and facilities that are vital to the functioning of the state and its economic development.

However, it is necessary to monitor the issuance of debt to ensure that the increase in state revenues is keeping pace with the increased debt service obligations. The recent increased reliance on debt will likely necessitate some adjustment in the state budgetary process to ensure that this monitoring, and the appropriate responses to any findings, take place.

Debt by Purpose

General obligation bonds have traditionally been issued to provide funds for constructing and improving state-owned facilities, (including ports, university facilities, and roads), and these bonds have also been used to promote economic development in the state, particularly in recent years. Reports from the State Treasurer and the Department of Finance and Administration provide information and data on recent debt trends.

A breakdown of the state government's outstanding general obligation bonds in the Department of Finance and Administration's *2004 Annual Report* shows that, for the \$1.6 billion in bonds for which a purpose was

given, 28% were classified as Major Economic Impact, 26% Capital Improvements, 12% Gaming Highway Improvement, 5% Business Investment Act, 3% State Shipyard Improvements, and 26% Other. The Major Economic Impact category in 2004 was largely financial assistance for the Nissan project.

In addition, \$1.4 billion of bonds were refunded and reissued, in order to reduce debt service payments. No breakdown of purpose was provided for these bonds.

Debt Service Taking Up More of Revenue Pie

The increase in debt means that an increasing percentage of the state budget must go to debt service. In FY2005, an estimated 6.8% of total general fund state appropriations (\$244 million of \$3,596 million) will go toward debt service, and \$69 million in special fund transfers have also been appropriated for debt service. Another \$32 million in debt service is also due, according to a 1/13/05 report by the State Treasurer, for a total of \$345 million in debt service obligations due in FY2005. (By comparison, in FY1994 2.1% of general fund appropriations went to debt service versus the 6.8% in FY2005.)



Besides reducing the percentage of revenues available for other uses, high debt levels can potentially affect a state's bond rating. A lower bond rating means that the state would have to pay a higher interest rate to borrow funds. Long- and short-term trends in debt,

however, are only one factor in determining a state's bond rating. The rating also depends on the strength of its economy, the state of its finances, and its management practices and capabilities.

Impact on State Credit Rating

States in general receive high credit ratings, given their ability to require the payment of taxes and fees by their residents. Moody's top credit rating for a state is Aaa, the next highest is Aa1 followed by Aa2 and Aa3, then A1 to A3. Mississippi has received a Aa3 rating from Moody's since 1997, which places it in the bottom third of the states, along with such states as New York and California.¹ Standard & Poor's and Fitch, two other national investor services firms, rate Mississippi's bonds AA, which is the equivalent of Moody's Aa2 rating.

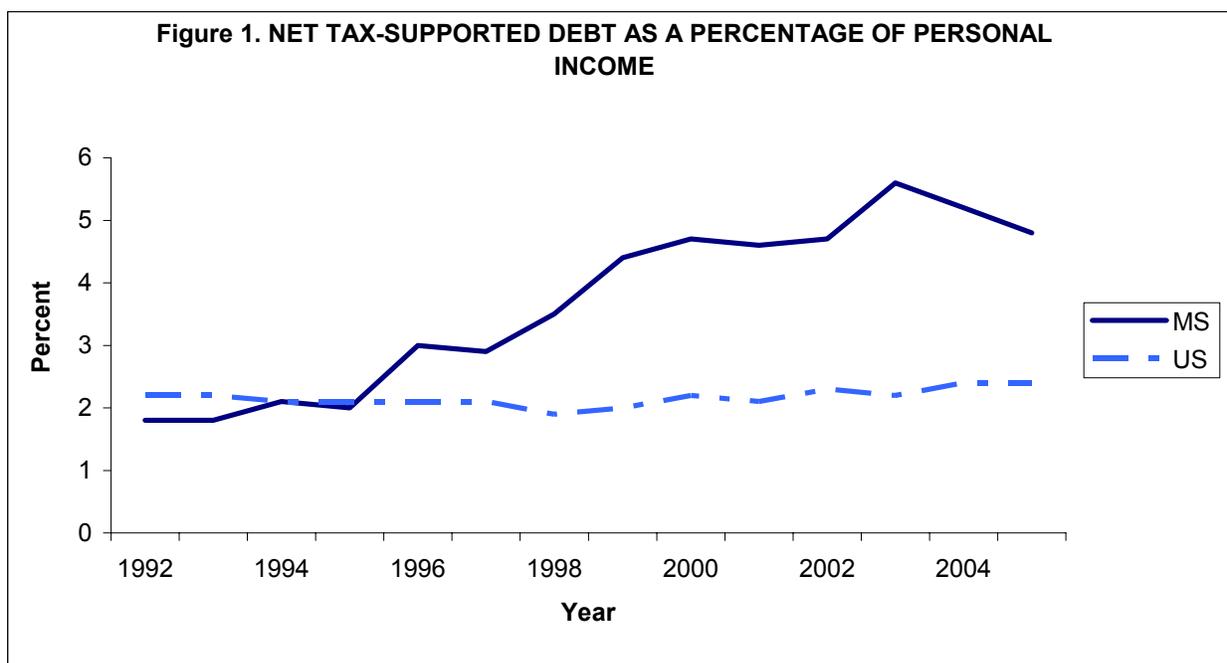
The recent increase in the debt level of the state does mark a change in one of the factors impacting the state's rating. Figure 1 shows the growth in net tax-supported debt as a percent of personal income in Mississippi and the U.S.¹ Only Kansas and Oregon had a more



rapid increase in this variable from 1992 to 2003 than Mississippi among states whose debt ratio was above the 2.4% median for the U.S. as a whole. Mississippi was eighth in the nation in tax-supported debt as a percent of personal income in 2003, with debt equal to 5.2% of personal income. States with higher debt ratios included Hawaii, Massachusetts, Connecticut, New York, New Jersey, Illinois and Delaware. Two of these, Delaware and Hawaii, however, have high debt burdens in part because school district capital financing is fully funded by the state, not by local governments as is typically the case. Recently released figures for 2004 show that debt in the state dropped to 4.8% of personal income in 2004, but this percentage is likely to rise as debt that has been authorized within the past year is issued.

Other Debt Burdens Rising As Well

Mississippians are also liable for other forms of governmental debt. According to the U.S. Census Bureau, in FY2002, in addition to the \$2.7 billion in long-term debt backed by "full faith and credit" of the state, the State of Mississippi owed another \$1.4 billion in nonguaranteed debt.¹ (Data is not yet available



SOURCE: Moody's Investors Service, "2005 State Debt Medians", May 2005 and "Moody's State Rating Methodology", November 2004.

for FY2003.) This nonguaranteed debt includes, for example, claims and judgments against the state, mortgage notes and special and limited obligation bonds. Many of these non-bond debts are not included in figures on total bonded indebtedness issued by the State Treasury. In FY2002, for example, total bonded indebtedness was \$2.9 billion, compared to the total state debt of \$3.9 billion, as measured by the Census.

Local government debt, another obligation of Mississippi residents, exceeded that of the state, as of FY2002. Total debt outstanding for Mississippi's local governments was \$5.77 billion, compared to the state debt of \$4.16 billion. Again, FY2003 data is not yet available. Local debt has been growing more slowly than that of the state, however, increasing 27% from FY1997 to FY2002, compared to an increase of 70% in the state's total debt outstanding. Using these Census figures, per capita governmental debt obligations in the state rise to \$3,464, as of FY2002.

The federal debt should also be mentioned, since this debt affects the state. The federal debt currently amounts to \$26,793 per person in the country, with this number including an increase of \$1,127 in 2005.²

Concluding Remarks

These figures indicate that the recent growth in debt levels has been significant. There are implications for the state. The shift in state expenditures towards debt service, and so away from other areas in the state budget, means in effect that the projects funded by state debt are competing with other items in the state budget. Rising interest rates may heighten this competition in the future by increasing debt service obligations. Growing debt burdens at the local and federal governmental levels, as well, add to the need for caution.² In brief, careful monitoring of developments with regard to the state's debt is required.



The author wishes to thank the State Treasurer's Office, the Department of Finance and Administration, and Ted Hampton of Moody's Investor Services for their provision of data included in this report. The views expressed, however, are solely those of the author and do not necessarily represent the opinions of those consulted or of the Institutions of Higher Learning. Comments and feedback are welcomed.

Notes

¹Tax-supported debt, as defined by Moody's, includes not only general obligation debt but also limited obligation bonds, such as four-lane highway refunding bonds (\$132 million) and also lease-rental bonds (\$160 million) in 2003. The U.S. Census Bureau includes several liabilities besides general obligation bonds and limited and special obligation bonds in its definition of state and local debt, such as industrial revenue/development bonds, lease-rental bonds, and mortgage notes.

²Nationally, consumer credit outstanding has also been increasing, currently standing at \$7,314 per person, and mortgage debt as well, now at \$28,572 per capita. Although these numbers will be lower for Mississippi, the order of magnitude will be similar.

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Changing Minds at the Heart of Education's Benefits

Debra Anderson and Marianne Hill

In Mississippi, only 60% of students finish high school, a significantly lower percentage than the already low 71% for the nation as a whole. In addition, Mississippi 4th and 8th graders achieve at levels below the national average on nationally mandated math and reading exams (in each ethnic group). The percentage of the population with a college degree is also lower.¹ Low educational achievement adversely impacts the state in many ways, including its economic development.

The essence of economic development is the creative and effective use of knowledge. Economic development involves new ways of doing even the most basic of tasks, from communicating to traveling. Education goes hand-in-hand with economic growth -- it provides people with the skills they need to analyze problems and make decisions on the job, in the home and in the community. The kind of education individuals receive impacts the decision-making processes of families, organizations, businesses, and the public sector.

The benefits of formal education for individuals and for communities are examined below. Most of the findings are from U.S. studies; results differ by country, due in part to the differing content of education and to the differing institutions within which individuals work and live. In all cases, however, the return to education is high and positive.

Overview: education has monetary and non-monetary benefits.

Education is an investment with high monetary and non-monetary returns for both individuals and communities. For individuals, education is a means to a wealthier, healthier and fuller life. For states and communities, education is "a powerful instrument ... for improving well-being, and lays the basis for sustained economic growth. (It is) essential for building societies and dynamic, globally competitive economies" (United Nations



2000). Education helps each student realize his or her potential. It "stimulates the spirit of inquiry, the acquisition of knowledge and understanding, and the thoughtful formulation of worthy goals" (National Education Association 2002). Each level of education completed by an individual can enhance that person's abilities, which in turn will raise the overall capacity of society to provide a higher quality of life for its members. Some of the basic benefits of education are summarized below.

More education means better jobs and higher incomes for individuals.

The wage that an individual can expect to earn increases with the years of education he or she completes. High school graduates earn more than dropouts, and college graduates earn substantially more than high school graduates. According to U.S. Census figures, a college graduate in 1998 earned on average about \$20,000 more annually than a high school graduate, while high school graduates earned about \$8,000 more than dropouts. Regions with a more highly-educated population also enjoy higher per capita incomes.

More education brings greater rewards. The average earnings of a full-time employee with a doctoral degree was \$89,400 in the late 1990s. This was about \$37,200 more than a typical college graduate and a larger gap than the \$21,000 premium college graduates earned over a high school graduates. Trends suggest that in the future, advanced degrees

will bring larger premiums over college degrees, while professionals (i.e. doctors, dentists, lawyers) will earn even more than persons with PhDs.

Today's young people may need an advanced degree in order to get ahead in the business world -- a bachelor's degree has become a mere ticket of admission to the working world for many corporations. Jobs requiring only a high school degree will become more scarce. These jobs will grow by just 9% by the year 2008, while those requiring a bachelor's degree will grow by 25%, according to one estimate (Alliance for Excellent Education, 2003e).



Unemployment is lower among those with more education as well. Today, only 40% of adults who dropped out of high school are employed, compared to 60% of adults who completed high school and 80% of those with a bachelor's degree (Alliance for Excellent Education 2003c).

Literacy brings broad economic benefits in addition, boosting productivity. If literacy levels in the U.S. were the same as those in Sweden, the gross domestic product here would increase by approximately \$463 billion (Alliance for Excellent Education 2003e).

Higher incomes also mean higher tax revenues. The National Dropout Prevention Center cites a study estimating that each year's class of dropouts costs the country over \$200 billion in lost earnings and unrealized tax revenue. The Center also cites a 2003 study showing that if minority students participated in college at the same rate as white students, the government would gain at least \$80 billion in new tax revenues.²

More education means better decisions related to health and health care.



Health literacy has been defined as the "capacity to obtain, interpret, understand and use information to promote and maintain health."³ Consumers must be able to read *and*

evaluate information for credibility and quality, analyze risks, costs and benefits. They must be able to interpret test results, calculate dosages, and locate health information. Consumers need functional literacy and interactive literacy to make appropriate decisions. The estimated price tag for Americans not understanding health issues is more than \$70 billion, according to a Brown University study.⁴ Literacy links health and education, and illiteracy is a contributing factor to the wide disparities in health status.

In a study estimating health literacy, "among adults who had not completed high school, about 22% performed below Level 1 (the lowest level)...., while 26% were in Level 1 and 33% in Level 2. Almost half (48%) did not score above Level 1 and slightly more than 80% did not exceed level 2."⁵ In contrast, only 14% of those who had completed high school and 4% of those who attended school beyond high school were found to be at or below Level 1.

More education means more planning for the future, including family planning.

Families with fewer children are better able to invest in their children's health care, nutrition, education and other needs. On the other hand, unplanned children or a large number of children can impose a heavy burden, particularly on the poor, while smaller families have higher upward economic mobility.⁶ Data show that 60% of all babies born in the U.S. are unintended, and that for the teen population, the percentage increases to 85%.⁷ Unplanned children involve costs for both families and society.



Taxpayers in the U.S. spend over \$30 billion annually on costs associated with the care of children born to young, low-income mothers. Many of these children were unplanned. In 1992, these expenditures included \$14 billion for health care, \$14 billion in public assistance, and almost \$6 billion on food stamps. The cost of these

programs in Mississippi was over \$100 million in 1994 and 1995, although most of these funds came from federal dollars.⁷

Young women who choose to complete more years of education typically postpone child-bearing, so that more education is associated with declining birth rates. For women under 30 years of age, birth rates are highest among women with less education, and, overall, women with 0 to 8 years of education had the highest birth rates and the greatest number of children over their lifetimes, according to a 1997 study by the Center for Disease Control.⁸ This study found that among unmarried mothers the birth rate drops with the number of years of education the mother has.

Levels of achievement also matter. Male and female students with low academic achievement are twice as likely to become parents by their senior year of high school as students with high academic achievement (Alliance for Excellent Education, 2003b).

Another benefit of more education is reduced infant mortality. “Five years of education for mothers reduces the rate of child mortality by ten deaths per thousand births”, reports a UN study.⁸ The infant mortality rate in the U.S. reached a record low of 6.8 deaths per 1,000 live births in 2001, but remains higher than in many other industrialized countries.

More education means less interest in criminal activity.

Education reduces crime, according to numerous studies, and investing in education would save millions of dollars in crime-related expenditures annually. According to Lochner and Moretti (2001), “A one percent increase in high school graduation rates would save approximately \$1.4 billion in costs associated with incarceration, or about \$2,100 for each male high school graduate.”¹⁰ A Vanderbilt



University study estimated \$1.3 million as the potential benefits in saving a high-risk youth from becoming a typical career criminal.¹¹

The Alliance for Excellent Education (2003a) has compiled the results of several studies showing that arrests and imprisonment are associated with a lack of education:

- Approximately 75% of state prison inmates did not complete high school.
- High school dropouts are 3.5 times more likely than high school graduates to be arrested in their lifetimes.
- About 47% of drug offenders in prison do not have a high school diploma or a GED.
- A male high school graduate with a D average is fourteen times more likely to become incarcerated than a graduate with an A average.
- A one-year increase in average education levels would reduce arrest rates by 11%.
- About 23% of the difference in incarceration rates between blacks and whites would be eliminated by raising the average education levels of blacks to the same level as that of whites.
- Nineteen percent of adult inmates are illiterate. Up to 60% are considered to be functionally illiterate. By comparison, our national adult illiteracy rate is 4%, with up to 23% functionally illiterate. (“Functionally illiterate” is a term used to describe persons who have the ability to read and write, but at such a rudimentary level that they are unable to perform tasks that require reading or writing simple instructions.)

A survey of police chiefs conducted by George Mason University found that three to ten times more chiefs gave high-quality, early education and care the highest rating for effectiveness as a crime prevention and

reduction tool in comparison to other strategies.

Education also impacts recidivism. Recidivism rates are high in the United States, ranging from 41% to 71%. According to the *National Institute for Justice Report to the U.S. Congress*, prison education is more effective at reducing recidivism than boot camps, shock incarceration, or vocational training.

A study conducted in 1997 for the United States Department of Education entitled, "The Three State Recidivism Study," focused on over 3600 individuals released more than three years earlier in Maryland, Minnesota and Ohio. Using education participation as the major variable, the study shows that "simply attending school behind bars reduced the likelihood of re-incarceration by 29%. This translated into savings. Every dollar spent on education returned more than two dollars to the citizens in reduced prison costs."¹²



For juveniles involved in quality reading instruction programs while in prison, recidivism was reduced by 20% or more (Alliance for Excellent Education 2003a).

In 2001, states spent \$29.5 billion for adult prisons. Day-to-day operating expenses totaled \$28.4 billion and capital outlays for land, new buildings and renovations was estimated at \$1.0 billion. Annual operating costs per state inmate was \$22,650 or \$62.05 per day.¹³ Over two million individuals in the United States are incarcerated, either in prisons (1.5 million) or in jails (0.6 million). In Mississippi, the composite average annual cost per inmate was \$14,105 or \$45.91 per day. Other costs associated with incarceration include police, courts prosecutors, jail, juvenile detention, community supervision and rehabilitation.

More education and higher incomes mean increased home ownership.



Heads of households with less education historically move into home

ownership much more slowly than those with more education, and the less educated also lag behind in home ownership over the course of their lifetime. In addition, there is a growing gap in the levels of home ownership between the most and least educated households.¹⁴ Succeeding generations of the least educated are falling further behind in home ownership, especially when compared to succeeding generations of high school graduates.

Home ownership has been shown to lead to 13 to 23% higher quality home environment, which resulted in children or home-owners achieving math scores up to nine percent higher, reading scores up to seven percent higher, and reductions in children's behavior problems up to three percent.¹⁵

For blacks, the value of education for home ownership is more significant than it is for whites. Blacks without a high school diploma showed much lower levels of home ownership than whites without a high school diploma. Furthermore, college graduation -- and even some college -- had a more profound impact on home ownership attainment for blacks. Black college graduates have much higher levels of home ownership attainment (20 % higher) than black high school graduates. By comparison, a college degree for whites only raises home ownership rates 5 percentage points above whites with a high school diploma. Home ownership differs by family structure and race, but in all categories, education is a factor.

More education means increased citizen participation and higher voting rates.

While the social characteristics of individuals and their own political attitudes are key determinants of political participation, formal education and income are critical determinants. Education increases the ability to seek information regarding where to vote,



how to vote, campaign issues and who the candidates are.¹⁶ It expands the capacity to deal with the abstract, intangible subjects that are a part of politics. Citizens who are more educated likely to vote than those who are less educated. High school graduates are more likely than dropouts to be registered to vote, follow campaigns via television and printed material, attend public meetings, and volunteer in campaigns.

Increased levels of education and literacy provide exposure to people, environments and practices that create interest in politics, thereby encouraging voting.¹⁷ Higher levels of education also advance opportunities for social net-working that promotes citizen participation through providing access to political leaders, organizations, and information.

Conclusion

Education has the power to influence the pace of economic progress and alter behavior. It has the power to influence life choices, shaping attitudes and impacting behavior. From employment opportunities to income levels; from health status to family size, education impacts all areas of a person's life. It also impacts organizations and social institutions, from businesses to political bodies. Improving the quality of education and the levels of education that individuals achieve may pose difficult challenges, but such efforts bring proven benefits of great significance to both individuals and society.

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Private and Public Returns to Investment in Education

Bob Neal

Most economists agree that formal education is an important determinant of individual earnings as well as economic growth. Formal education has become more important due to recent economic trends underlying U.S. labor market demand for skilled workers. The following is a review of the importance of education to both the individuals acquiring education and the benefits received by society resulting from the increased educational attainment of individuals.

Human capital theory, a concept first introduced by Theodore W. Schultz and later developed by Gary Becker, states that individuals acquire skills and knowledge to increase their value in labor markets. In developed countries, experience, training, and education are the three most important means for acquiring human capital, with education being foremost for most individuals. Education generates new skills and knowledge that increase productivity. This increase in productivity frees up resources to create new technologies, new businesses, and new wealth, eventually resulting in increased economic growth. Education is a "private good" in as much as it benefits the individual who gains the new knowledge and job skills. But, it is also a "public good" because society also benefits from increased education.

The literature on human capital theory is so extensive that it is impossible to quickly review it in a way that satisfies demanding, critical readers. The review I will present here will only survey the landscape, painting the scene with broad strokes that suggest, but do not depict, all the subtle and important details of the impacts of education at both the micro and macro levels. This review examines the effects that increased educational attainment has had on the earnings of workers and on economic growth in the United States. A cursory review of the literature reveals a huge body of evidence concerning the financial returns and non-market effects of education. Much of the following is drawn heavily from *Investment in Education: Private and Public Returns*, by Joshua Hall.¹

I. Private Returns to Education

Earnings: The amount of education acquired by workers has an important impact on an individual's labor market experience. The most direct way that education affects the labor market experience of workers is by increasing their productivity, thus increasing their earnings. The more education individuals acquire, the better they are able to absorb new information, acquire new skills, and familiarize themselves with new technologies.² By



increasing their human capital, workers enhance the productivity of their labor and of the other capital they use at work.

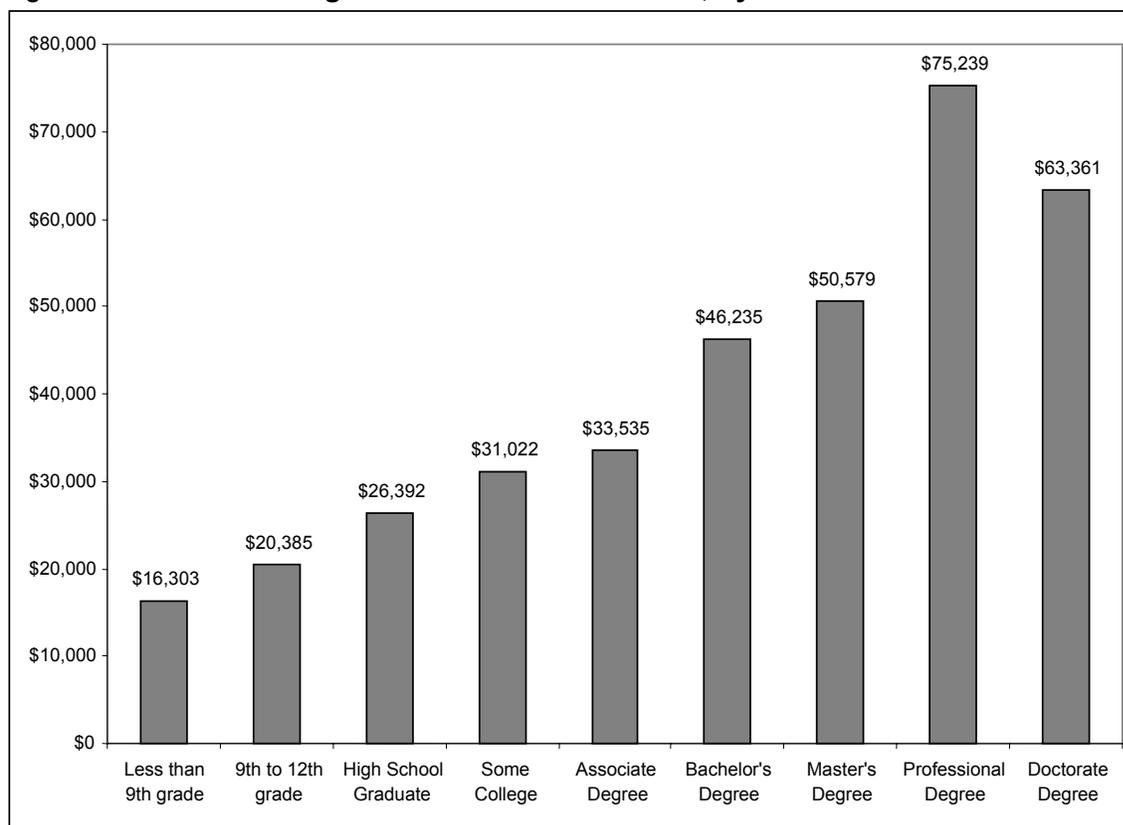
Higher levels of productivity reflect higher levels of human capital. These higher levels of human capital are primarily a result of increased education. The U.S. Census Bureau in its Current Population Reports, reports data on the earnings of all persons by educational attainment. Figure 1. shows the median money income of individuals 25 years and older who were employed full-time during all of 1998.

Ideally, this information would permit a high school graduate considering college to evaluate the financial return to a college education (or, behave as though he were consciously evaluating the data). As is obvious in Figure 1, the average college graduate earned nearly \$20,000 more than the average high school graduate in 1998.

Calculating the return to investment in education has intrigued economists since the early 1900s. Initial analyses of the effects of education on earnings were done by estimating tuition and foregone costs for given levels of schooling and then discounting the earnings differentials between workers at those different levels. Most estimates showed rates



Figure 1. **Median Earnings of All Full-Time Workers, by Educational Attainment: 1998**



Note: The income estimates in this table are based solely on money earnings before taxes. Non-cash benefits are not included. The population is both sexes, 25 years and over, who worked full-time all year in 1998.

SOURCE: U.S. Census Bureau, Current Population Reports, P-60 Series, Table P-06

of returns on education comparable to rates of return on investment in physical capital. For example, Becker estimated returns to white males in 1949 of 20 percent for high school graduates and 13 percent for college graduates. These results are very similar to results found independently by Martin Carnoy and Dieter Marenbach over a similar period.³

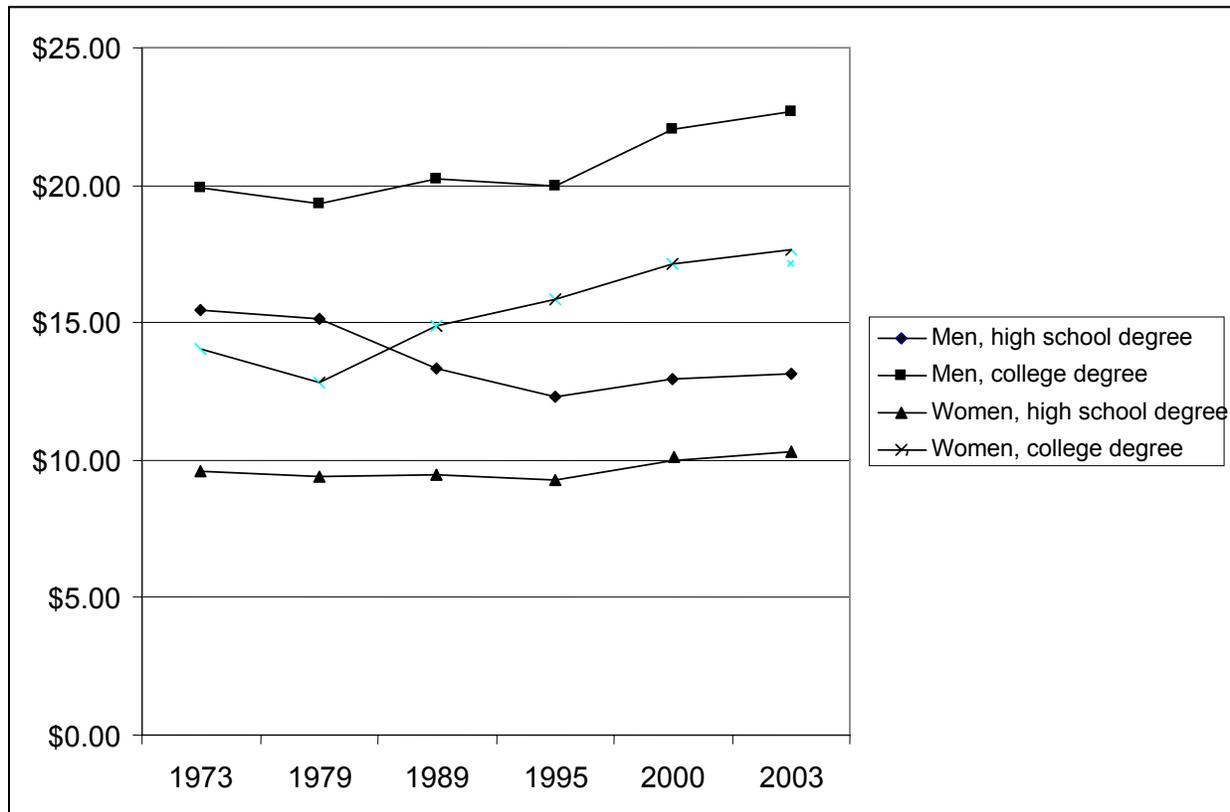
Using a different methodology, two researchers at Princeton University, Orley Ashenfelter and Cecilia Rouse, estimated the private returns to education from 1979 to 1993. Evidence presented by Ashenfelter and Rouse indicate that a tremendous increase in the value of schooling has occurred since 1979. They found that the return to an additional year of education rose from 6.2 percent in 1979 to nearly 10 percent in 1993,⁴ which suggests that the demand by firms for high levels of human capital will continue to

increase, tending to increase the future financial returns to education.⁵

As noted previously, there is an increasing wage premium paid to workers with high levels of human capital attained through skills, training, and education. Figure 2 illustrates the increasing earnings disparity between college graduates and their high school counterparts. Although real earnings have increased for both groups since 1975, the nominal earnings differential between the two groups has grown.

Analysis by Mishel, Bernstein, and Allegretto provides another perspective on recent changes in the returns to education. Their research also found evidence of an increasing wage premium. Hourly earnings rose for members of both education levels during the period and was particularly pronounced for women with a college degree. Among

Figure 2. **Median Hourly Earnings of Men and Women by Education Level: 1973-2003 (2003 dollars)**



SOURCE: Mishel, Bernstein, and Allegretto, *The State of Working America, 2004-05*, Cornell University Press, January 1, 2005.

men, those with a high school education experienced a 14.9 percent decrease in real hourly earnings from 1973 to 2003, compared to 14.1 percent increase for college graduates.⁶ Hourly earnings for women during this period followed a very different pattern, yet still showed an increasing wage premium to education. Women with only a high school degree experienced a 7.1 percent increase in real hourly earning, while women with a college degree saw an impressive 25.5 percent increase.⁷

An analysis of college graduates versus high school graduates often obscures the salary differences between major fields of study. Lewis C. Solmon and Cheryl L. Fagnano stated the reasoning behind the need for a more in-depth analysis of college graduates.

Just having a degree ignores qualitative differences between both institutions and

areas of study. Individuals receiving different degrees from the same institution face different demands for their skills. The price of labor is not only a function of the marginal physical product of the laborer but also the price that the market is paying for that labor. Thus, individuals with similar ability levels in different fields can have significantly different earnings.⁸

Data from the U.S. Department of Education support this statement. Figure 3 shows the starting salaries of 2001 college graduates by field of study. The median starting salary for an engineering or business management student was over \$40,000. Salaries of business management and engineering students are 35.3 percent above the median starting salary for all college graduates, while education majors are 22.0 percent below the median.⁹ Clearly, decisions about the sort of education to acquire are as

important as decisions concerning the amount of education to acquire.

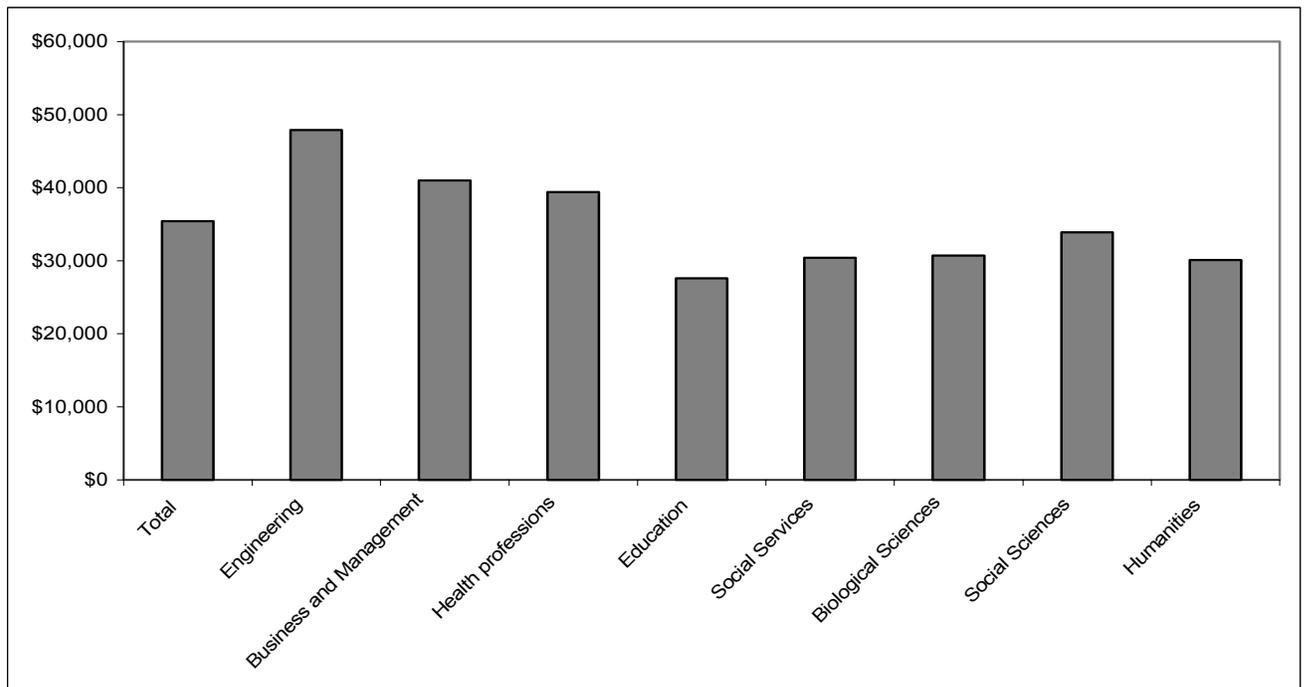
Employment: The amount of education an individual receives not only affects his earnings, but the quality of his employment as well. In his book *Studies in Human Capital*, Jacob Mincer stated that educated workers have three advantages relative to less-educated workers: higher wages, greater employment stability, and greater income.¹⁰ Increased earnings by workers with higher education levels are a result of two factors. First, as discussed earlier, increased human capital results in higher productivity that allows workers to extract higher hourly wages. Second, increased education increases labor force participation, decreases the probability of unemployment, and decreases job turnover. The result is that highly educated workers labor a greater number of hours annually for higher hourly wages than their less educated labor market competitors. According to CRS research, jobs requiring a "fairly high skill level" accounted for 3 out of every 5 new jobs created between 1994 and

2005. This trend is expected to continue.¹¹ Thus, education is becoming increasingly more important in our new information economy.

In 1996, the majority of the population out of the labor force or unemployed had lower levels educational attainment. Possession of a college degree in 1996 increased the probability of being in the labor force by nearly 23 percent over high school graduates.¹² Labor force participation is strongly associated with education even after controlling for other factors such as age and marital status.¹³ Since those with a college education have more to lose by dropping out of the labor force (due to their higher earnings) than high school graduates, they are more likely to remain in the labor force.

The results are similar for unemployment. According to BLS data, the unemployment rate among college graduates stood at 1.9 percent in January 1999.¹⁴ High school graduates with no college were unemployed at a 4.1 percent rate. The gap in employment between college and high school graduates has been widening steadily.¹⁵

Figure 3. Median Starting Salary of 2001 College Graduates by Major Field of Study.



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Recent College Graduates*.

An inverse relationship between education and unemployment exists due to two factors: more efficient job searching and increased job-specific human capital among those with higher levels of education. Mincer explains why more educated workers have lower unemployment: "the more informed the job search, the more likely is a successful job match, hence the longer are workers likely to stay on the next job."¹⁶ In the same study, Mincer finds that educated workers engage in higher levels of training specific to the firm, making workers more valuable to their firms thereby reducing the probability of involuntary (i.e., non-employee initiated) job turnover.

Despite the public perception that job security is rapidly declining in today's global marketplace, the evidence does not support this view. One National Bureau of Economic Research Working Paper found that there was no systematic change in the likelihood of long-term employment in the United States.¹⁷ However, there have been changes in job tenure based on educational attainment. Men with little education are less likely to hold long-term jobs than they were twenty years ago, while female high school graduates are more likely to be in long-term jobs than they were in 1973.¹⁸

II. Economic Growth

Economists have been interested in economic growth since Adam Smith first studied the wealth of nations.¹⁹ It was not until the introduction of the concept of human capital in the 1960s that economists attempted to study the relationship between education and economic growth. The pioneering work of Becker, Schultz, Mincer, and Denison provided new information on the link between education and economic growth.

The contribution of education to economic growth occurs through two mechanisms. The first, and most highly publicized, is through the creation of new knowledge, known as Schumpeterian growth.²⁰ Schumpeterian growth is growth attributable to increases in human capital. More highly educated individuals ultimately become more scientists, analysts, technicians,

and inventors working to increase the stock of human knowledge through the development of new processes and technologies. And, it is worth noting that, technological innovation has been identified as the greatest source of economic growth.

This leads us to the second way that education affects economic growth. Education affects economic growth through the diffusion and transmission of knowledge. Schools provide the education level necessary to understand and digest new information, as well as a way to transmit new information. Increases in educational levels have helped spur invention and innovation in the computer industry over the past 30 years, yet without schools to teach how to use computers and new applications, the effect of these innovations would be reduced.



Zvi Griliches and Dale Jorgenson did some of the earliest work in growth accounting and they concluded that increased levels of human capital explained half of one percentage point of the annual growth in output.²¹ Thus, 15 to 20 percent of the annual average growth in output for the United States was explained by increases in education levels.

Other research confirmed this finding. Edward Denison undertook one of the most comprehensive studies on the effect of education on economic growth. Denison estimated that education per worker was the source of 16 percent of output growth in nonresidential business.²² In another study done for the Rand Corporation, 21 percent of the growth in output from 1940-1980 was the result of an increase in educational attainment.²³ Estimates of the effect of human capital on economic growth in the United States mostly range from 10 to 25 percent.²⁴

III. Conclusion

The belief that education benefits the individual student in terms of increased earnings is widespread. But increased education also has a measurably positive impact on society. In the information economy of the

21st century, formal education and training will become increasingly important. Investment in education will continue to contribute to enhanced labor force productivity and increased wages for individuals, as well as increased economic growth.

Notes

¹Joshua Hall, "Investment in Education: Private and Public Returns," Joint Economic Committee Study, United States Congress, January 2000.

²Ann P. Bartel and Frank R. Lichtenberg, "Technical Change, Learning, and Wages," National Bureau of Economic Research, Working Paper 2732 (September 1991).

³Martin Carnoy and Dieter Marenbach, "The Return to Schooling in the United States, 1939-69," *Journal of Human Resources* 10, no. 3 (Summer 1975), 320.

⁴Orley Ashenfelter and Cecilia Rouse, "Schooling, Intelligence, and Income in America: Cracks in the Bell Curve," National Bureau of Economic Research, Working Paper 6902 (January 1999), 3.

⁵For more information on the changing U.S. economy and what it potentially means to firms and workers see Richard Crawford, *In the Era of Human Capital*, (New York, NY: Harper Business, 1991).

⁶Lawrence Mishel, Lawrence, Jared Bernstein, and Sylvia Allegretto, *The State of Working America, 2004-05*, Cornell University Press, January 1, 2005.

⁷Ibid.

⁸Lewis C. Solmon and Cheryl L. Fagnano, "Quality of Higher Education and Economic Growth in the United States," in *Higher Education and Economic Growth*, eds. William E. Becker and Darrel E. Lewis (Boston, MA: Kluwer Academic Publishers, 1993), 148.

⁹U.S. Department of Education, National Center for Education Statistics, *Condition of Education 1998*, (NCES 98-013), 110.

¹⁰Jacob Mincer, "Education and Unemployment," in *Studies in Human Capital*, edited by Jacob Mincer, (Cambridge, UK: Edward Elgar, 1993), 212.

¹¹Linda Levine, "The Education/Skill Distribution of Jobs: How Is It Changing?" Congressional Research Service Report for Congress 97-764E (Washington, DC: Congressional Research Service, 1997), 5.

¹²Digest of Education Statistics 1997, Table 375 & JEC calculations.

¹³William G. Bowen and T. Aldrich Finegan, *The Economics of Labor Force Participation* (Princeton, NJ: Princeton University Press, 1969), 53-62.

¹⁴U.S. Department of Labor, Bureau of Labor Statistics, "The Employment Situation: January 1999," Press Release USDL 99-31 (February 1999), Table A-3.

¹⁵Wayne J. Howe, "The Effect of Higher Education on Unemployment Rates," in *Higher Education and Economic Growth*, edited by William E. Becker and Darrel E. Lewis (Boston, MA: Kluwer Academic Publishers, 1993), 130-31.

¹⁶Mincer, 233.

¹⁷Henry S. Farber, "Are Lifetime Jobs Disappearing? Job Duration in the United States: 1973-1993," National Bureau of Economic Research, Working Paper 5014 (February 1995).

¹⁸Ibid.

¹⁹Adam Smith, *The Wealth of Nations* (1776; reprint, Chicago, IL: University of Chicago Press, 1976).

²⁰Named after Joseph Schumpeter (1883-1950) who was the originator of the theory that economic growth was strongly influenced by cycles of innovation. Northwestern economist Joel Mokyr titled the growth attributed to innovations and increases in man's knowledge in honor of Schumpeter. Joel Mokyr, *The Lever of Riches* (New York, NY: Oxford University Press, 1990), 6.

²¹Dale W. Jorgenson and Zvi Griliches. "The Explanation of Productivity Change," *Review of Economic Studies* 34, no. 3 (July 1967): 249-283. In addition, Zvi Griliches, "Notes on the Role of Education in Production Functions and Growth Accounting," in *Education, Income, and Human Capital*, edited by W. Lee Hansen. 71-127, (New York, NY: Columbia University Press, 1970).

²²Edward F. Denison, *Trends in American Economic Growth, 1929-1982* (Washington, DC: Brookings Institution, 1985).

²³E.M. King and J.P. Smith. *Computing Economic Loss in Case of Wrongful Death* (Santa Monica, CA: The Rand Corporation, 1988).

²⁴In contrast to the studies cited here, Robert J. Barro finds that while initial levels of schooling were important to economic growth, changes in the estimated levels of schooling did not contribute to growth over the 1960-1985 period. Robert J. Barro, "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics* 106, no. 2 (May 1991): 407-433. Zvi Griliches put forth a reason why no relationship between changes in human capital and changes in output was found in Barro's work. Griliches noted that much of the growth in human capital in the economies studied by Barro was absorbed into the public sector and that the bureaucracy present in those public sectors may have blunted expected productivity gains. Zvi Griliches, "Education, Human Capital, and Growth: A Personal Perspective," *National Bureau of Economic Research, Working Paper 5426* (January 1996).

An Alternative Perspective

There is a strong consensus that college graduates earn much more than high school graduates, and the gap has been widening for several decades. The conclusions seem obvious. In a high-tech world, with specialized skills in acute shortage, we'd all be better off if more Americans went to college. According to some researchers this conclusion may be incorrect.

Economist Daniel Hecker of the Labor Department demolishes the notion that there is a scarcity of college graduates and that sending more Americans to college will auto-

matically create a more productive economy. Just because you've got a degree doesn't mean you can get a good job.

In 1980, a full-time male worker (25 years or older) with four years of college had median earnings of \$25,849, compared with the \$19,469 earned by a worker with a high school diploma. That's a premium of 33 percent. In 1990, the full-time worker with four years of college was earning \$42,524; his high school counterpart was earning \$26,515. The college premium had grown to 60 percent. By 2002, the full-time worker with four years of college was earning \$51,194; his high school counterpart was earning \$27,280. The college premium had declined slightly to about 53 percent.

However, as Hecker shows, the facts are correct, but the explanation is wrong. The reason that college graduates seem to do so well is that high school graduates are doing miserably. Adjusted for inflation, the median wages of college graduates remained almost constant from 1980 to 2002. However, during this same period, high school graduates' wages dropped about 29 percent. Employers aren't bidding up the wages of college graduates (which would be the case if there were a shortage of college graduates); instead, something has been depressing the wages of high school graduates for at least two decades.

In his study, Hecker found that about one fifth of college graduates went into jobs that did not usually require a college degree (store sales workers, for instance). Hecker's findings hardly indicate a scarcity of college graduates. In fact, Hecker argues, if more people had gone to college over the past two decades, they would have competed mostly for lower-wage jobs that usually don't require a college degree.

Likewise, sending more people to college won't automatically make the economy more productive. If that were true, then productivity would be exploding. The following

Table 1. Education Levels of U.S. Workforce

Level of Education	Percent of U.S Workers		
	1969	1990	2002
College (4 yrs.+)	12.6	23.2	26.7
College (1-3 yrs.)	12.6	21.3	25.3
High School Graduate	38.4	39.4	32.1
High School Dropout	36.4	16.2	15.4

SOURCE: U.S. Census Bureau, *Current Population Survey* data.

table shows the average education of U.S. workers. Since 1969, the share of college graduates has more than doubled, while the share of high school dropouts has declined by more than half. Yet productivity has advanced only slowly (averaging 2.1 percent annually from 1969 to 1995, but a robust 3.9 percent annually from 1995 to 2000) and real wages have been stagnant or fallen over this period.

We really don't know what is depressing the wages of high school graduates. Some suggest that the widespread use of computers (which require new skills that older workers with only high school degrees don't possess) and foreign competition are creating this effect. Nor do we know why productivity and real wage growth lagged during the 80s and 90s. But, more schooling, by itself, may not necessarily be the remedy to these problems.

A study by Sabot and Wakeman-Linn of eight top colleges and universities revealed that grade inflation was rampant. U.S. college diplomas and degrees aren't worth what they once were. Skills aren't as high as school attendance rates imply, because schools at all levels have become less rigorous. Another interesting thought presented in the Sabot and Wakeman-Linn study was that exceptionally easy grading in social sciences and humanities may be luring students away from science and engineering, where grading is tougher. Perhaps we have both a surplus of college degrees and a scarcity of skills.

The message here is emphatically not that college doesn't matter—either for individuals or for society. It does matter. But, what counts is not only how many students go to college but what they study, how hard they work and what they actually learn. The same is true of all our schools. What we may need to improve most is quality, not the number of degrees we produce.