THE GOLDFARB CENTER FOR PUBLIC AFFAIRS & CIVIC ENGAGEMENT

Colby Economic Outlook

Current Conditions & Economic Forecasts

For the United States and the State of Maine

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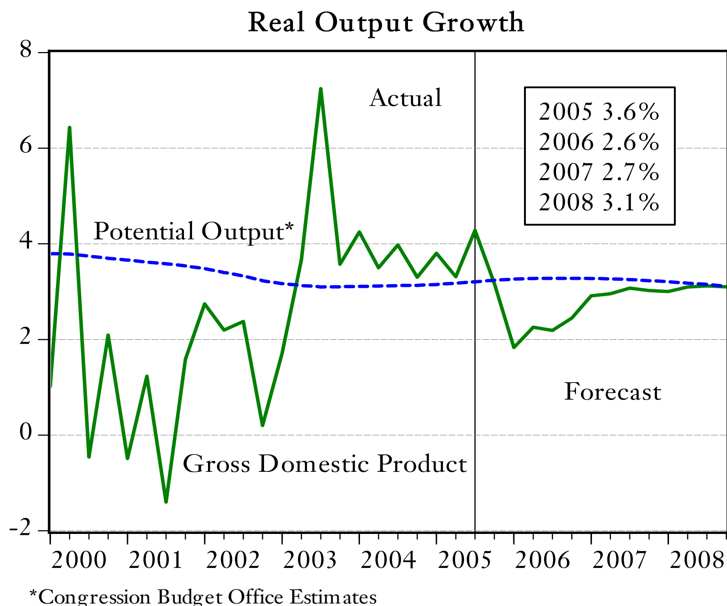
The CEO Debuts in Augusta

This year's edition of the *Colby Economic Outlook* (CEO) makes its debut at the state capitol in a special presentation to Maine's Governor Baldacci. Since 1989 the CEO has provided a bridge between the academic experience of students at Colby College and the 'real world' of policy makers in Maine and Washington, DC. The economic forecasts presented in this newsletter represent the results of a fifty-four equation macroeconometric model of the US economy and a smaller companion model for the state of Maine. These models are maintained by the students in Economics 473, a senior seminar at Colby College under the direction of Professor Michael Donihue. The CEO is published in conjunction with Colby's Goldfarb Center for Public Affairs and Civic Engagement.



*Congression Budget Office Estimates

Current State of the US Macroeconomy

Following the bursting of the stock market bubble in 2001 the economy technically avoided a recession as output oscillated between positive and negative rates of growth. Since 2003, real GDP growth in the US has generally exceeded estimates of the economy's growth potential. Despite the combined effects of hurricanes Katrina and Rita, a sharp run-up in oil prices, and a 7% decline in consumer sentiment, the economy showed remarkable resilience throughout 2005, posting a 4.3% annual rate of growth in the third quarter.

For the past 2½ years real output growth has exceeded potential, giving rise to concerns of overheating and inflation, particularly in light of increasingly volatile energy prices. The 12 consecutive quarter-point increases in the Federal Funds rate since June 2004 indicate that the Federal Reserve shares this concern, and we anticipate an additional 25 basis point increase later this month. However, since current inflationary pressures are largely driven by increases in energy prices, the broad policy tools of the Fed may be ineffective in addressing the discrepancy between core-CPI and overall inflation. We anticipate that tighter monetary policy will contribute to an overall slowdown in economic growth as we head into 2006 as consumers attempt to gain control over their balance sheets following seven consecutive months of negative personal savings rates.

Oil prices have been extremely volatile over the past year, with crude oil trading at $55/barrel in June, at over $70/barrel in August and now seemingly stable at $56/barrel. This year's edition of the CEO takes a look at the impact of oil prices on the economy as we use our model to simulate alternative oil price scenarios.

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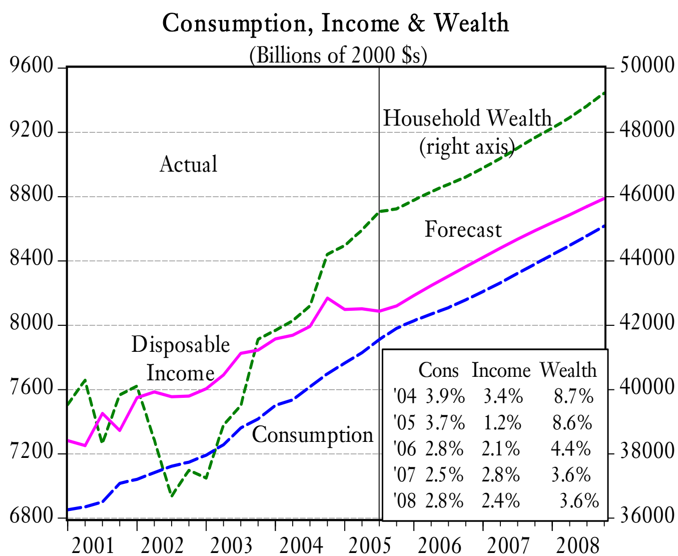
Available on the web at: http://www.colby.edu/economics/faculty/mrdonihu/ceo/

Consumers Lead the Way

Consumer spending now accounts for over 70% of total output in this country and has long been the dominant component of real GDP growth. The driving forces behind consumption in this decade have been real income and household wealth. While household wealth took a hit following the bursting of the stock market bubble in 2001, declines in the value of stock market portfolios were quickly offset by a dramatic rise in the value of household real estate wealth. These gains continued to fuel consumption growth throughout the period. On top of the gains in home equity, low mortgage rates enabled a refinancing boom that boosted disposable income.



Since the beginning of the year we've seen a significant drop in consumer sentiment and this represents perhaps the single biggest risk factor to our forecast. We anticipate a decrease in the rate of growth of household spending heading into 2006 as consumers attempt to rein in spending and pay off some portion of their outstanding debt.

According to our projections, consumer services will maintain a relatively steady rate of growth near 3% each year over our forecast horizon as the service sector of our economy remains resilient. However, rising interest rates are forecast to take a bite out of the rate of growth of durables consumption which is forecast to decline through 2007, recovering slowly toward the end of our forecast horizon. Non-durable consumption should maintain strong growth through 2008 due in part to slower growth in energy prices.

Unemployment, Productivity & Wages

The slowdown in output growth will be reflected in increased unemployment and slower wage growth according to our forecasts. We are projecting that total employment growth will fall below 1% in 2007 and experience 1% growth in 2008 as the gap between actual and potential output closes. After recent gains, we foresee a slight slowdown of the rate of growth of labor productivity and in the growth of average hourly earnings between now and 2008. While nominal wages have grown at an average annualized rate of approximately 2.5% over the past three years, we are projecting an uptick in wage growth of 2.8% next year before slowing to just 1.8% in 2008. During the same period, the unemployment rate is expected to increase slightly in a fashion consistent with an economy running below potential output.

An End to the Housing Boom

Our forecasts indicate that rising mortgage rates will result in a slowdown in new home construction through 2008. Residential investment is predicted to decrease at an average annual rate of 2.1% over the next 3 years. In our view this represents a 'soft landing' in the housing sector as the real estate boom of the past 5 or 6 years comes to an end. The rate of growth of housing prices is forecast to decline from 7% this year to 3.7% in 2006 and 3% in 2007 and 2008. Mortgage rates are predicted to rise from an average of 5.9% this year to 6.9% by 2008. As a result, new housing starts are forecast to fall by 4% next year, level off in 2007, and post more modest growth of 2.8% in 2008.

On the other hand, nonresidential business investment will continue to grow at a healthy rate, averaging just over 8% each year throughout the forecast horizon. Although Hurricanes Katrina and Rita dampened corporate profits in the third quarter of 2005 (profits from current production dropped by $45.5 billion), our model predicts a quick rebound and thus a healthy base for future business investment.

Monetary Affairs

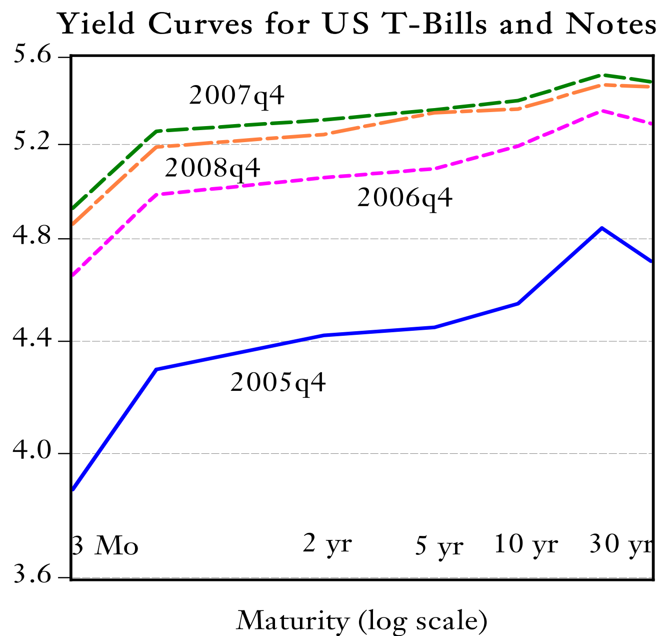
The next few quarters will be a tricky time for monetary policy for a number of reasons. First, 2006 marks a new era at the nation's central bank as Ben Bernanke assumes the Fed chairmanship. Financial markets are likely to remain somewhat edgy until Bernanke establishes his credibility. Second, the economy has experienced a number of negative shocks in the past six months: two hurricanes and a spike in energy prices. While the US macroeconomy has shown

remarkable resilience, the effects of these shocks are still somewhat unpredictable given the pace of growth during the past two or three years. Finally, there is the "puzzle" of the yield curve. While short term rates have been consistently rising, the long end of the curve has remained relatively unchanged. This year the seminar spent considerable time examining the questions: How can this be explained, and can we expect this to continue?

According to our model we predict that the Fed will continue to increase its Federal Funds rate target by a total of 75 basis points over the next three meetings, beginning this month. We see a further tightening of monetary policy, of about 50 basis points, by the middle of 2007 as the Fed Funds rate returns to a more neutral level in terms of the effect of monetary policy on the economy.

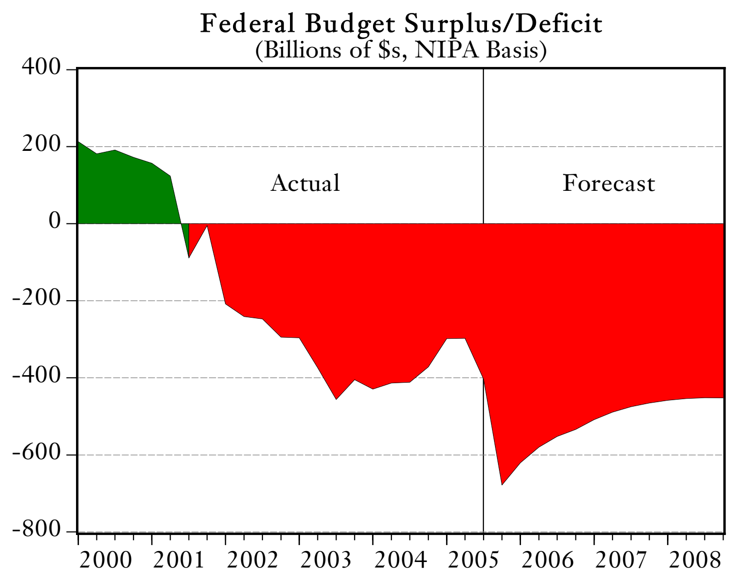
This trajectory for monetary policy follows from an endogenous reaction function in our model based on a modified Taylor rule which assumes the Fed sets its target for the Federal Funds rate by responding to changes in inflation and the output gap. Even in a Bernanke inflation targeting regime (as is being speculated), our reaction function would still apply. Under such a scenario, flexible inflation targeting is more likely than strict inflation targeting. Thus, the Fed would be sensitive to both inflation and output variability as hypothesized in the model.

As the Fed continues to increase short term rates, we predict that long term rates will remain sticky, causing the yield curve to flatten. This apparent break in the transmission mechanism between short term and long term rates can be explained by two factors. First, our analysis this semester indicates that long term rates currently do not appear to depend on either current inflation or expected future inflation. It seems that Alan Greenspan's success in stabilizing inflation over the last decade has mitigated fears over high future inflation. Therefore, as the Fed increases short term rates, any inherent inflation risk premium remains low and does not factor into prices for long term securities. The second explanation of the flattening of the yield curve comes from the international sector. As foreign central banks continue to have an appetite for US Treasury notes, prices (and therefore yields) for these securities remain stable.



A Sea of Red Ink

Our outlook for the government sector looks much like it has over the last several years. The present Administration and Congress continue to spend more than is brought in from tax revenues, due in large part to the war in Iraq. Despite promises from President Bush when he was re-elected for his second term that he would cut the budget deficit by half over the following five years, the deficit has only grown. In our forecast the Federal deficit continues to be a problem through 2006, before slight progress is made in 2007 and 2008.



The government will continue to collect more taxes over our forecast horizon as GDP continues to increase. As a result, there will be continued increase in corporate taxes,

although not at the same rate as the surge in corporate profits that we saw in 2005. Couple that with the steady increase in personal taxes and there is a recipe for increased revenue for the government. We are estimating that total Federal Government receipts will increase by 13.4% next year, followed by increases of 10% and 6.5% in 2007 and 2008.

We believe that the two massive hurricanes that hit the Gulf Coast in the fall of 2005 will have little effect on the size of the budget deficit and are not large enough to increase the overall deficit. There are two reasons for this. First, the money spent on the hurricanes is much less then the original 50 billion dollar price tag and secondly, the amount of money spent will be spread out over a longer period of time as the region is rebuilt. Apart from the recent natural disasters to hit the United States, we are also at war with Iraq and have troops engaged in military operations in Afghanistan. It appears likely that we will maintain a military presence in these countries for some time to come, and the cost of rebuilding will make Bush's plan of reducing the deficit very hard. Although there is significant momentum for the deficit to continue to grow, the Administration will be under a lot of pressure to cut spending, especially when you consider the impending retirement of the baby boom generation and the implications they will pose to the Federal budget.

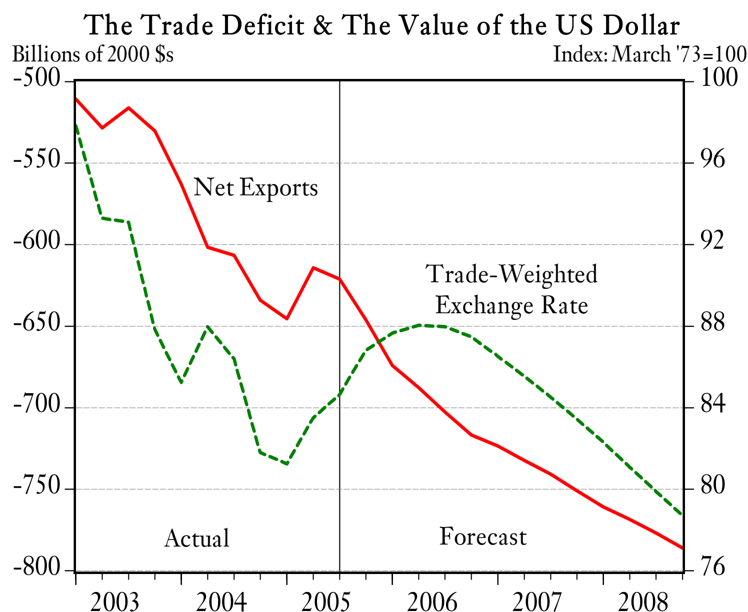
The Inflation Picture

Despite the recent spike in energy prices, the inflation outlook for the US economy remains remarkably sanguine. The primary measure of inflation in our model is the overall price index for personal consumption expenditures. This broad measure of consumer prices is determined by an expectations-augmented Phillips Curve that includes energy prices, labor productivity growth, and the gap between import prices and domestic prices. Our outlook calls for an uptick in consumer price inflation this year to about 2.8%, followed by 2% inflation in 2006. By 2008 the rate of inflation is forecast to fall to just below 1%. Our projection of the rate of growth of the core CPI (excluding food and energy costs) hovers around 2% throughout the forecast horizon. After surging to a 23.4% rate of growth in 2005, gasoline prices are forecast to moderate over the forecast horizon, increasing by 9.4% next year and leveling off over the remainder of the forecast horizon.

Using our Phillips Curve we are able to estimate the so-called Natural Rate of Unemployment (NAIRU) – the rate consistent with a long-run stable rate of price inflation. As of the end of this year we estimate NAIRU to be about 4.6%; slightly below the current rate of 5% unemployment. With an economy at, or slightly above potential output at present the difference between actual unemployment and the NAIRU can be attributed to demographic factors and structural changes in the labor force that have occurred during the past decade, but not yet picked up by our model.

The International Outlook

The value of the US dollar over the past year has been volatile. Though there was a period of depreciation in the first half of 2005, the performance of the US economy has strengthened over the course of the year, increasing investment in US backed assets. As a result the dollar has appreciated and is currently trading at $1.17 against the Euro, amplifying the already strong import-demand of US consumers. July also saw the loosening of the Yuan – Dollar peg, with China revaluing the Yuan by 2.1 percent. The currency is now on a managed float against the dollar, with a .3% trading band. This appreciation of the Yuan is expected to help the US, which had previously accused China of artificially dampening its currency, thus boosting the attractiveness of Chinese goods vis-à-vis US exports.



Despite an anticipated depreciation in the value of the US dollar, our forecast predicts continued growth in the US trade deficit. Although the depreciation of the dollar should support a healthy 9% annual rate of real export growth, imports will also maintain a strong 7.5% rate of growth.

For now, the global investment community seems willing and able to hold sufficient US assets in their portfolios to finance these deficits. However, with the increasing trade imbalance, the US economy becomes increasingly vulnerable to changes in foreign demand. A sudden drop in demand for US backed assets represents a significant risk to our forecast.

Special Report: Oil Prices & the Macroeconomy

Opinions over the future of world oil prices differ widely and this led us to consider the impact of oil prices on the economy and to develop more fully the energy sector of our model. Specifically, we examined two alternative scenarios in an attempt to see what our model implied about the macroeconomic impacts of a change in oil prices. The baseline forecast for oil prices for this year's CEO is a constant $58 per barrel over the forecast horizon, approximately equal to the actual value in the third quarter of 2005.

In our model, oil prices influence aggregate economy activity through the price of gasoline and its impact on overall inflation (via the Phillips Curve), on consumer sentiment, and on nondurable spending by households. In 2004, average gasoline prices in the US were $1.92 per gallon (all grades of unleaded gasoline). According to our baseline scenario, a constant $58 per barrel price for imported oil will translate into a forecast for average gasoline prices of $2.59 per gallon in 2006 and $2.63 per gallon in 2008. Our baseline scenario stems from an assumption that gasoline prices will fully recover from the price spikes that occurred following Hurricanes Katrina and Rita. These spikes were the result of limited supply and damage to refinement capabilities in the US that created fear and uncertainty about the future supply of oil. However, as those fears subside, and refinement capabilities are restored, we believe that oil prices will stabilize.

Two scenarios were tested within the model in order to asses the effect of oil prices on real GDP. Scenario I assumes that oil prices will decrease in a linear fashion over the forecast horizon, reaching $35/barrel by the end of 2008. The second scenario examines the implications of another spike in prices similar to the one observed in the summer of 2005.

Scenario I: Lower world oil prices

A number of government institutions and private banks have predicted a fall in world oil prices in the near future. Such an assumption is reasonable if speculative pressures, and a slowdown in the demand for oil ease the recent upward pressure on prices. In our first scenario, we assumed that oil prices will decrease in a linear fashion over the forecast horizon, reaching $35 per barrel by the end of 2008 which will lead to lower gasoline prices. In our model, this results in a boost in consumer confidence. A gradual decrease in gasoline prices will lead to an inward shift of the Philips curve and inflation would start to decrease relative to our baseline forecasts. As illustrated in the table below, the gradual decline in oil prices leads to a drop in gasoline prices, but very little change in overall output growth. The unemployment rate is unchanged. And consumer sentiment is stronger as a result of the decline in gasoline prices.

Baseline	**2005**	**2006**	**2007**	**2008**
Oil Prices ($/barrel)	$51	$58	$58	$58
Gasoline prices	23.4%	9.4%	0.3%	1.3%
Real GDP growth	3.6%	2.6%	2.7%	3.1%
Inflation	2.8%	1.9%	1.2%	0.9%
Unemployment rate	5.1%	5.0%	5.1%	5.1%
Consumer Sentiment	-5.9%	-2.6%	0.7%	0.2%
Scenario I: Steady decline to $35/barell in 2008q4				
Oil Prices ($/barrel)	$51	$52	$45	$38
Gasoline prices	22.9%	3.3%	-7.1%	-6.5%
Real GDP growth	3.6%	2.7%	2.8%	3.1%
Inflation	2.7%	1.7%	0.8%	0.2%
Unemployment rate	5.1%	5.0%	5.1%	5.1%
Consumer Sentiment	-5.8%	-1.5%	1.5%	0.7%
Scenario II: $70/barrel price spike in 2006q1				
Oil Prices ($/barrel)	$51	$61	$58	$58
Gasoline prices	23.4%	12.6%	-2.5%	1.3%
Real GDP growth	3.6%	2.6%	2.8%	3.1%
Inflation	2.8%	2.2%	1.2%	0.9%
Unemployment rate	5.1%	5.0%	5.2%	5.1%
Consumer Sentiment	-5.9%	-3.6%	1.6%	0.3%

Scenario II: A Spike in World Oil Prices

Our second scenario looks at an increasingly common phenomenon in world oil markets: a temporary spike in the price of imported oil. Scenario II simulates a one quarter shock in oil prices in an attempt to examine the effect of continued oil price volatility. Specifically, this scenario assumes that oil prices will rise to $70/ barrel in the first quarter of 2006 and then return to our baseline level of $58/barrel.

As we see in the bottom panel of the table on the preceding page, this simulated oil price shock will lead to a sharp increase in gasoline prices for the year, relative to our baseline forecasts, thus dampening consumer sentiment and consumption in the first half of 2006. However, consumer confidence will recover as oil prices return to baseline levels, suggesting that there is little long term effect of one-time energy shocks on consumer confidence. Inflation, output, and unemployment all return quickly to their baseline paths following the shock. While much larger in magnitude, the impact of such a shock in our model appears to mirror the impact of recent oil price shocks on the macroeconomy, which appear to have had little long-term effect.

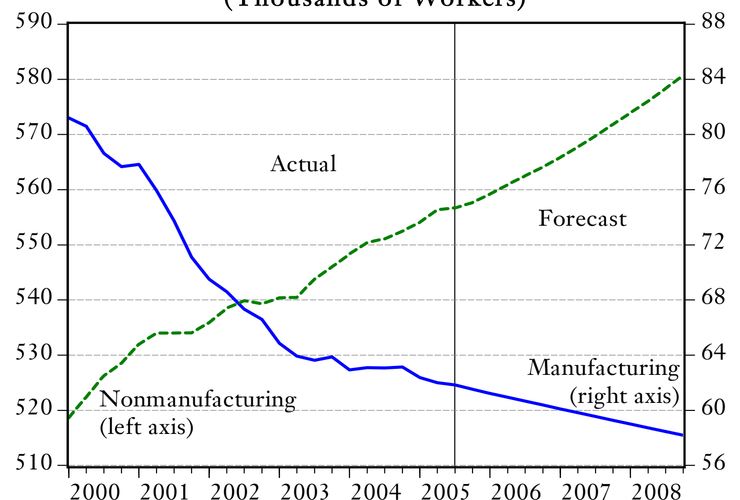
The Economic Outlook for Maine

The major story for Maine's economy continues to be its transformation from a manufacturing based economy to one that is increasingly service and knowledge based. During the past five years alone, Maine has witnessed its manufacturing employment whither away at nearly 5% per year, as increased globalization takes its toll on manufacturing jobs in the state. The good news is that this erosion appears to be abating as manufacturing employment losses totaled just 1.6% in 2004 and 2% (year-over-year) in the third quarter of 2005.

Since the mild US recession at the beginning of the decade, Maine has performed better than the overall macroeconomy in terms of growth in employment and personal incomes. However, recent economic events have imperiled Maine's economy and littered it with numerous uncertainties. These uncertainties include high energy prices, a slowing housing sector, an overextension of consumer credit, and possibly higher interest rates. On top of these national concerns, Maine also has to deal with state issues involving its aging workforce, the movement of its jobs and people south, and the loss of talented workers due to out-migration. Despite this anxiety, economic growth is still occurring within both Maine and the US. Our forecast is that these trends will continue into 2008, though at more moderate levels as these concerns are played out.

Employment

The structural shift in employment in Maine is clearly indicated in the chart below. The inherent problem with this shift is the wage differential. Families used to the high paying salaries of paper mills are struggling to get by with the lower wages of call centers. Furthermore, the downsizing of local paper mills in places like Millinocket and Lincoln have caused former employees to have to travel farther to find work that does not pay as well. Thus, many families are faced with the decision of migration. In order to maintain a higher income level, many families are moving from northern Maine to southern Maine, or out of the state. The divide between "the two Maines" is getting larger. The Maine Dept. of Labor predicts most new jobs will be created in southern and coastal Maine, and that northern Maine will continue to lose manufacturing jobs. By the end of 2005, we estimate that non manufacturing jobs will have increased by just over 1%. Nonmanufacturing employment growth is forecast to fall just below 1% in 2006. In 2007 and 2008 growth is forecast to pick up again, to 1.3% and 1.5%, respectively.



The outlook for the unemployment rate in Maine is mixed. Maine's unemployment rate has historically been one of the lowest in the nation. More recently, the unemployment rate has been rising slightly, from 4.4% in

January to 5.2% in October 2005. Meanwhile, job growth has been modest, with new jobs added in sectors such as health care and social assistance, retail trade, construction and in leisure and hospitality services. Our forecast predicts the unemployment rate to remain stagnant at around 5.1% up through 2006. We expect the unemployment rate to decline from the beginning of 2007 through the end of 2008 as overall economic activity begins to pick up.

Personal Income

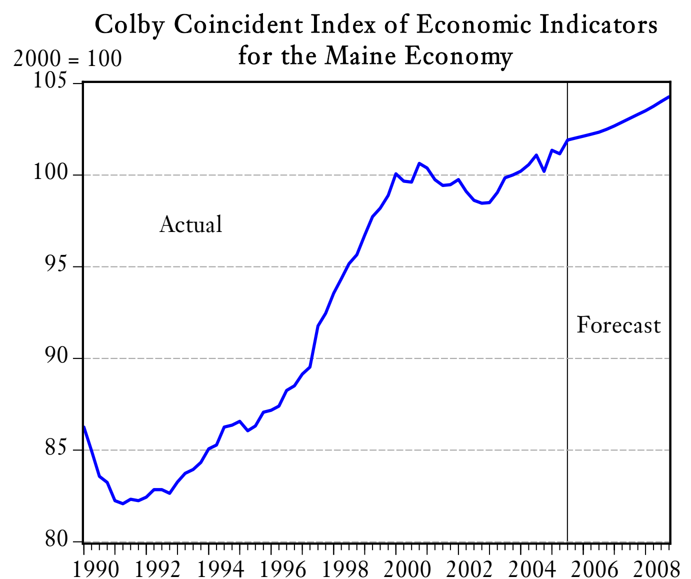
Real personal income in Maine has been growing at an average rate of 3.25% annually over the past ten years. Recently, however, Maine has experienced tougher times. The Bureau of Economic Analysis recently ranked Maine 47th out of 50 states for personal income growth over the first half of 2005. Accordingly, our forecasted average annual rate of growth of 2.3% for real personal income is consistent with the most recent trends of income. A more specific measure of personal income, income from firm expenditures on wages and salaries is also included in the Maine model. Growth in nominal wages and salaries has been steady over the past few years, with an average annual growth rate of just over four percent. Like real personal income, we expect growth in nominal wage and salary disbursements to slow by the end of the forecast horizon.

Tourism & Retail Sales

Our model for Maine includes an equation for passenger vehicles traveling on Maine's turnpike which we use as a proxy for tourist traffic. While tourist traffic depends primarily on economic activity in the U.S. economy as a whole, this year we added a variable to account for the effect gas prices might have on tourist traffic. We found that in the past, gas prices do have a statistically significant, negative effect on turnpike traffic. In our model, turnpike traffic contributes to explaining retail sales in the state. Despite the 2001 recession and its aftereffects, seasonally adjusted retail sales have grown at an annual rate of 4.4% over the past five years. However, we are projecting average annualized growth rates of around 2.4% over the forecast horizon, representing a departure from recent times. We believe that this forecast is consistent with recent reports indicating that credit constraints, rising interest rates, higher energy prices, flat or falling house prices, and a general slowdown in the U.S. economy will lead to more moderate growth in retail sales activity in the near term.

The Colby Coincident Index

The Colby Coincident Index (CCI) is an aggregate economic index for the state of Maine. The CCI is a composite index of economic indicators that is useful in describing changes in overall economic activity within the state. While Gross State Product is widely considered to be the best measure of aggregate economic activity, it is unfortunately released only annually and with a two year lag. The CCI is able to resolve these two issues, as it is constructed using current values of key economic indicators, and consequently can offer insight into the recent economic trends. More importantly, by forecasting the indicators, we can produce a forecast of overall economic activity in Maine. The variables that make up the CCI include nonmanufacturing employment, real



personal income, manufacturing employment, retail sales, and turnpike traffic.

Overall, the forecast of CCI suggests a relatively modest improvement in the general economic conditions over the next three years. With only slight annual improvements in real personal income and nonmanufacturing employment, and continued losses in manufacturing employment, the CCI predicts the Maine economy to grow at just 0.7% for the rest of the year. This level of growth should continue through 2007, with a moderate uptick to just below 1% through 2008.

Colby Economic Outlook for the US Economy

	2004-05	2005-06	2006-07	2007-08
Real GDP	3.64%	2.64%	2.73%	3.05%
Personal Consumption Expenditures	3.73%	2.79%	2.51%	2.81%
Durable Goods	5.73%	-0.78%	-1.42%	2.71%
Nondurable Goods	4.31%	3.50%	3.59%	2.82%
Services	2.94%	3.03%	2.93%	2.83%
Nonresidential Fixed Investment	8.90%	8.57%	8.32%	7.74%
Residential Investment	7.26%	-1.21%	-3.40%	-1.65%
Government Consumption & Investment	2.03%	2.58%	2.50%	2.50%
Exports	6.83%	6.44%	8.26%	9.00%
Imports	6.21%	7.69%	7.45%	7.57%
Consumer Price Inflation	2.76%	1.92%	1.23%	0.86%
Core CPI Inflation	2.12%	1.99%	2.31%	2.09%
Nonoil Import Price Inflation	2.16%	0.47%	0.41%	0.36%
Housing Prices	6.95%	3.74%	3.01%	2.94%
Labor Productivity	2.76%	2.29%	2.20%	2.34%
Average Hourly Earnings	2.74%	2.80%	2.26%	1.83%
US Dollar Exchange Rate	-1.52%	4.44%	-3.18%	-5.31%
Real Disposable Income	1.23%	2.14%	2.79%	2.43%
Household Net Worth	8.64%	4.42%	3.63%	3.63%
Corporate Profits	13.46%	4.25%	6.86%	7.86%
Housing Starts	5.51%	-3.97%	0.35%	2.83%
Industrial Production	2.91%	1.66%	1.87%	1.88%
S&P 500 Stock Price Index	6.96%	5.66%	5.00%	5.00%
Federal Government Receipts	12.35%	13.40%	9.99%	6.45%
	2005	**2006**	**2007**	**2008**
Federal Funds Rate	3.21%	4.52%	4.94%	4.98%
3 Month Treasury Bill Rate	3.16%	4.44%	4.84%	4.93%
5 year Treasury Note Yield	4.06%	4.89%	5.27%	5.38%
10 Year Treasury Note Yield	4.30%	4.99%	5.34%	5.40%
20 Year Treasury Note Yield	4.67%	5.18%	5.47%	5.51%
30 Year Treasury Note Yield	4.58%	5.11%	5.43%	5.49%
30-Year Conventional Mortgages	5.89%	6.61%	6.86%	6.89%
Aaa Corporate Bond Yield	5.25%	5.76%	6.03%	6.08%
Civilian Unemployment Rate	5.07%	5.02%	5.15%	5.07%
Federal Deficit (Bill $s, NIPA Basis)	$419	$572	$485	$454

Colby Economic Outlook for the Maine's Economy

	2005	2006	2007	2008
Colby Coincident Index	1.09%	0.67%	0.68%	0.87%
Real Personal Income Growth	2.89%	3.28%	1.38%	1.68%
Wage & Salary Income Growth	4.01%	3.41%	3.36%	3.30%
Total Nonagricultural Employment	0.73%	0.70%	0.96%	1.18%
Nonmanufacturing Employment	1.02%	0.98%	1.27%	1.49%
Manufacturing Employment	-1.79%	-1.81%	-1.84%	-1.84%
Unemployment Rate	4.9%	5.1%	5.0%	4.7%
Taxable Retail Sales	0.78%	3.61%	1.86%	2.17%
Residential Construction Contracts	4.42%	5.11%	0.21%	2.30%
Turnpike Traffic (Passenger Vehicles)	-1.18%	-0.78%	0.83%	1.64%

The *Colby Economic Outlook* is produced by the students in this year's senior seminar in economic forecasting at Colby College under the direction of Associate Professor of Economics Michael Donihue.

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