110th CONGRESS
1st Session

SENATE

REPORT
110– 251

THE 2007 JOINT ECONOMIC REPORT

REPORT

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

ON THE

2007 ECONOMIC REPORT
OF THE PRESIDENT

TOGETHER WITH

MINORITY VIEWS

December 18, 2007 - ordered to be printed
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LETTER OF TRANSMITTAL

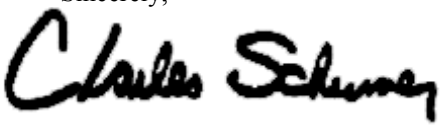
December 18, 2007

HON. HARRY REID
Majority Leader, U.S. Senate
Washington, DC

DEAR MR. LEADER:

Pursuant to the requirements of the Employment Act of 1946, as amended, I hereby transmit the 2007 Joint Economic Report. The analyses and conclusions of this Report are to assist the several Committees of the Congress and its Members as they deal with economic issues and legislation pertaining thereto.

Sincerely,



CHARLES E. SCHUMER
Chairman

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110th CONGRESS } SENATE { REPORT
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THE 2007 JOINT ECONOMIC COMMITTEE REPORT

DECEMBER 18, 2007– ordered to be printed

MR. SCHUMER, from the Joint Economic Committee,
submitted the following

REPORT

together with

MINORITY VIEWS

Report of the Joint Economic Committee on the 2007 Economic Report of the President

OVERVIEW OF U.S. MACROECONOMIC PREFORMANCE

INTRODUCTION

The President says his policies are working to make the economy strong and that all Americans are benefiting, but the facts show an economic record that has left the vast majority of American families behind. During the last six years, the economy has performed in a lackluster fashion, without strong growth in output, investment, or employment. America's working families have seen little or no improvement in their standard of living during this time. The recovery from the recession in 2001 has been very weak, and household income is still substantially below its pre-recession peak of the 1990s. Further, the number of households with employer-provided health insurance has

declined. In short, the economic indicators that matter most to the typical family are moving in the wrong direction.

By almost every measure, the Bush Administration's economic policies have produced a recovery that has been remarkably weak. The President's ill-designed tax policy has added to the deficit and exacerbated income inequality. At the same time, programs that benefit middle- and lower-income families have been cut back. Dramatic increases in defense spending for the war in Iraq have increased the budget deficit, which will have an impact on future generations. Instead of focusing spending increases on areas that would help economic growth in the long term, such as repairing and modernizing America's transportation and urban infrastructure, the administration financed a war that has already produced total economic costs exceeding a trillion dollars.

The subprime mortgage crisis, which may lead to millions of Americans losing their homes, and the subsequent credit crunch have weakened an already soft housing market. The deteriorating housing market threatens to have pronounced negative impacts on growth. The vast majority of American families have not benefited from the economic gains we have seen so far and now there are strong indications that a downturn may be just around the corner.

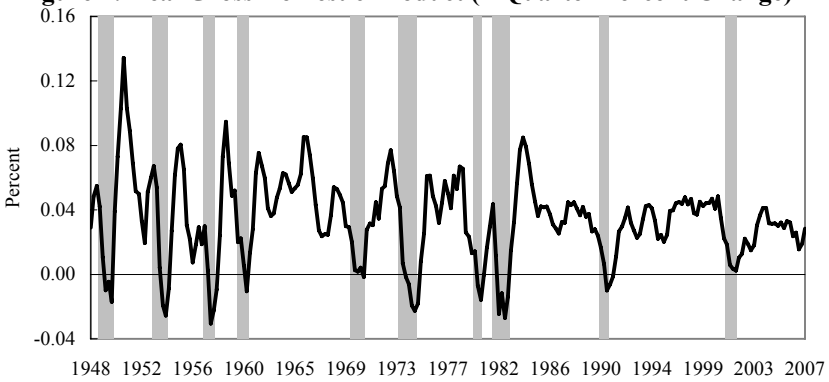
So far, the Administration has been slow to change course and are satisfied with the status quo. The country needs a change in direction to get our economy back on the right track and to ensure that all American families share in our nation's growing prosperity.

Macroeconomic Performance: Lackluster Growth, Weak Business Investment

Over the past seven years, despite Administration claims to the contrary, the U.S. economy has performed in a lackluster fashion. The Bush Administration's macroeconomic policies have failed to deliver strong growth in output, investment, or employment. In historical terms, by almost every economic

measure, this economic recovery has been remarkably weak. The majority of Americans have lost ground. And now there are strong indications that a downturn may be just around the corner.

Figure 1: Real Gross Domestic Product (4-Quarter Percent Change)



Sources: U.S. Department of Commerce and National Bureau of Economic Research.

The clearest way to understand the Bush administration's economic record, and to see most clearly the failure of its economic policies, is by placing the past seven years in the context of the performance of prior business cycles. The U.S. economy reached a business cycle peak in the first quarter of 2001, when President Bush took office, experienced a brief recession, and then begin to expand. We can get a clear sense of the Bush economic record by comparing this economic expansion (or "recovery") to other expansions of similar length. To benchmark this economic recovery's performance, we examine economic trends from the business cycle peak in 2001 through the 26 quarters of the current recovery and compare them to the prior three expansions that lasted at least six and a half years (26 quarters).[1,2] When we benchmark the current

[1] The pervasiveness of cycles is illustrated in Figure 1, which shows quarterly GDP growth at an annual rate. The dark vertical bars indicate periods of recession.

[2] We compare the behavior of the current cycle, which begins at the business cycle peak in the first quarter of 2001, to the three other U. S. business cycles which continued 26 or more quarters past a peak. These three peaks occur in Q2 1960, Q3 1981, and Q3 1990. The business cycle peaks are those

economic recovery to the performance of prior recoveries, we see clearly that the primary indicators of the health of our economy—growth in Gross Domestic Product (GDP), investment, and employment—are much weaker than in prior recoveries.

Figure 2: Average Growth of Real GDP
(First 26 Quarters of the Business Cycle)

	Dates of Business Cycle Peak (NBER)			
	1960:II	**1981:III**	**1990:III**	**2001:I**
Gross Domestic Product	4.97	3.40	2.81	2.55
Average of three cycles (1960/1981/1990)	3.73			
Difference 2001: 1 and 3-cycle average	-1.81			

Source: U.S. Department of Commerce.

The main indicator of the overall health of the U.S. economy, GDP growth, has been anemic during this economic recovery. Since the last economic peak in the first quarter of 2001, the economy has expanded at an annual rate of only 2.6 percent, about a third less than the 3.7 percent average growth rate of the three prior economic cycles of similar length (Figures 2 and 3). This means that in the current economic expansion, GDP has risen only 18.1 percent above its level during the prior economic peak. By this point in the business cycle for prior economic recoveries, GDP had risen 27.1 percent above the prior economic peak (or over one third above the level it has under this administration). This means that our economy has experienced much slower growth during this recovery than in prior recoveries, which has meant that job creation and business investment in productive capital have been slower than normal, and that incomes of middle income households have stagnated.

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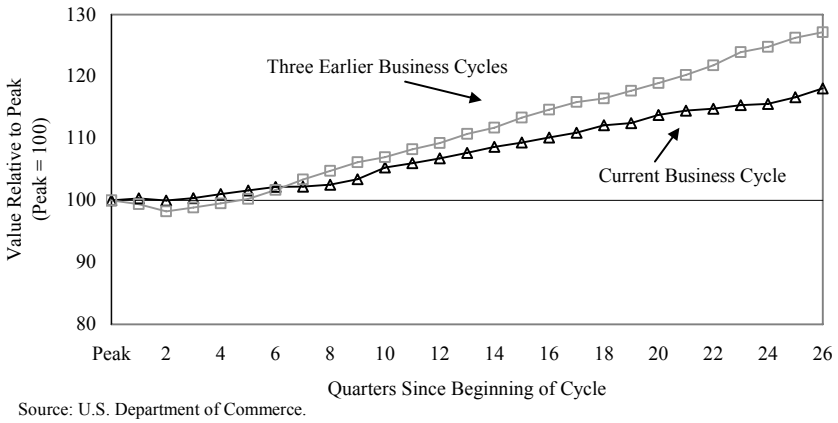
identified by the National Bureau of Economic Research, available at http://www.nber.org/cycles.html.

Figure 3: Real Gross Domestic Product (GDP)

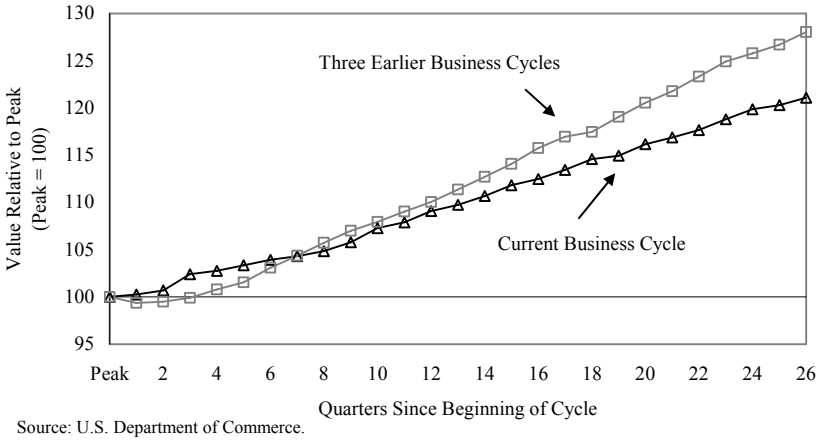


Source: U.S. Department of Commerce.

GDP growth is driven in large measure by two components, investment and consumption. The federal government can influence GDP growth by encouraging public and private investment, using a combination of tax incentives and prudent spending initiatives. It can also stimulate consumption through policies that increase the disposable income of households who need to spend higher proportions of their income to take care of their families. The Bush administration's tax and expenditure policy has by design failed to do either. When compared to similar cyclical expansions, investment and consumption have grown slowly.

Business expenditures on fixed investment have been especially weak during this economic cycle. Non-residential fixed investment – gross business spending on productive capital stock, such as plants and equipment – has performed poorly since the prior economic peak in early 2001. Typically, non-residential fixed investment has taken nine quarters to return to its pre-recession peak, but in this economic recovery it took 18 quarters, twice as long (Figure 4). Remarkably, 26 quarters into the current expansion, this measure of investment is only 12.0 percent above its pre-recession value, whereas the average increase over the previous three economic cycles was nearly four times as large (44.6 percent).

Figure 4: Consumption Expenditures



Source: U.S. Department of Commerce.

The weakness in investment is especially significant because slow investment growth today will likely lead to lower future economic growth. An economy's potential output (measured by GDP) depends on its stock of capital, itself the result of prior investment. As the President's own Council of Economic Advisers puts it in the 2007 Economic Report of the President, "[b]ecause a larger capital stock makes labor more productive, investment is a primary driver of greater economic growth and higher standards of living."[3] The lack of investment is thus a major factor in the overall weakness of this economic expansion, and, perhaps more worrisome, a harbinger of more economic weakness to come.

Consumption has also grown more slowly during this expansion than in prior economic cycles. Since consumption comprises more than two-thirds of aggregate demand, consumption growth is vital to GDP growth. Typically, at this point in the economic cycle, consumption is about 28.0 percent above the previous economic peak. However, in this economic recovery, consumption has only increased by 21.1 percent. Consumption growth has actually slowed, compared to prior trends, as the expansion has progressed (Figure 5).

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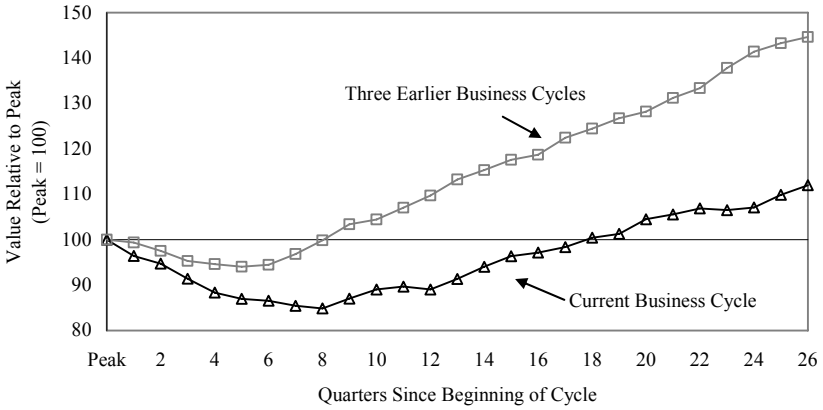
[3] Council of Economic Advisers (2007). Economic Report of the President, p. 63.

Figure 5: Real Non-Residential Fixed Investment



Source: U.S. Department of Commerce.

The relatively weak growth of consumption would have been weaker had it not been supported by rising household debt levels. Debt to income levels have risen sharply during this cycle as households have taken out larger mortgages, borrowed against home equity, and otherwise accumulated debt in an effort to support their standard of living.[4] This has allowed higher consumption than current income would otherwise allow. For example, research by the Federal Reserve shows that house price appreciation – which creates collateral for a significant part of household borrowing – has an important positive impact on aggregate consumption.[5] However, the end of rapid house price appreciation has removed an important support from consumption demand, and this is likely to have a negative effect on the current expansion.

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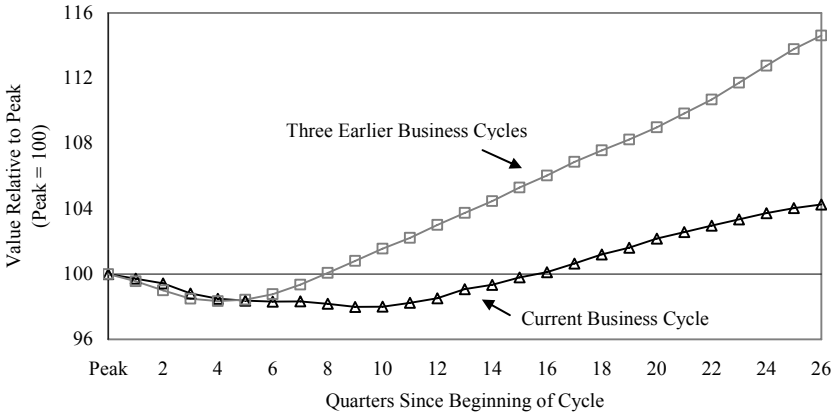
[4] See Karen Dynan and Donald Kohn (2007), The Rise of U.S. Household Indebtedness: Causes and Consequences, Finance and Economic Discussion Series, Federal Reserve Board, 2007-37.

[5] See Frederick Mishkin (2007), Housing and the Monetary Transmission Mechanism, Finance and Economic Discussion Series, Federal Reserve Board, 2007-40.

Figure 6: Total Non-Farm Payroll Employment

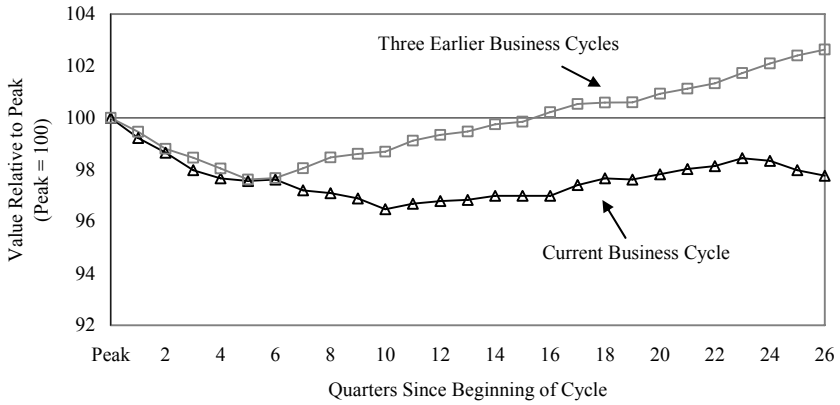


Source: U.S. Department of Commerce.

Relatively slow growth in GDP has meant slow growth in employment. Since the peak in the first quarter of 2001, total non-farm payroll employment has increased less than 4.3 percent, less than one-third the rate of growth as over prior economic cycles, when employment grew by 14.6 percent (Figure 6). The employment rate – the share of working age population that has a job – reflects this slow rate of job creation. The employment rate has yet to recover to the prior economic peak and has been declining over the last three quarters (Figure 7). If the employment rate had fully recovered from the last economic peak, there would be over four million more people at work as of November 2007.[6]

[6] The unemployment rate measures the share of people actively seeking work and can be biased if frustrated workers simply quit working; since the employment measure shows the share of people with a job, it gets around this problem.

Figure 7: Employment-Population Ratio



Source: U.S. Department of

The Administration has argued, as it does in the 2007 Economic Report of the President, that its policies are successfully "pro-growth."[7] The evidence tells us otherwise. If the "pro-growth" policies had been effective, then this economic recovery would have experienced trends more in line with prior recoveries. Instead, trends in GDP, investment, consumption and employment are considerably and consistently weaker than past recoveries.

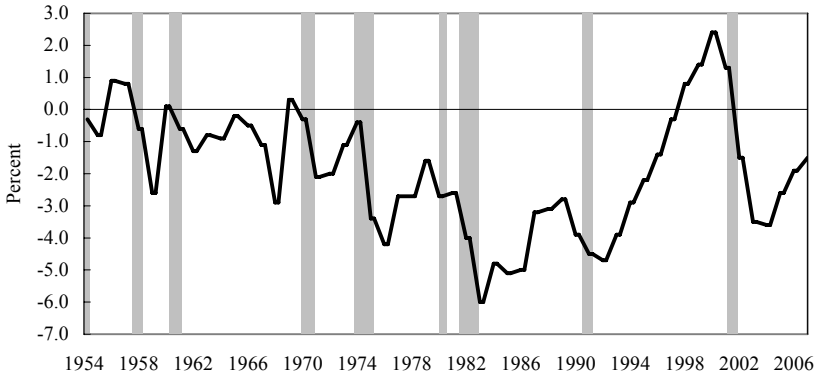
FISCAL POLICY: DEFICIT CREATION, REGRESSIVE TAX CUTS, A COSTLY WAR

Deficit Creation

At the end of the last economic peak, as a result of the fiscal policies of the prior Administration, the federal government was running a consistent surplus for the first time in 42 years. Now, six and a half years into the current economic recovery, we confront a significant deficit – currently 98.2 billion dollars, equal to 1.2 percent of GDP (Figure 8).

[7] Council of Economic Advisers (2007). Op cit., p. 72-75.

Figure 8: Federal Budget Deficit/Surplus (-/+) as a Percentage of GDP
Fiscal Year, 1954-2007



Sources: U.S. Department of the Treasury and U.S. Department of Commerce.

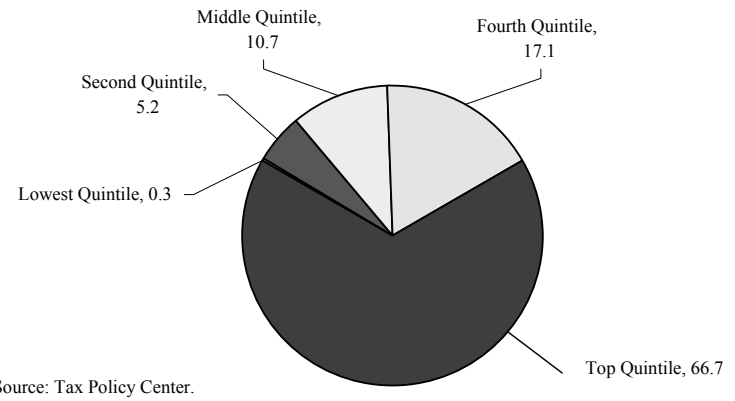
In the early years of this economic recovery, the Administration chose to implement large tax cuts that went disproportionately to the wealthiest households, while dramatically increasing defense spending on the war in Iraq. Research based on data from the Congressional Budget Office has shown that tax cuts and defense spending account for 48 percent and 37 percent of the growth in the deficit respectively.[8] Neither policy was effective in targeting short- or long-term economic growth. The tax cuts pumped billions of dollars into the economy, but instead of concentrating income tax cuts on households in the middle- and lower-income brackets, who are more in need of help and are more likely to contribute to aggregate demand through spending on the needs of their families, the majority of tax cuts went to households in the upper 10 percent of the income distribution (Figure 9).

Moreover, the increased discretionary defense spending in the last five years has cost nearly one trillion dollars to our economy, taking much-needed funds away from repairing and modernizing America's transportation and urban infrastructure or investing in basic research, such as medical research or advanced energy

[8] R. Carlitz and R. Kogan (2005). CBO Data Show Tax Cuts Have Played Much Larger Role Than Domestic Spending Increases In Fueling The Deficit. Washington, DC: Center on Budget and Policy Priorities, available at: http://www.cbpp.org/1-25-05bud.htm.

technology. Very high levels of defense spending have prevented the government from investing in the aforementioned areas that would enhance long-term U.S. growth and productivity.

Figure 9: Share of Total Federal Tax Change, 2007



Source: Tax Policy Center.

The economy is now burdened by a large government deficit that is forecast to remain with us for many years to come. This limits our ability to invest in the future, while also draining future resources for interest payments.

Regressive Tax Cuts

The extensive tax cuts implemented during this administration have overwhelmingly favored upper income groups, sending nearly two-thirds of the tax cuts to those in the top 20 percent of households. The fact that tax cuts were skewed to higher-income households in part explains why those cuts did not spur the kind of employment growth the Administration had projected.[9,10] According to a study by the Tax Policy Center at the Urban Institute and the Brookings Institution, the tax cuts between 2001

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[9] http://www.jobwatch.org/creating/bkg/cea_on_bush_tax_cuts_20030204_macro_effects.pdf

[10] For a summary of the tax changes implemented by the administration see Tax Policy Center (2006). Major Tax Legislation Enacted 1940-2006, available at http://www.taxpolicycenter.org/legislation/index.cfm.

and 2006, as measured by the percentage change in after tax income, were regressive as upper-income households received higher percentage increases in after-tax income compared to lower income households.[11] The estimated effects of the administration tax changes for 2007 are detailed in Figure 10. After-tax income for the upper quintile was increased 4.1 percent as a result, while after tax income of the bottom quintile increased only 0.3 percent. Two thirds of all tax reductions went to households in the top 20 percent of the income distribution – i.e. to households with average 2007 incomes around $203,000. The allocation of reductions is depicted graphically in Figure 9.

Figure 10: Combined Effect of the 2001-2006 Tax Cuts Distribution of the Federal Tax Change by Cash Income Percentile, 2007

Cash Income Percentile	Percent Change in After-Tax Income	Share of Total Federal Tax Change	Average Federal Tax Change		Average Income (Dollars)
			Dollars	Percent	
Lowest Quintile	0.3	0.3	-22	-7.5	8,074
Second Quintile	1.9	5.2	-360	-19.4	20,521
Middle Quintile	2.4	10.7	-746	-12.3	37,071
Fourth Quintile	2.3	17.1	-1,192	-8.9	64,859
Top Quintile	3.2	66.7	-4,656	-8.1	203,046
All	2.8	100.0	-1,396	-8.8	66,439
Addendum					
Top 10 Percent	3.4	51.9	-7,247	-8	302,839
Top 5 Percent	3.8	42.5	-11,863	-8.3	458,039
Top 1 Percent	5.3	32.0	-44,622	-10.3	1,284,199
Top 0.5 Percent	5.7	27.2	-75,881	-10.7	2,037,114
Top 0.1 Percent	6.2	16.8	-234,972	-10.7	6,011,426

Source: Tax Policy Center.

Instead of spurring economic growth, the administration's tax cuts have helped to create a significant budget deficit and have done little for most American families who have seen their real incomes remain flat or decline over the past seven years.

[11] G. Lierson and J. Rohaly (2006). The Distribution of the 2001-2006 Tax Cuts: Updated Projections, November 2006, available at http://www.taxpolicycenter.org/publications/url.cfm?ID=411378.

The Iraq War: Rising Economic Costs

As shown in the attached JEC report, the economic costs of the Iraq war have been substantial. The President's $195 billion supplemental request for fiscal year 2008 funding includes an estimated $158 billion for the war.[12] If Congress approves this additional request, through 2008, we will have spent over $600 billion on the Iraq war alone. This is over ten times the administration's original pre-war estimate of $50 to $60 billion.

However, as the JEC report demonstrates, the total economic costs of the war have been approximately double the direct budgetary costs so far. Budget numbers do not include the opportunity costs of financing the war with borrowed funds, the war's impact on world oil markets, and the costs of medical care and lost wages for wounded veterans. Should the President's 2008 supplemental be approved in full, the total economic costs incurred for the war through 2008 will be approximately $1.3 trillion.

Even if there is a considerable drawdown of troops in Iraq, but the occupation continues until 2017, the JEC estimates that the total economic costs of the war will reach at least $2.8 trillion for the entire 2003-2017 period.

THE SUBPRIME MORTGAGE CRISIS: THE HIGH COSTS OF IGNORING FINANCIAL EXCESS

The impact of the subprime mortgage crisis on the American economy has been swift and pervasive. As the attached JEC report explains, during the housing boom of the early 2000s, brokers and mortgage investors introduced a variety of new subprime mortgage products to cater to borrowers with weak credit or who wanted loans with little or no down payment. Many of these mortgages, made to high risk borrowers and often on the basis of incomplete information, were so-called "2/28" and "3/27" hybrid adjustable rate mortgages (ARMs). A typical

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[12] See Congressional Research Service, The Cost of Iraq, Afghanistan and Other Global War on Terror Operations Since 9/11, Updated November 9, 2007, available at http://www.fas.org/sgp/crs/natsec/RL33110.pdf

"2/28" hybrid ARM has a fixed interest rate during the initial two year period. After two years, the rate is reset every six months based on an interest rate benchmark.

As the housing boom continued, mortgage brokers and lenders aggressively sought to make more and more of these high-interest subprime loans, which they could then rapidly sell to investment banks seeking mortgages to pool into mortgage backed securities. Between 2001 and 2005, the share of borrowers with subprime mortgages more than doubled. In 2001, less than 9 percent of all mortgage originations were subprime. By 2005, subprime mortgages accounted for 20 percent of all mortgage originations.

The lengthy run-up in housing prices that began in 1997 was able to mask the risks inherent in the proliferation of these mortgage products. As long as home prices escalated, borrowers were able to avoid the dangers of their interest rate resets by re-financing their loans, or by selling their homes. However, beginning in 2006, home prices began a nationwide decline. Nationally, nominal home prices are currently down approximately 5.0 percent from their peak in the second quarter of 2006. Inventories of unsold new homes have increased, and the monthly supply of new homes has risen. With housing prices no longer rising, subprime borrowers cannot refinance their homes to pay off loans before they reset to higher and often unaffordable rates. As a result, the delinquency and foreclosure rates for subprime adjustable rate mortgages have been sharply rising. Record numbers of borrowers are now defaulting on their loans, which has led to a crisis in the financial markets that buy and sell these securitized mortgages and is likely to accelerate the downward spiral of house prices.

Using state-level data, the JEC report estimates that by 2009, two million foreclosures will occur as the riskiest subprime mortgages (the two- and three-year adjustable rate mortgages) reset over the course of this year and next. This will lead to the destruction of approximately $100 billion in housing wealth. Each foreclosure reduces the value of the home, leading to an

estimated $71 billion in losses; and those foreclosures reduce the value of neighboring properties by an additional $32 billion.

The realized and anticipated losses from these mortgage loans, and in the securities and financial derivatives based on them, have caused havoc in credit markets in the U.S. and other parts of the world. Inter-bank lending, markets for asset backed commercial paper, and lending in the prime mortgage market have all been disrupted.

These credit market disruptions, together with the effects of declining household wealth and deteriorating consumer and business sentiment, threaten to have pronounced negative effects on GDP growth and employment. While many experts recognized that housing prices were approaching bubble levels in some regions and that there was a rapid increase in subprime lending, the administration failed to act on those warnings. The consequences of administration inaction on this issue will likely be severe. The economic losses connected with subprime foreclosures will be very high for homeowners and financial markets alike, and will be a major factor contributing to the weakened economic growth we expect to see in the coming quarters.

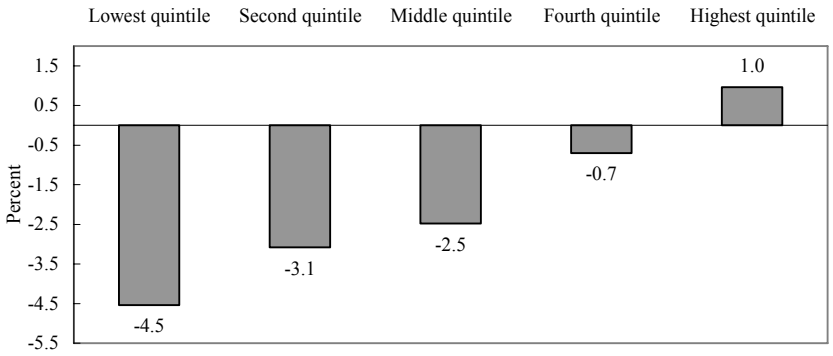
ECONOMIC WELL-BEING OF HOUSEHOLDS: STAGNATION AND DECLINE

Slow economic growth and lackluster employment gains have been hard on America's working families. By the most important measures of economic well-being, the majority of households have seen little or no improvement in their standard of living during this economic recovery. Most families get the bulk of their income from wages and salaries, so slow employment growth is directly related to a squeeze on the middle class.

According to the latest Census data (2006), mean household income remains 0.5 percent below where it had been in 2000 at the last economic peak. This recovery has generated less income growth than prior ones: at this point in the recovery of the 1990s, mean household income was 7.8 percent above its pre-recession

peak and at the comparable point in 1980s, mean household income was 13.5 percent above its pre-recession peak.[13] The growth we have seen in household income during this economic recovery has accrued mostly to those at the very top of the income distribution. Since 2000, families in the top fifth of the economic ladder have seen their income rise by 1.0 percent, while those in the middle fifth have seen their income fall by 2.5 percent and those in the bottom fifth have seen it fall by 4.5 percent (Figure 11). Slow income gains for households at the bottom of the income distribution are directly related to rising poverty. The percent of the population in poverty now stands at 12.3 percent, a full percentage point above the 2000 rate of 11.3 percent.

Figure 11: Percent Change in Real Mean Household Income
2000-2006



Note: Each quintile contains 20 percent of households ranked by household income.
Source: U.S. Department of Commerce.

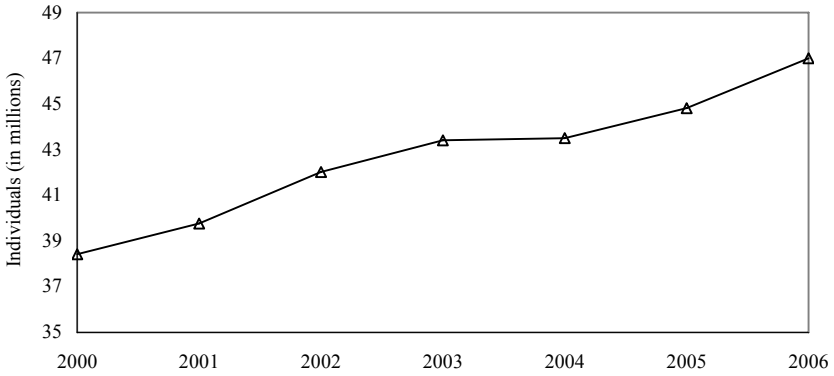
The income gains that families have seen have been due to working more, not getting paid a higher salary or hourly wage. From 2005 to 2006, median full-time earnings fell for both male and female workers by over a percent (1.1 percent for men and 1.2 percent for women). This is the third year in a row that median earnings have fallen. Employment rates are higher for both men and women, indicating that families are coping with lower earnings by simply working more. By these measures, the

[13] Because Census data is annual, we use data covering the periods 1981-1987, 1990-1996 and 2000-2006 to make these calculations.

current recovery has been inadequate for millions of families and may not improve once we see the 2007 data. In 2006, hourly wages increased sharply in the last half of the year and, as a result, 2006 was the first year in three years to show growth in inflation-adjusted weekly earnings. While inflation-adjusted hourly wages fell in early 2007, they are now growing but at a much slower pace than in late 2006.

During this economic recovery, millions have lost access to health insurance. Between 2000 and 2006, the share of people with employment-based health insurance fell from 64.2 to 59.7 percent and the share without health insurance is now at 15.8 percent, an all-time high (Figure 12). There would be more uninsured among us except that in the late 1990s, Congress extended Medicaid to the children of workers under the State Child Health Insurance Program (SCHIP). Between 2000 and 2006, the share of children with employment-based health insurance fell by 6.2 percent while, mostly because of the SCHIP expansion, the share of children with government health insurance rose by 5.4 percent between 2000 and 2006. Yet, even with the SCHIP expansion, there are more children without health insurance: from 2005 to 2006, the number of uninsured children increased from 8 million (10.9 percent) to 8.7 million (11.7 percent). Employment-based coverage fell for adults by just as much as for children. However, since most adults are ineligible for Medicaid, they are now swelling the ranks of the uninsured.

Figure 12: Americans Without Health Insurance



Source: U.S. Department of Commerce.

CONCLUSION

The Bush Administration has not delivered on its promises. They estimated that their economic policies would generate strong growth, through increasing investment and that this would lead to strong job gains. This has not been the case. By most measures, this economic recovery has been weak. While families have struggled to make ends meet with incomes that are not growing, the Administration has only offered tax cuts for the wealthy.

When we look behind the administration's claim to "six years of uninterrupted job growth," we see the results of six years of economic mismanagement and indifference to the aspirations of America's middle class. Rather than setting new standards for economic performance or even just maintaining economic and job growth, President Bush is competing with his father for the worst job creation record of any president since Herbert Hoover. The economy has created only 5.9 million new jobs since taking office, an average of 72,000 new jobs per month. At this point in the Clinton administration, 20.2 million new jobs had been created, an average of 246,600 new jobs per month.

The economy has expanded at an annual rate of only 2.5 percent over the past seven years, about a third less than the 3.6 percent average growth rate of the three economic cycles of similar

length. No economist would call that robust, strong, or fast growth. And as former Chairman of the Federal Reserve Board of Governors, Alan Greenspan recently noted *"... somebody who has an immune system which is not working very well is subject to all sorts of diseases, and the economy at this level of growth is subject to all sorts of potential shocks."*

Unfortunately, the shocks have mounted. The subprime mortgage crisis threatens a wave of foreclosures. The reality of foreclosures has led to a credit crisis and serious problems for the banking system. At every step, the administration has remained detached and failed to take vigorous steps to put the economy back on track.

Instead of performing the important functions of government, the administration has focused on goals that are irrelevant to the needs of the economy and middle-class households. While vigorously seeking to increase defense spending, it chooses to ignore real problems in employment, business investment, infrastructure investment, and the economic well-being of citizens. These are the actions of a government indifferent to and at odds with the needs of the people it should be championing.

MAJORITY STAFF REPORTS

Sheltering Neighborhoods from the Subprime Foreclosure Storm

Recent increases in delinquencies and foreclosures in the subprime mortgage market have raised widespread concerns about the possibility of accelerating foreclosures throughout this year and next. While lenders, banks, and securities traders scramble to figure out how to insure themselves from the market consequences of rising subprime mortgage defaults, local communities are struggling to stem the tide of foreclosures that impose significant costs on families, neighborhoods and cities. This report analyzes the subprime foreclosure phenomenon at the local level, describes the high spillover costs of foreclosures, and argues that foreclosure prevention is cost-effective.

Key Points

- Subprime foreclosures are expected to increase in 2007 and 2008 as 1.8 million hybrid ARMS—many of which were sold to borrowers who can not afford them—reset in a weakening housing market environment.

- Varying local economies, housing markets and state regulatory regimes mean that some local areas are getting hit by the subprime foreclosure crisis much harder than others and deserve immediate attention.

- It pays to prevent foreclosures in these high-risk cities – every new home foreclosure can cost stakeholders up to $80,000, when you add up the costs to homeowners, loan servicers, lenders, neighbors, and local governments.

- Policy responses to the subprime crisis should be designed to address the local foreclosure phenomenon and include both foreclosure prevention strategies and improved mortgage lending regulations.

SUBPRIME FORECLOSURES TO DATE: THE "TIP OF THE ICEBERG"?

Over the past several months, it has become increasingly clear that irresponsible subprime lending practices have been contributing to a wave of foreclosures that are hitting homeowners and rattling the housing markets. (For more information on subprime loans, see Box A on page 3.) The loan product that has both fueled the recent growth in the subprime market over the past two years and that is largely responsible for the foreclosure spikes is the so-called "exploding ARM." These are hybrid adjustable rate mortgages that offer a 30-year loan with an initial fixed rate that is set below market rates (often called a "teaser" rate). When the rate resets after an initial fixed rate period (commonly two to three years, hence the nicknames "2/28s" and "3/27s"), it often resets to a more onerous rate that leads to a significantly higher mortgage payment.[14] Exploding ARMS are almost exclusively underwritten to the subprime market, and the majority of subprime originations over the past several years were "2/28s" and "3/27s."[15]

In recent years, a significant portion of exploding ARMs have been underwritten without consideration of whether the borrower can afford the loans past the initial low teaser rate. Because mortgages are often immediately bundled together and sold as securities once a loan is placed, the primary financial incentive for mortgage brokers is to close the deal and collect the attendant fees and commission, rather than consider the long-term performance of the loan. When the loan resets after the initial teaser rate period, the overall increase in monthly payment can be quite disruptive – particularly for subprime borrowers. A 2006

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[14] A typical 2/27 subprime borrower in 2005 may have been issued a loan at a teaser rate of 7 percent. Two years later, as that teaser rate resets, the borrower may see his rate reset to 10 percent. But the next time the loan resets – typically in six months or a year – the rate will go up yet again, based on a certain margin or spread over short-term interest rates (typically LIBOR).

[15] Testimony of Sandra Thompson, Director of the Division of Supervision and Consumer Protection at the FDIC, Before the Committee on Banking, Housing, and Urban Affairs of the United States Senate, March 22, 2007.

analysis by Fitch Ratings reported that 2/28 subprime ARMs carried an average "payment shock" of 29 percent over the teaser-rate payment, even if short-term interest rates remained unchanged.[16] Since the short-term interest rate (LIBOR) that determines the rate at which the loan resets increased at the end of last year, the payment shock is even higher now – at approximately 50 percent by some estimates.[17]

This payment shock can be even more disastrous for borrowers who qualify for loans with an initial low rate based on stated income (qualifying the borrower based on the income they *state* on their loan applications, also called "liar loans" or "no-doc" loans) or reduced documentation ("low-doc" loans). Roughly half of all subprime borrowers in the past two years have been required to provide only limited documentation regarding their incomes.[18] And an estimated ninety percent of borrowers in stated income loans exaggerated their income.[19]

Today's housing market – with increasing rates and a softening of home prices—has placed increased stress on risky subprime loans. When ARMs reset to higher rates and borrowers can't make the higher mortgage payments, delinquencies result. Borrowers who attempt to refinance unsuitable loans before they reset find that falling home prices make it difficult for them to do so, especially if their loan is "upside down" because they owe more than their house is worth. Recent statistics issued by the Mortgage Bankers Association's nationwide survey show that 14.44 percent of subprime borrowers with ARM loans were at least 60 days delinquent in their payments in the fourth quarter of 2006.[20] This is up from third quarter delinquency rate of 13.22 percent for such mortgages, representing a four-year high.

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[16] Al Heavens, "On the House; Subprime Loans Start Inflicting Pain," The Philadelphia Inquirer, March 25, 2007.
[17] *Ibid.*
[18] Credit Suisse, "Mortgage Liquidity du Jour: Underestimated No More," March 12, 2007.
[19] Mortgage Asset Research Institute, Inc., *Eighth Periodic Mortgage Fraud Case Report to Mortgage Bankers Association,* April 2006.
[20] National Delinquency Survey, Mortgage Bankers Association, March 2007.

Although there is much debate among industry analysts, economists, policymakers and the media about the risk of accelerating defaults in the subprime market going forward, a federal regulator recently agreed at a Senate Banking Committee hearing that we are only at the "tip of the iceberg" in terms of subprime foreclosures.[21] The FDIC estimates that this year alone, one million of these loans will reset to higher rates. Next year, approximately 800,000 are anticipated to reset to more onerous payments.[22] If housing prices continue to fall in 2007 and into next year, then last year's foreclosure spike is probably only the beginning and we could be, as the Center for Responsible Lending (CRL) has predicted, entering "the worst foreclosure experience in the modern mortgage market."[23] In fact, CRL estimates that approximately one in five of the subprime loans issued in 2005 and 2006 will go into default, *costing 2.2 million homeowners their homes over the next several years*.[24] According to foreclosure tracker, RealtyTrac, 1.2 million foreclosures were reported nationwide in 2006 alone, an increase of 42 percent since 2005. That translates into one foreclosure event for every 92 households.[25] And, according to RealtyTrac, the pace of foreclosures has continued into 2007, with foreclosures on track to match or surpass 2006 levels.[26]

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[21] Gene Sperling, "Subprime Market—Isolated or a Tipping Point," Bloomberg News, March 14, 2007; Testimony of Emory W. Rushton, Senior Deputy Comptroller and Chief National Bank Examiner, Office of the Comptroller of the Currency, Before the Committee on Banking, Housing, and Urban Affairs of the United States Senate, March 22, 2007.

[22] Testimony of Emory W. Rushton, Senior Deputy Comptroller and Chief National Bank Examiner, Office of the Comptroller of the Currency, Before the Committee on Banking, Housing, and Urban Affairs of the United States Senate, March 22, 2007 (In the Questions and Answers portion of the hearing).

[23] Ellen Schloemer, Wei Li, Keith Ernst, and Kathleen Keest, *Losing Ground: Foreclosures in the Subprime Market and Their Cost to Homeowners,* Center for Responsible Lending, December 2006.

[24] *Ibid.*

[25] RealtyTrac 2006 US Foreclosure Market Report, January 25, 2007.

[26] RealtyTrac Foreclosure Database, January and February 2007 foreclosure numbers.

BOX A: Subprime Loans: The Good, the Bad, and the Ugly

Subprime mortgages are a relatively new and rapidly growing segment of the mortgage market. While subprime loans have expanded home ownership opportunities for borrowers with low or limited credit histories, this expanded opportunity has come at a cost as subprime mortgages carry higher interest rates than prime mortgages to compensate for the increased credit risk.[27]

Since their inception, subprime loans have been controversial. On the one hand, the subprime market has opened up credit opportunities to people who might not otherwise be able to finance home purchases and has thus contributed to expanding homeownership. On the other hand, the subprime market has created opportunities for "predatory" lending to the extent that unscrupulous lenders have hidden the true cost of subprime loans from unsophisticated borrowers. According to the chief national bank examiner for the Office of Comptroller of the Currency, only 11 percent of subprime loans went to first-time buyers last year. The vast majority were refinancings that caused borrowers to owe more on their homes under the guise that they were saving money.[28]

During the recent housing boom, the subprime mortgage market changed dramatically. From 2001 until last year, historically low mortgage rates, rising home prices, and increased liquidity in the secondary mortgage market enticed more non-bank lenders (who are not subject to federal regulation) to relax their loan underwriting standards and attracted new mortgage brokers with little business experience into the market. Commercial banks and Wall Street firms provided these lenders with capital by buying up subprime mortgages, repackaging them into mortgage-backed securities, and selling them to hedge funds and private equity investors looking for higher returns than less risky Treasury and corporate bonds. As a result, loans to subprime borrowers jumped from just 8 percent of total mortgage originations in 2003, to 20 percent in both 2005 and 2006.[29] There are now $1.3 trillion in

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[27] Generally, the increased interest rate charged to subprime borrowers ranges from one to three percent higher than prime rates. For a more in depth discussion of the evolution of the subprime mortgage market, see Souphala Chomsisengphet and Anthon Pennnington-Cross, "The Evolution of the Subprime Mortgage Market," *Federal Reserve Bank of St. Louis Review,* January/February 2006, 88(1), pp. 31-56.

[28] Les Christie, "Subprime Losses Lead to Drop in Home Ownership," CNNMoney.com, March 27, 2007.

[29] Testimony of Emory W. Rushton, Senior Deputy Comptroller and Chief National Bank Examiner, Office of the Comptroller of the Currency, Before the Committee on Banking, Housing, and Urban Affairs of the United States Senate, March 22, 2007.

subprime loans outstanding, up from $65 billion in 1995 and $332 billion in 2003.[30]

The subprime loan market often operates below the federal regulatory radar screen. Although bank lenders are subject to bank regulatory standards, mortgage brokers and loan officers in non-bank companies are not subject to federal enforcement of lending laws. Rather, states have the primary enforcement responsibility for regulating these mortgage brokers. State-chartered mortgage brokers and nonbank affiliates underwrote approximately 77 percent of subprime loans in 2005.[31] While some states have taken measures to improve the licensing, education and experience requirements for non-bank brokers and lenders, many states lack the resources and/or mandates to police predatory lending practices.

Subprime mortgage loans are most prevalent in lower-income neighborhoods with high concentrations of minorities.[32] In 2005, 53 percent of African American and 37.8 percent of Hispanic borrowers took out subprime loans due in large part to limited access to sound financial counseling, availability of alternative loan products, and limited assets and income.[33] A study by the Department of Housing and Urban Development and the United States Treasury found that subprime loans were issued five times more frequently to households in predominantly black neighborhoods as they were to households in predominantly white neighborhoods, even after controlling for income. Moreover, many of these minority borrowers were steered into subprime loans when they may have qualified for less expensive, prime loans.[34] Because minorities and low-income households have less financial resources to draw upon to help restructure or refinance mortgage loans with steeply escalating

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[30] Statement of Scott M. Polakoff, Deputy Director Office of Thrift Supervision, "Nontraditional Mortgages and Supbrime Hybrid Adjustable Rate Mortgages," before the Committee on Banking, Housing and Urban Affairs, U.S. Senate, March 22, 2007; Souphala Chomsisengphet and Anthon Pennnington-Cross, "The Evolution of the Subprime Mortgage Market," *Federal Reserve Bank of St. Louis Review,* January/February 2006.

[31] Greg Ip and Damian Paletta, "Regulators Scrutinized in Mortgage Meltdown," The Wall Street Journal*,* March 22, 2007.

[32] Paul Calem, Kevin Gillen and Susan Wachter, "The Neighborhood Distribution of Subprime Mortgage Lending," *Journal of Real Estate Finance and Economics,* 2004, vol. 29 (4).

[33] Allen J. Fishbein and Patrick Woodall, "Subprime Locations: Patterns of Geographic Disparity in Subprime Lending," Consumer Federation of America, September 5, 2006, pg. 4.

[34] *Ibid.*; US Department of Housing and Urban Development and US Department of the Treasury, "Curbing Predatory Home Mortgage Lending," 2000.

payments, adverse housing market conditions can put these homeowners at greater risk of defaults.

THE FORECLOSURE STORY AT THE LOCAL LEVEL

While national foreclosure and delinquency rates are telling, an examination of local-level foreclosure data reveals that the subprime lending woes are affecting some states and cities much more than others. A number of states and cities have much higher delinquency and foreclosure rates than the national average, and these localities deserve particular attention from state and federal policymakers as they craft their responses to the subprime market crisis. Local economies, housing market conditions, and regulatory environments can help explain why particular regions are getting hit the hardest by subprime troubles. Using state- and city-level foreclosure and delinquency data provided to the Joint Economic Committee by RealtyTrac and First American LoanPerformance, the following analysis highlights areas where subprime delinquencies are getting worse, and where foreclosures are on the rise.

According to RealtyTrac's data for 2006, states in the Midwest (Ohio, Michigan, Illinois, and Indiana), the South and West "Sun Belt" (Florida, Georgia, Texas, California, Arizona and Nevada), and Colorado experienced the highest rates of foreclosures in 2006.[35] RealtyTrac estimates that nearly 60 percent of these foreclosures are subprime loans, even though subprime loans comprise only 14 percent of the total mortgage debt outstanding.[36] (See table below.)

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[35] The RealtyTrac U.S. Foreclosure Market Report provides the total number of homes entering some stage of foreclosure nationwide each quarter of 2006. The total for each quarter and for the year includes foreclosure filings for all three phases of foreclosure: defaults, auctions, and real estate owned (properties that have been foreclosed on and repurchased by a bank.) One of the difficulties in measuring subprime data more accurately on a local level is that loan documents are not labeled as "prime" or "subprime," so RealtyTrac uses a prevailing rate methodology instead. That is, they compare the loan rate to the Freddie Mac index of prime rates on the date of issuance, and assign any loan with a rate more than 2 percentage points above the prime rate as subprime.

[36] Interviews with RealtyTrac; Mortgage Bankers Association 2006 Survey.

Figure 1: State Foreclosure Rankings (2006)

State Foreclosures Rankings (2006)

State	Foreclosure Rank[1]	Foreclosure Rates (2006): Ratio of Foreclosures to Number of Households	Foreclosure Rates (2006): Foreclosures as % of Households	Unemployment Rate % (2006)	Home Price Appreciation (Percent Change): 2005	Home Price Appreciation (Percent Change): 2006	Home Price Appreciation (Percent Change): Change in Home Price Appreciation (2005 to 2006)
United States	-	1:92	1.1	4.6	13.2	5.9	-7.3
Colorado	1	1:33	3.0	4.3	6.0	3.3	-2.7
Georgia	2	1:41	2.5	4.7	6.3	5.6	-0.8
Nevada	3	1:41	2.4	4.2	18.7	4.0	-14.7
Texas	4	1:51	1.9	4.9	5.7	6.9	1.3
Michigan	5	1:52	1.9	6.9	3.4	-0.4	-3.8
Indiana	6	1:53	1.9	5.0	4.5	2.3	-2.2
Florida	7	1:59	1.7	3.3	28.1	9.4	-18.6
Ohio	8	1:59	1.7	5.5	3.6	1.0	-2.6
Utah	9	1:59	1.7	2.9	13.4	17.5	4.2
Tennessee	10	1:67	1.5	5.2	8.0	7.9	-0.1
Illinois	11	1:67	1.5	4.5	9.6	5.7	-3.9
Arizona	12	1:79	1.3	4.1	35.7	9.6	-26.1
New Jersey	13	1:83	1.2	4.6	16.0	5.8	-10.2
California	14	1:85	1.2	4.9	21.6	4.6	-17.0
Oklahoma	15	1:95	1.0	4.0	6.3	4.6	-1.7
Arkansas	16	1:104	1.0	5.3	7.8	6.6	-1.2
Connecticut	17	1:118	0.8	4.3	12.1	3.9	-8.2
Washington	18	1:129	0.8	5.0	18.8	13.7	-5.1
Pennsylvania	19	1:137	0.7	4.7	12.7	7.0	-5.7
Missouri	20	1:138	0.7	4.8	7.2	4.7	-2.5
New York	21	1:148	0.7	4.5	13.3	4.9	-8.4
New Mexico	22	1:148	0.7	4.2	15.1	13.1	-2.0
Oregon	23	1:152	0.7	5.4	20.2	13.5	-6.7
North Carolina	24	1:157	0.6	4.8	8.4	8.2	-0.2
Massachusetts	25	1:165	0.6	5.0	8.0	0.5	-7.5
Alaska	26	1:192	0.5	6.7	14.2	7.6	-6.6
Idaho	27	1:210	0.5	3.4	19.3	14.0	-5.3
Nebraska	28	1:237	0.4	3.0	4.1	2.6	-1.5
Kentucky	29	1:246	0.4	5.7	5.2	4.1	-1.0
South Carolina	30	1:252	0.4	6.5	9.1	8.1	-1.0
Kansas	31	1:274	0.4	4.5	5.1	4.5	-0.6
Wisconsin	32	1:304	0.3	4.7	8.1	4.1	-4.0
Rhode Island	33	1:344	0.3	5.2	10.7	3.4	-7.3
Minnesota	34	1:345	0.3	4.0	8.0	2.5	-5.5
Iowa	35	1:358	0.3	3.7	6.1	3.1	-3.1
Montana	36	1:387	0.3	3.2	14.6	10.7	-3.9
Alabama	37	1:452	0.2	3.6	9.0	8.1	-0.9
Maryland	38	1:474	0.2	3.9	22.1	9.0	-13.1
Wyoming	39	1:547	0.2	3.2	12.8	14.3	1.5
Louisiana	40	1:646	0.2	4.0	9.5	10.9	1.4
Virginia	41	1:664	0.2	3.0	19.9	7.5	-12.4
Hawaii	42	1:684	0.1	2.4	24.5	7.3	-17.1
Delaware	43	1:780	0.1	3.6	15.7	7.3	-8.4
West Virginia	44	1:970	0.1	5.0	11.3	5.2	-6.1
South Dakota	45	1:1115	0.1	3.2	7.8	5.9	-2.0
Mississippi	46	1:1218	0.1	6.8	8.0	9.6	1.6
North Dakota	47	1:1637	0.1	3.2	8.5	5.4	-3.1
Maine	48	1:3309	0.0	4.6	10.8	4.8	-6.0
New Hampshire	49	1:3721	0.0	3.4	9.7	2.7	-7.0
Vermont	50	1:6542	0.0	3.6	13.9	6.4	-7.5
District of Columbia	-	1:2432	0.0	6.0	23.6	7.5	-16.1

Sources: RealtyTrac, U.S. Department of Labor, Office of Federal Housing Enterprise Oversight.
[1]Foreclosures are ranked from 1 (highest rate of foreclosures) to 50 (lowest rate of foreclosures).

Delinquent mortgage payments by borrowers are an indicator of future foreclosures. Once a mortgage is 90 days delinquent, the lender will generally begin the foreclosure process, which varies by states. According to February 2007 data from First American LoanPerformance, the areas with the highest increase in delinquencies over 60 days from February 2005 to February 2007 largely mirror the areas that experienced the most foreclosures in 2006—indicating that these areas are at higher

risk of experiencing even more foreclosures in 2007.[37] Notably, there is also a significant spike in subprime delinquencies in the Northeastern corridor states of New York, Massachusetts, New Hampshire, New Jersey, and Rhode Island, suggesting possible increases in foreclosures for those states in months to come. The following discussion looks at each of these high risk regions individually.

The Midwest

Last year, Detroit, Michigan had the highest percentage of households in foreclosure in the 150 largest metropolitan areas, with an average of more than 10,000 foreclosures in each quarter. Foreclosures in Detroit in 2006 directly affected 4.4 percent of the city's households—one foreclosure event for every 21 households, nearly five times the national average of one foreclosure event for every 92 households. Detroit's depressed automotive industry has no doubt contributed to increased high foreclosure rates. From 2001 to 2006, the Detroit metropolitan area lost 132,800 jobs, 65 percent of which were in the manufacturing sector.[38] In 2006, Detroit had an unemployment rate of 9.7 percent – nearly double the U.S. average.[39] (See table below. For a detailed listing of the top 50 metropolitan areas by foreclosures, see Appendix A.)

Over the first quarter of 2007, the foreclosure trend in the Detroit area has gotten worse rather than better. According to RealtyTrac data, Detroit is on pace to record 11,000 foreclosures in the first quarter of 2007, about 1,000 more than the 2006 quarterly average.[40]

In Ohio and Indiana sagging job markets may also be responsible for recent foreclosure spikes. But states have been hit hard by manufacturing job losses in recent years. Cities such as

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[37] First American LoanPerformance subprime delinquency estimates are based on the value of mortgages outstanding and a coverage of 49 percent of subprime-mortgage originators.
[38] Bureau of Labor Statistics, 2006.
[39] Bureau of Labor Statistics, 2006.
[40] RealtyTrac Foreclosure Database, as of April 10, 2007.

Indianapolis, Cleveland, Dayton and Akron are ranked in the top 20 metropolitan areas nationally with the highest number of foreclosures in 2006. In Indianapolis (ranked 3rd), there was one foreclosure event for every 23 households last year. In Cleveland, the ratio of foreclosures to households was one in 40, while in Dayton and Akron, one in 43 households entered into foreclosure last year. (See table below.)

In addition, the states of Michigan, Ohio and Indiana lack strict requirements for licensing brokers and lenders, and testing requirements for loan originators.[41] The state of Michigan does not regulate or license individual mortgage brokers and lenders (as opposed to companies), nor provides testing requirements for loan originators. Like Michigan, the Indiana institution that regulates lenders—the Department of Financial Institutions—neither regulates nor licenses individual brokers or lenders and has no testing requirement for loan originators. While Ohio does have licensing requirements for individual brokers, there are also no testing requirements for loan originators. (See Appendix D for more information.)

Figure 2: Midwest Metro Areas with Highest Foreclosures in 2006

Midwest Metro Areas With Highest Foreclosures in 2006

MSA	National Foreclosure Rank[1]	Foreclosure Rates (2006): Ratio of Foreclosures to Number of Households	Foreclosure Rates (2006): Foreclosures as Percent of Households	Unemployment Rate (2006)
Detroit-Livonia-Dearborn, MI	1	1:21	4.9	8.3
Indianapolis, IN	3	1:23	4.3	4.5
Cleveland-Elyria-Mentor, OH	14	1:40	2.5	5.4
Dayton, OH	15	1:43	2.3	5.8
Akron, OH	16	1:43	2.3	5.2
Columbus, OH	19	1:45	2.2	4.7
Lake County-Kenosha County, IL-WI	21	1:48	2.1	4.5
Chicago-Naperville-Joliet, IL	22	1:50	2.0	4.4
Warren-Farmington Hills-Troy, MI	28	1:58	1.7	6.2
Toledo, OH	30	1:60	1.7	6.1
Gary, IN	44	1:81	1.2	5.4
Cincinnati-Middletown-Wilmington, OH-KY-IN	49	1:87	1.1	5.1
Pittsburgh, PA	50	1:88	1.1	4.8
United States	-	**1:92**	**1.1**	**4.6**

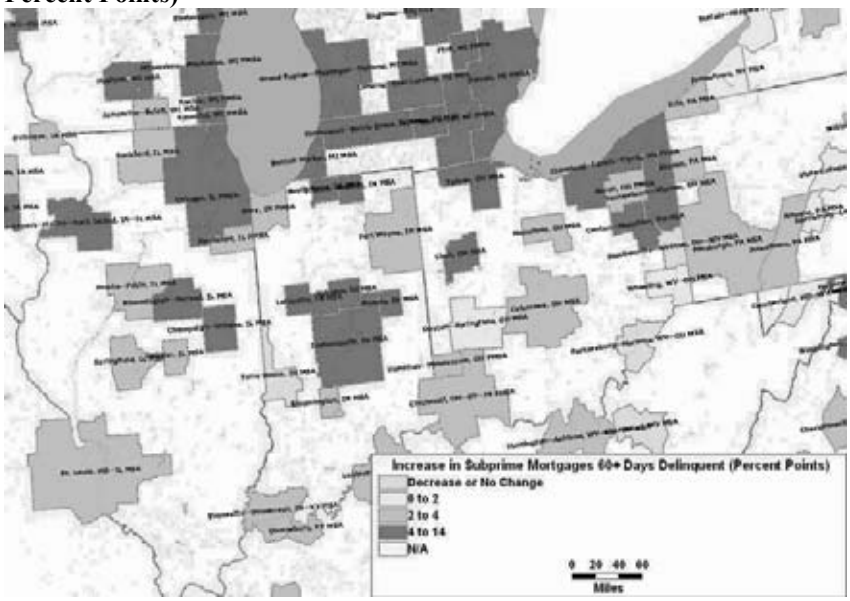
Sources: RealtyTrac and Bureau of Labor Statistics, U.S. Department of Labor.
[1]Foreclosures are ranked from 1 (highest rate of foreclosures) to 150 (lowest rate of foreclosures).

The Midwest communities are at high risk of experiencing rising foreclosures over the coming months. The high level of

[41] Survey of the Conference of State Bank Supervisors (CSBS) and American Association of Residential Mortgage Regulators (AARMR) Agency Licensing Survey," January 2006.

subprime delinquencies in these communities as of February of this year suggests a likely increase in the number of foreclosures going forward. According to data provided by First American LoanPerformance, 24 percent of all subprime loans in Detroit were delinquent 60 days or more as of February 2007, an increase of nearly 10 percentage points since February 2005. In Flint and Jackson, Michigan, subprime delinquencies climbed to over 20 and 22 percent, respectively in February 2007, an increase of 8 and 10 percentage points since February 2005. In the Ohio cities of Cleveland, Akron, Canton and Dayton, at least 19 percent of subprime loans were in delinquency in February 2007, with Cleveland leading with 24 percent of subprimes loans delinquent. Across the state, subprime delinquencies are up 4 percentage points on average versus February 2005. And in the Indiana cities of Indianapolis, South Bend and Muncie at least 18 percent of subprime loans were 60 or more days delinquent in February 2007, an average increase of 5 percentage points since February 2005. (See map below. For a detailed table of historical subprime delinquency rates in cities and states across the U.S., see Appendix B.)

Figure 3: Increase in Subprime Mortgages 60+ Days Delinquent (in Percent Points)

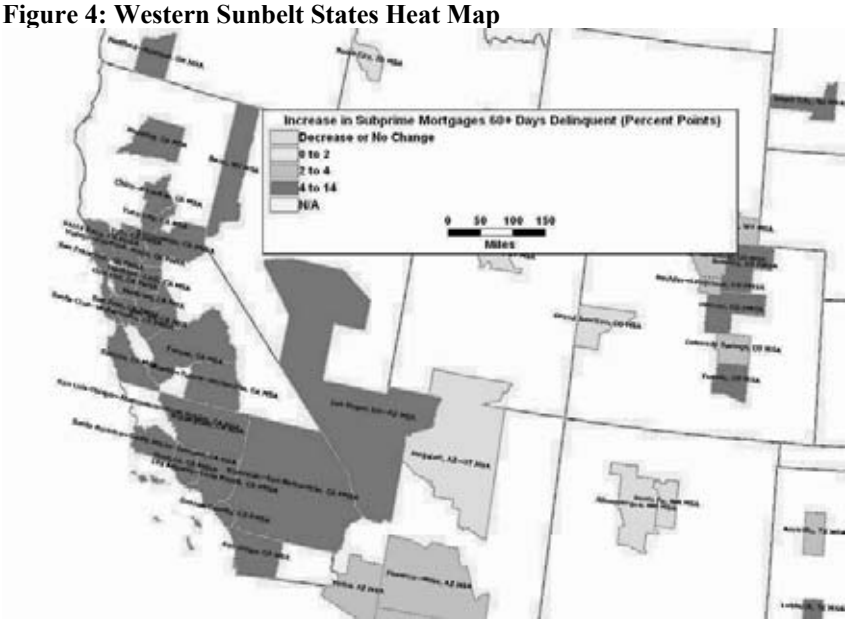


Source: First American LoanPerformance data comparing the percentage of subprime mortgages 60 days or more delinquent, in February 2005 and February 2007.

The Sun Belt

In the Sun Belt states like California and Florida, where job markets are generally healthier, unemployment is typically lower, and incomes are higher than the national average, a different story unfolds. Steep home price appreciation and population influxes, followed by flat or falling home prices, have created a difficult housing market for all recent mortgage borrowers—but particularly for subprime borrowers. For example, borrowers who took out adjustable rate loans in 2003 and 2004 when home prices were rising are finding that falling home prices are making it very difficult for them to refinance their exploding ARMs before the teaser rate period expires, especially if they are "upside-down" on their loan.

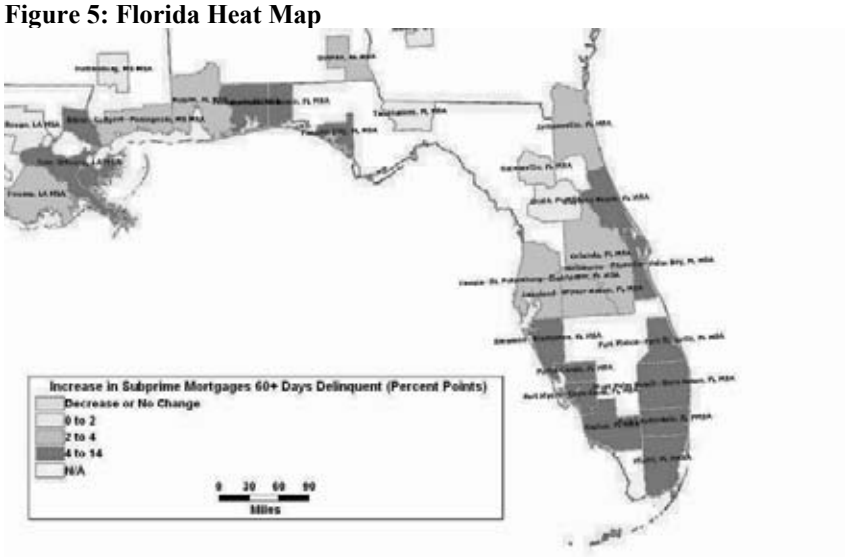
Figure 4: Western Sunbelt States Heat Map



Seven metropolitan areas in the top 50 foreclosure areas are in California, where home prices appreciated rapidly from 2001 until last year. Although home prices have continued to rise, the rate of increase declined by 17 percentage points across the state

in 2006. Six of Florida's metropolitan areas are among the top 50 in foreclosures. Florida experienced rapid growth in housing prices from 2001 up until last year, when home price appreciation decelerated by nearly 19 percentage points in 2006. Similarly, Nevada and Arizona experienced a deep slowdown in home price appreciation in 2006, by 15 and 26 percentage points respectively, after rapid acceleration during the housing boom. (See table below.)

Figure 5: Florida Heat Map



Notably, the California Department of Corporations, which regulates mortgage brokers and lenders, does not require regulation or licensing for individual brokers and lenders (as opposed to companies). The state of Nevada does not have testing requirements for loan originators. Florida has reasonable state regulations and requirements for mortgage lenders and brokers, and Arizona's state legislature is currently working on adopting measures to better regulate individual brokers and lenders. (See Appendix D for more information.)

In many areas of the Sun Belt states—where housing prices have surged—the delinquency rates have increased quickly, indicating more foreclosure trouble to come. For example, in Sacramento, California, 60-day delinquencies for subprime loans increased 12

percentage points from 3 percent of all subprime loans in February 2005 to 15 percent of all subprime loans in February 2007.[42] And in Fort Meyers, Florida, delinquencies spiked 8 percentage points to 13 percent from February 2005 to February 2007. (See maps below, and Appendix B for more cities.)

Figure 6: Sun Belt Metro Areas with Highest Foreclosures in 2006

Sun Belt Metro Areas With Highest Foreclosures In 2006

		Foreclosure Rates (2006)		Home Price Appreciation (Percent change)		
MSA	Foreclosure Rank[1]	Ratio of Foreclosures to Number of Households	Foreclosures as Percent of Households	2005	2006	Change in Home Price Appreciation (2005 to 2006)
Atlanta-Sandy Springs-Marietta, GA	2	1:23	4.4	5.2	4.3	-0.9
Dallas-Plano-Irving, TX	5	1:26	3.9	3.7	4.1	0.4
Fort Worth-Arlington, TX	6	1:27	3.7	3.3	4.9	1.6
Las Vegas-Paradise, NV	7	1:31	3.3	16.2	5.4	-10.8
Memphis, TN-MS-AR	8	1:31	3.2	9.1	9.7	0.6
Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	9	1:35	2.8	30.6	7.4	-23.2
Miami-Miami Beach-Kendall, FL	10	1:35	2.8	29.0	15.3	-13.7
Stockton, CA	11	1:37	2.7	26.8	0.8	-26.0
San Antonio, TX	12	1:37	2.7	10.5	7.7	-2.8
Riverside-San Bernardino-Ontario, CA	13	1:39	2.6	22.3	8.5	-13.8
Austin-Round Rock, TX	16	1:43	2.3	6.6	9.1	2.5
Houston-Sugar Land-Baytown, TX	18	1:43	2.3	5.4	6.7	1.3
Jacksonville, FL	20	1:46	2.1	19.8	12.7	-7.1
West Palm Beach-Boca Raton-Boynton Beach, FL	23	1:51	2.0	28.2	6.4	-21.8
Orlando-Kissimmee, FL	26	1:54	1.8	33.4	11.7	-21.7
Little Rock-North Little Rock-Conway, AR	27	1:55	1.8	7.0	5.4	-1.6
Oklahoma City, OK	29	1:58	1.7	7.3	4.2	-3.1
Tampa-St. Petersburg-Clearwater, FL	31	1:61	1.6	26.3	11.4	-14.9
Sacramento-Arden-Arcade-Roseville, CA	32	1:61	1.6	18.7	-2.4	-21.1
Tulsa, OK	33	1:62	1.6	4.3	3.6	-0.7
Phoenix-Mesa-Scottdale, AZ	34	1:66	1.5	40.9	9.0	-31.9
Charlotte-Gastonia-Concord, NC-SC	35	1:67	1.5	5.6	9.1	3.5
Albuquerque, NM	36	1:67	1.5	16.4	14.5	-1.9
Oakland-Fremont-Hayward, CA	38	1:73	1.4	22.6	1.7	-20.9
Fresno, CA	39	1:74	1.4	24.9	5.2	-19.7
Bakersfield, CA	42	1:78	1.3	29.5	8.5	-21.0
San Diego-Carlsbad-San Marcos, CA	43	1:79	1.3	11.3	-0.2	-11.5
El Paso, TX	45	1:81	1.2	12.2	16.5	4.3
Tucson, AZ	46	1:82	1.2	29.8	8.6	-21.2
United States	-	**1:92**	**1.1**	**13.2**	**5.9**	**-7.3**

Sources: RealtyTrac and Office of Federal Housing Enforcement Oversight
[1]Foreclosures are ranked from 1 (highest rate of foreclosures) to 150 (lowest rate of foreclosures).

Northeast

Although the Northeastern states did not rank as high as the Sun Belt and Midwest states in foreclosures in 2006, a closer look at the localities along the Northeast coast also suggest more foreclosures to come. Five Northeastern metro areas were in the top 50 metropolitan areas with the most foreclosures in 2006: Camden, Newark, and Edison, New Jersey; Long Island, New York; and Philadelphia, Pennsylvania. All five metro areas fared worse than the national average of foreclosures in 2006. While these areas have unemployment rates close to the national average, these five metro areas have in common cooling housing markets, with an average of a 10 percentage point slowdown in home price appreciation from 2005 to 2006. (See chart below).

[42] FirstAmerica LoanPerformance data, as of April 6, 2007.

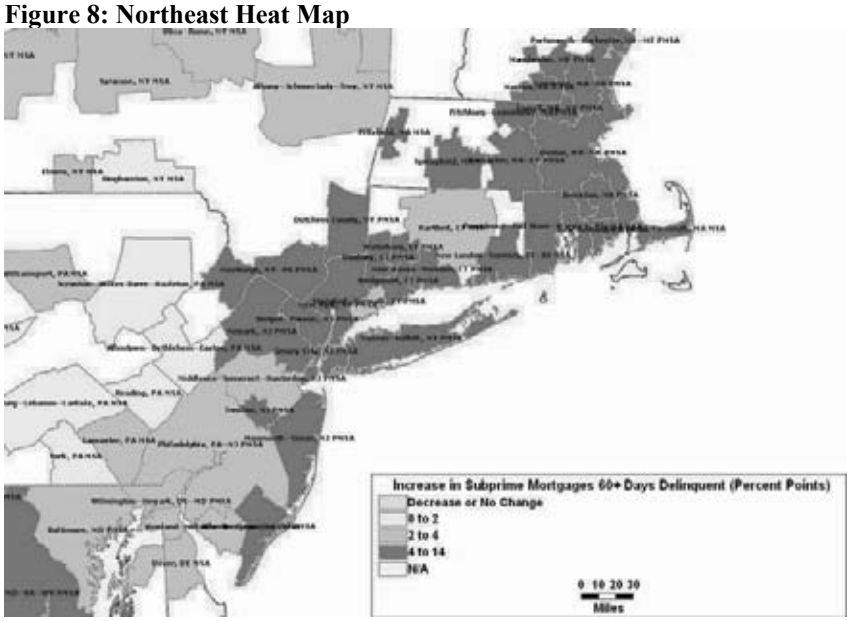
Figure 7: Northeast Metro Areas with Highest Foreclosures in 2006

Northeast Metro Areas With Highest Foreclosures In 2006

MSA	National Foreclosure Rank[1]	Foreclosure Rates (2006): Ratio of Foreclosures to Number of Households	Foreclosure Rates (2006): Foreclosures as Percent of Households	Unemployment Rate	Home Price Appreciation (Percent Change): 2006	Home Price Appreciation (Percent Change): 2006	Home Price Appreciation (Percent Change): Change in Home Price Appreciation (2006 to 2006)
Camden, NJ	26	1:54	1.8	4.7	16.4	7.7	-8.7
Nassau-Suffolk, NY	37	1:69	1.5	3.9	14.5	4.3	-10.2
Newark-Union, NJ-PA	41	1:77	1.3	4.9	14.7	5.0	-9.7
Philadelphia, PA	47	1:84	1.2	4.6	14.4	6.7	-7.7
Edison, NJ	48	1:87	1.2	4.4	15.8	4.3	-11.5
United States	**-**	**1:92**	**1.1**	**4.6**	**13.2**	**5.9**	**-7.3**

Sources: RealtyTrac, Department of Labor, Office of Federal Housing Enforment Oversight.
[1]Foreclosures are ranked from 1 (highest rate of foreclosures) to 150 (lowest rate of foreclosures).

Figure 8: Northeast Heat Map



Source: First American LoanPerformance data comparing the percentage of subprime mortgages 60 days or more delinquent, in February 2005 and February 2007.

The most recent subprime delinquency data suggest that the Northeastern cities will likely see more foreclosures in the coming months. Delinquencies are on the rise in all five metro areas entering into 2007. Across New York, 13 percent of subprime loans were 60 or more days delinquent as of February 2007, up 7 percentage points since February 2005, with the highest increases in Long Island, Dutchess County, and New York City. New Jersey also had 13 percent of subprime loans delinquent in February, an increase of 6 percentage points in two years, with the sharpest increases in Newark and Monmouth-

Ocean. In Pennsylvania, a state where 13 percent of subprime loans were also delinquent in February 2007, Philadelphia had the highest increase in delinquencies over the last two years, with a 5 percentage point increase. (See map below.)

Colorado

Colorado experienced the highest level of foreclosures per household of any state in 2006, with one foreclosure for every 33 households, a substantial jump over previous years.[43] The city of Denver has been hardest hit, with one foreclosure for every 24 households.[44] Yet unlike the Midwest states, Colorado has a lower unemployment rate than the national average and a healthy job market. And unlike the Sun Belt and Northeastern regions, Colorado has not had a dramatic change in home price appreciation in recent years. For example, from 2005 to 2006, home prices appreciation Denver decelerated by 3.2 percentage points, compared to a 7.3 percentage point deceleration nationwide.

Rather, insufficient lending protections may have been the main contributor to the increased foreclosures in Colorado as many homeowners signing loans they were unable to afford during the housing boom. Notably, limited state regulation, licensing and education requirements for brokers and lenders as well as weak anti-predatory lending laws have contributed make Colorado one of the highest-ranking states for mortgage fraud in the country.[45] Colorado legislators themselves argue that lax enforcement combined with the proliferation of non-traditional loans substantially contributed to the state's rapid increase in foreclosures.[46] The Colorado state legislature is currently

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[43] RealtyTrac, "More than 1.2 Million Foreclosures Reported in 2006 According to RealtyTrac U.S. Foreclosure Market Report," January 25, 2007

[44] *Ibid.*

[45] Associated Press, "Colorado Legislators Introduce Measures Targeting Foreclosures," February 27, 2007.

[46] David Ollinger, "Two Bills Target Home Loans," Denver Post, February 26, 2007.

considering a licensing bill that includes enhanced education and testing requirements for mortgage lenders and brokers.[47]

FORECLOSURES ARE COSTLY TO LOCAL COMMUNITIES

Foreclosures entail substantial costs for individual borrowers and lenders. Additionally, foreclosures can also impact cities and neighborhoods, particularly if concentrated, by putting downward pressure on neighboring housing prices and raising costs for local governments.

Costs of Foreclosures to Families

A home is the primary asset for the majority of America's families. This is particularly true for low-and moderate-income families, minority families, and young couples, as most have a large portion of their assets tied up in their homes. As noted, these are the same population groups that are most at risk of foreclosure due to unsuitable subprime loans. For a homeowner, a foreclosure results not only in the loss of a stable living place and significant portion of wealth, but also reduces the homeowner's credit rating, creating barriers to future home purchases and even rentals. For the homeowner, foreclosures also create a possible tax liability, since any principal balance and accrued interest forgiven is treated as taxable income for the owner.

Foreclosures are also costly from a legal and administrative standpoint. According to one estimate, the average foreclosure results in $7,200 in administrative charges to the borrower.[48]

Cost of Foreclosures to Businesses

Lenders also bears substantial foreclosure related costs, which helps explain why the spike in foreclosures has put significant financial pressure on the residential mortgage industry. Lenders do not typically benefit from taking over a delinquent owner's property, so they have an incentive to prevent foreclosure. A

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[47] Svaldi, Aldo, "Bill for Mortgage Broker License Passes Senate Committee," Denver Post, March 19, 2007.

[48] Anne Moreno, *The Cost-Effectiveness of Mortgage Foreclosure Prevention,* Minneapolis: Family Housing Fund, 1995.

study from the Federal Reserve Bank of Chicago reported that lenders alone can lose as much as $50,000 per foreclosure. In 2003, this translated into approximately $25 billion in foreclosure-related costs for lenders alone—well before the 2006 foreclosure spike.[49] Indeed, substantial losses have led many of these lenders to tighten their lending standards, which will make it even more difficult for families facing foreclosure to refinance their homes, or purchase another if they have already foreclosed.

Costs of Foreclosures to City and Local Governments

Foreclosures can also be very costly for local governments, particularly when they result in property vacancies. A foreclosed property that remains on the commercial market too long and becomes vacant can become an economic and administrative drain for cities. Moreover, cities, counties and local school districts lose tax revenue from abandoned homes. A Chicago case study by the Homeownership Preservation Foundation estimates that a city can lose up to nearly $20,000 per house abandoned in foreclosure in lost property taxes, unpaid utility bills, property upkeep, sewage and maintenance.[50] Many of these costs of foreclosure fall on taxpayers who ultimately pay the bill for foreclosure-related services provided by their local governments.

For example, several suburbs of Cleveland are already spending millions of dollars in an effort to maintain vacant houses as they try to contain the fallout of mortgage foreclosures.[51] It was recently reported that there are more than 200 vacant houses in Euclid (a suburb of Cleveland). Many of Euclid's 600 foreclosures over the past two years were homes of elderly people who refinanced with 2/28s (low two-year teaser rates),

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[49] Desiree Hatcher, "Foreclosure Alternatives: A Case for Preserving Homeownership," *Profitwise News and Views,* Chicago Federal Reserve Bank, February 2006.

[50] William C. Apgar and Mark Duda, "Collateral Damage: The Municipal Impact of Today's Mortgage Foreclosure Boom," National Multi-Housing Council, May 11, 2005.

[51] Erik Eckholm, "Foreclosures Force Suburbs to Fight Blight, New York Times, March 23, 2007.

then saw their payments grow by 50 percent or more after the rates reset.[52] The suburb is currently losing $750,000 in property taxes a year from the vacant houses.[53]

Costs of Foreclosure on Neighboring Homeowners

Finally, foreclosures can have a significant impact in the community in which the foreclosed homes are located. Studies have found that there is a contagion effect whereby concentrated foreclosures cause additional foreclosures in the community.[54] For lower-income communities attempting to revitalize, the consequence could be a substantial setback in neighborhood security and sustainability.

Areas of concentrated foreclosures can affect the price that other sellers can get for their houses. As higher foreclosure rates ripple through local markets, each house tossed back into the market adds to the supply of for-sale homes and could bring down home prices. A recent study calculated that a single-family home foreclosure lowers the value of homes located within one-eighth of a mile (or one city block) by an average of 0.9 percent, and more so in a low to moderate-income community (1.4 percent).[55] For a foreclosure in Atlanta, for example, where the median home price is $218,500, this would result in a decline in home prices of approximately $3,100 per single-family home within an eighth-mile. (For a table of neighboring home price impact of subprime foreclosures in the largest 50 foreclosure metropolitan areas, see Appendix C.)

In a more recent estimate of subprime foreclosures on home prices, the chief economist for Moody's Economy.com projected that subprime defaults (which he expects to reach 800,000 this year alone) could result in *mid-single digit declines in housing*

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[52] *Ibid.*

[53] *Ibid.*

[54] NeighborWorks America, *Effective Community-Based Strategies for Preventing Foreclosures,* September 2005.

[55] Dan Immergluck and Geoff Smith, "The External Costs of Foreclosure: The Impact of Single-family Mortgage Foreclosures on Property Values," *Housing Policy Debate*, Vol. 17, Issue 1, 2006.

prices, and as much as double-digit declines in areas such as Arizona, Nevada, parts of California and Florida.[56] Assuming that this projection is correct—a 15 percent decline in home prices in Nevada would cost the average home owner $42,450 in lost home equity, based on the median home price in Nevada of $283,000.[57]

The impact of increased foreclosures on local housing prices can be more severe in areas where credit tightening adversely affects the availability of loans, and consequently the demand for housing. In response to the subprime crisis, commercial banks are tightening their underwriting standards for residential mortgages in general, as evidenced by the most recent Federal Reserve survey of bank lending terms. According to the survey, a net 15 percent of banks reported they had tightened their lending standards for residential mortgages - the largest percentage since the second quarter 1991.[58] According to one estimate, about 890,000 fewer Americans this year will be able to obtain financing to purchase a home because of tighter lending standards.[59] Moreover, it typically takes a victim of foreclosure 10 years to recover and buy another house, which means that more and more potential homeowners will be taken out of the home buyer base.[60]

Finally, the predominance of subprime loans in low-income and/or minority neighborhoods means that the bulk of the spillover costs of foreclosure are concentrated among the nation's most vulnerable households. These neighborhoods already have higher incidences of crime, and increased

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[56] Les Christie, "Scary Math: More Homes, Fewer Buyers," CNNMoney.com, March 13, 2007.
[57] U.S. Census Bureau, American Community Survey, 2005.
[58] Federal Reserve, The January 2007 Senior Loan Officer Opinion Survey on Bank Lending Practices, January 2007.
[59] Credit Suisse, "Mortgage Liquidity du Jour: Underestimated No More," March 12, 2007.
[60] Schlomer *et al*, December 2006.

foreclosures have been found to contribute to higher levels of violent crime.[61]

Figure 9: The High Costs of Foreclosures

The High Costs of Foreclosures			
Stakeholders		**Estimated Costs Per Foreclosure**	
Homeowner	$	7,200	1
Lender	$	50,000	2
Local Government	$	19,227	3
Neighbor's Home Value	$	1,508	4
Estimated Total Costs of Foreclosure	**$**	**77,935**	

Sources:

[1] Anne Moreno, *The Cost-Effectiveness of Mortgage Foreclosure Prevention*, Minneapolis: Family Housing Fund, 1995.

[2] Desiree Hatcher, "Foreclosure Alternatives: A Case for Preserving Homeownership," *Profitwise News and Views*, February 2006.

[3] Estimate assumes property is abandoned before foreclosure is completed. William C. Apgar and Mark Duda, *Collateral Damage: The Municipal Impact of Today's Mortgage Foreclosure Boom*, Homeownership Preservation Foundation, May 11, 2005.

[4] Assumes a .9 percent home price depreciation based on the national median home price of $167,500 as of 2005. Census Bureau, 2005 American Community Survey. Dan Immergluck and Geoff Smith, "The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values," *Housing Policy Debate*, Vol. 17, Issue 1.

CONCLUSION: IT PAYS TO PREVENT FORECLOSURES

Foreclosures are costly – not only to homeowners, but also to a wide variety of stakeholders, including mortgage servicers, local governments and neighboring homeowners. The high costs of foreclosures – up to $80,000 for all stakeholders combined – present a strong incentive to prevent them. In their efforts to respond to the subprime foreclosure crisis, policymakers may want to consider enacting some combination of the following measures to prevent future foreclosures that may come as a result of a high concentration of unsuitable loans in areas of economic downturns, areas of steep housing market slumps and areas of lax regulatory enforcement.

Increase Federal Support for Local Foreclosure Prevention Programs. In the short term, local community-based non-profits may be best positioned to implement foreclosure prevention programs. State and national organizations exist throughout the country to both enhance homeownership and prevent

[61] According to a study by Dan Immergluck and Geoff Smith, a standard deviation increase in the foreclosure rate (about 2.8 foreclosures for every 100 owner-occupied properties in one year) corresponds to an increase in neighborhood violent crime of approximately 6.7 percent). Dan Immergluck and Geoff Smith, "The Impact of Single-Family Mortgage Foreclosures on Neighborhood Crime," *Housing Studies*, Vol. 21, No. 6, November 2006.

foreclosures. Many of these programs have been successful in coordinating a wide range of services for borrowers in order to help restructure unsuitable loans, aid borrowers with foreclosures prevention counseling or initiate legal action against the most egregious predatory lenders. [62] Some of these programs also provide financial assistance, such as low-interest bridge loans to help borrowers recover from delinquency. To assist existing community-based nonprofits with increasing caseloads, the federal government should work with nonprofits with proven track records and consider providing them with enhanced funding. ***Estimates suggest that foreclosure prevention costs approximately $3,300 per household -- substantially less than the nearly $80,000 in costs of foreclosure described above.***[63]

Strengthen and Reform FHA. The Federal Housing Authority (FHA) currently issues more than $100 billion in mortgage insurance annually for loans made by private lenders to low-income, minority and first-time buyers. However, the FHA has not provided insurance for borrowers in the subprime market and its market share has steadily dropped in the last several years. William Apgar, at Harvard's Kennedy School of Government, has proposed that the FHA should be funded and revamped to oversee a "rescue fund" to purchase the portfolios of failed mortgages and try to restore the credit on these loans.[64] While this policy option would also include upfront costs, companies holding such portfolios may be likely to sell at reduce costs given the prospect of mass delinquency and foreclosure.

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[62] NeighborWorks, *Effective Community-Based Strategies for Preventing Foreclosures,* September 2005; Almas Sayeed, "From Boom to Bust: Helping Families Prepare for the Rise in Subprime Mortgage Foreclosures," Center for American Progress, March 13, 2007.

[63] Ana Moreno, *Cost-Effectiveness of Mortgage Foreclosure Prevention,* Family Housing Fund, November 1995.

[64] Bill Swindell, "FHA Overhaul Might Be Part of a Subprime Loan Solution," *National Journal,* March 20, 2007.

To prevent the origination of risky subprime mortgages designed to fail their borrowers going forward, the following measures may be helpful:

Strengthen Regulation of Mortgage Origination at Federal Level. Although bank lenders are subject to bank regulatory standards, mortgage brokers and loan officers in non-bank companies are not subject to federal enforcement of lending laws. Rather, states have the primary responsibility for regulating these mortgage brokers. While some states have taken measures to improve the licensing, education and experience requirements for non-bank brokers and lenders, many states still lack sufficient oversight requirements. Thirty-nine states, including the District of Columbia, do not have testing requirements for loan originators and/or broker and lending executives, and 17 states, including the District of Columbia, do not have licensing requirements for individual brokers and lenders. (See Appendix D.) Improved federal oversight and enforcement could enhance industry practices, including loan underwriting, while further protecting borrowers. Federal standards could include licensing for individual brokers and lenders (not just companies) and minimum education and experience standards. Efforts are currently underway in Congress to investigate ways to strengthen the existing federal mortgage regulatory structure to improve compliance among non-bank mortgage brokers.

Create a Federal Anti-Predatory Lending Law that Bans Unfair and Deceptive Practices. Currently, no anti-predatory lending law exists at the federal level, but such a law is being considered in Congress. In the process, policymakers should investigate whether they should prohibit certain types of harmful loan provisions and practices all together, like pre-payment penalties, stated income or low documentation loans. In addition, lawmakers should consider requiring all subprime loan borrowers to escrow property taxes and hazard insurance.

Establish Borrowers' Ability to Pay Standard. In the financial services sector, investors are required to meet a "suitability

standard" prior to being allowed to invest in certain products, based on their ability to afford the risk. Policymakers should consider how to apply similar tests to mortgage borrowers and lenders. Many exploding ARMs were approved based on the borrower's ability to pay the mortgage only in the first two or three years of the loan at the teaser rate, when the interest rate was lower, but not over the life of the loan once it resets with higher interest rates. A stricter standard to determine borrowers' ability to afford the loan over the life of the loan could prevent borrowers from being trapped in mortgage products that will lead them down the path to ultimate foreclosure.

Disclosures Relating to Alternative Mortgage Products Must Be Enhanced. The full impact of new complicated features such as teaser rates, interest-only payments and option-payments must be clearly and effectively communicated to potential borrowers. Existing disclosures designed for traditional mortgage products that tell borrowers that their payment "may increase or decrease" based on interest rate changes are not adequate for explanation of a teaser-rate mortgage in which payments increase dramatically after two or three years. Additionally, these disclosures must be written in plain language and must be prominently displayed in a manner that is visually clear and effectively communicates the intended information to the potential borrower. Lenders must be given a new format and new requirements for alternative mortgage product disclosure. This new disclosure should include a table clearly displaying a full payment schedule over the life of the loan, all fees associated with the loan, an explanation of the "alternative" features of the loan (i.e. negative amortization), and a full explanation of the risks associated with taking advantage of those features, including the timeframe in which borrowers were likely to feel the negative effects of those risks.

APPENDIX A: METROPOLITAN AREAS WITH HIGHEST FORECLOSURES

Figure 10: US Metropolitan Areas with Highest Foreclosures in 2006

U.S. Metropolitan Areas With Highest Foreclosures in 2006

National Foreclosure Rank[1]	Metro Areas	2006 Total Foreclosures	Foreclosures as Percent of Households	Ratio of Foreclosures to Number of Households
1	Detroit-Livonia-Dearborn, MI	40,219	4.9	1:21
2	Atlanta-Sandy Springs-Marietta, GA	63,737	4.4	1:23
3	Indianapolis, IN	27,598	4.3	1:23
4	Denver-Aurora, CO	37,412	4.2	1:24
5	Dallas-Plano-Irving, TX	51,730	3.9	1:26
6	Fort Worth-Arlington, TX	25,625	3.7	1:27
7	Las Vegas-Paradise, NV	19,578	3.3	1:31
8	Memphis, TN-MS-AR	18,155	3.2	1:31
9	Fort Lauderdale-Pompano Beach-Deerfield Beach, FL	21,113	2.8	1:35
10	Miami-Miami Beach-Kendall, FL	24,046	2.8	1:35
11	Stockton, CA	5,153	2.7	1:37
12	San Antonio, TX	14,754	2.7	1:37
13	Riverside-San Bernardino-Ontario, CA	30,255	2.6	1:39
14	Cleveland-Elyria-Mentor, OH	22,978	2.5	1:40
15	Dayton, OH	8,493	2.3	1:43
16	Austin-Round Rock, TX	11,513	2.3	1:43
16	Akron, OH	6,754	2.3	1:43
18	Houston-Sugar Land-Baytown, TX	41,763	2.3	1:43
19	Columbus, OH	15,175	2.2	1:45
20	Jacksonville, FL	9,983	2.1	1:48
21	Lake County-Kenosha County, IL-WI	4,726	2.1	1:48
22	Chicago-Naperville-Joliet, IL	57,706	2	1:50
23	West Palm Beach-Boca Raton-Boynton Beach, FL	10,914	2	1:51
24	Salt Lake City, UT	6,614	1.9	1:52
25	Camden, NJ	4,791	1.8	1:54
26	Orlando-Kissimmee, FL	12,271	1.8	1:54
27	Little Rock-North Little Rock-Conway, AR	4,739	1.8	1:55
28	Warren-Farmington Hills-Troy, MI	16,878	1.7	1:58
29	Oklahoma City, OK	8,104	1.7	1:58
30	Toledo, OH	4,778	1.7	1:60
31	Tampa-St. Petersburg-Clearwater, FL	18,665	1.6	1:61
32	Sacramento-Arden-Arcade-Roseville, CA	10,637	1.6	1:61
33	Tulsa, OK	5,867	1.6	1:62
34	Phoenix-Mesa-Scottdale, AZ	20,140	1.5	1:66
35	Charlotte-Gastonia-Concord, NC-SC	8,198	1.5	1:67
36	Albuquerque, NM	4,585	1.5	1:67
37	Nassau-Suffolk, NY	14,284	1.5	1:69
38	Oakland-Fremont-Hayward, CA	12,280	1.4	1:73
39	Fresno, CA	3,673	1.4	1:74
40	Tacoma, WA	3,687	1.3	1:75
41	Newark-Union, NJ-PA	10,557	1.3	1:77
42	Bakersfield, CA	2,964	1.3	1:78
43	San Diego-Carlsbad-San Marcos, CA	13,250	1.3	1:79
44	Gary, IN	3,254	1.2	1:81
45	El Paso, TX	2,762	1.2	1:81
46	Tucson, AZ	4,484	1.2	1:82
47	Philadelphia, PA	18,660	1.2	1:84
48	Edison, NJ	10,075	1.2	1:87
49	Cincinnati-Middletown-Wilmington, OH-KY-IN	9,533	1.1	1:87
50	Pittsburgh, PA	12,204	1.1	1:88

Source: RealtyTrac Foreclosure Database.

APPENDIX B: HISTORICAL SUBPRIME DELINQUENCY RATES

Figure 11: Change in Subprime Delinquencies at State and MSA Level

ALASKA – CALIFORNIA

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
Alaska	Total	7.6%	6.0%	4.7%	2.9
	Anchorage, AK	7.9%	4.0%	5.0%	2.9
Alabama	Total	12.9%	11.9%	8.7%	4.1
	Anniston, AL	10.6%	6.9%	7.3%	3.3
	Auburn-Opelika, AL	9.2%	8.1%	9.5%	-0.3
	Birmingham, AL	13.3%	11.7%	9.6%	3.7
	Columbus, GA-AL	12.6%	8.8%	10.1%	2.6
	Decatur, AL	7.6%	8.7%	8.4%	-0.9
	Dothan, AL	9.4%	7.3%	6.4%	3.0
	Florence, AL	11.3%	9.6%	9.6%	1.7
	Gadsden, AL	8.3%	8.8%	9.2%	-0.9
	Huntsville, AL	11.1%	8.8%	7.6%	3.6
	Mobile, AL	13.4%	15.6%	9.5%	4.0
	Montgomery, AL	9.9%	8.7%	6.8%	3.1
	Tuscaloosa, AL	11.9%	11.8%	10.0%	2.0
Arkansas	Total	11.7%	9.3%	9.0%	2.7
	Fayetteville-Springdale-Rogers, AR	10.6%	6.5%	6.1%	4.5
	Fort Smith, AR-OK	10.1%	10.0%	8.5%	1.6
	Jonesboro, AR	11.6%	10.3%	9.0%	2.6
	Little Rock-North Little Rock, AR	11.6%	9.9%	10.2%	1.4
	Memphis, TN-AR-MS	12.6%	11.2%	11.5%	1.1
	Pine Bluff, AR	10.5%	12.7%	9.5%	1.0
	Texarkana , TX-AR	11.6%	8.7%	7.6%	4.0
Arizona	Total	7.3%	2.8%	4.3%	3.0
	Flagstaff, AZ-UT	4.0%	2.4%	2.7%	1.3
	Las Vegas, NV-AZ	7.7%	3.4%	2.6%	5.1
	Phoenix-Mesa, AZ	7.2%	2.6%	4.5%	2.7
	Tucson, AZ	7.3%	3.8%	4.9%	2.4
	Yuma, AZ	6.1%	2.1%	3.1%	3.0
California	Total	11.6%	3.9%	2.6%	8.9
	Bakersfield, CA	9.9%	2.4%	1.7%	8.2
	Chico-Paradise, CA	8.8%	4.2%	2.7%	6.1
	Fresno, CA	9.6%	3.1%	2.4%	7.2
	Los Angeles-Long Beach, CA	9.4%	3.4%	2.6%	6.9
	Merced, CA	12.7%	2.8%	2.5%	10.3
	Modesto, CA	13.7%	4.0%	2.8%	10.9
	Oakland, CA	12.2%	4.3%	3.5%	8.8
	Orange County, CA	9.3%	3.0%	2.2%	7.1
	Redding, CA	8.7%	3.0%	2.7%	6.0
	Riverside-San Bernardino, CA	12.6%	4.1%	2.5%	10.1
	Sacramento, CA	15.3%	4.2%	2.8%	12.5
	Salinas, CA	10.8%	3.1%	1.8%	9.0
	San Diego, CA	12.1%	4.0%	2.2%	10.0
	San Francisco, CA	7.8%	3.8%	3.0%	4.8
	San Jose, CA	8.0%	3.7%	3.7%	4.2
	San Luis Obispo-Atascadero- Paso Robles, CA	9.8%	4.1%	2.4%	7.4
	Santa Barbara-Santa Maria-Iompoc, CA	12.4%	3.4%	2.5%	9.9
	Santa Cruz-Watsonville, CA	7.9%	3.6%	3.6%	4.3
	Santa Rosa, CA	11.5%	3.1%	3.3%	8.3
	Stockton-Lodi, CA	13.8%	3.9%	3.4%	10.5

Source: First American LoanPerformance

COLORADO – GEORGIA

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
Colorado	Total	15.2%	11.1%	9.3%	5.9
	Boulder-Longmont, CO	11.9%	10.4%	8.8%	3.1
	Colorado Springs, CO	11.8%	9.1%	8.9%	3.0
	Denver, CO	17.6%	13.1%	11.0%	6.6
	Fort Collins-Loveland, CO	11.8%	9.6%	9.1%	2.7
	Grand Junction, CO	4.8%	5.2%	5.2%	-0.4
	Greeley, CO	16.7%	12.4%	9.8%	6.9
	Pueblo, CO	16.3%	11.4%	10.6%	5.7
Connecticut	Total	10.8%	7.0%	5.7%	5.1
	Bridgeport, CT	10.4%	6.8%	5.7%	4.6
	Danbury, CT	9.6%	6.4%	5.1%	4.5
	Hartford, CT	9.8%	6.8%	5.9%	3.9
	New Haven-Meriden, CT	11.4%	7.4%	6.1%	5.2
	New London-Norwich, CT-RI	11.7%	5.8%	4.5%	7.2
	Stamford-Norwalk, CT	8.8%	5.5%	5.3%	3.5
	Waterbury, CT	11.0%	6.1%	6.8%	4.2
	Worcester, MA-CT	18.3%	7.7%	7.9%	10.4
D.C.	Total	10.9%	4.6%	5.3%	5.5
	Washington, DC-MD-VA-WV	10.3%	4.3%	5.4%	4.9
Delaware	Total	9.8%	6.9%	6.8%	3.0
	Dover, DE	9.2%	6.1%	6.8%	2.4
	Wilmington-Newark, DE-MD	9.4%	6.9%	6.9%	2.5
Florida	Total	10.2%	5.9%	5.1%	5.1
	Daytona Beach, FL	10.4%	4.5%	5.0%	5.3
	Fort Lauderdale, FL	9.9%	6.4%	4.2%	5.6
	Fort Myers-Cape Coral, FL	12.6%	3.6%	4.4%	8.2
	Fort Pierce-Port St. Lucie, FL	11.3%	4.4%	4.4%	6.9
	Fort Walton Beach, FL	8.6%	4.2%	2.5%	6.1
	Gainesville, FL	7.2%	4.5%	7.3%	-0.2
	Jacksonville, FL	10.7%	7.5%	8.4%	2.3
	Lakeland-Winter Haven, FL	9.0%	4.6%	6.9%	2.2
	Melbourne-Titusville-Palm Bay, FL	11.1%	3.7%	4.5%	6.6
	Miami, FL	9.4%	5.6%	4.6%	4.8
	Naples, FL	9.5%	3.7%	3.1%	6.4
	Ocala, FL	7.0%	4.2%	5.8%	1.2
	Orlando, FL	8.5%	3.6%	5.4%	3.1
	Panama City, FL	10.8%	4.0%	3.9%	6.9
	Pensacola, FL	11.4%	5.7%	6.3%	5.1
	Punta Gorda, FL	10.7%	3.6%	5.6%	5.1
	Sarasota-Bradenton, FL	11.4%	3.1%	4.8%	6.6
	Tallahassee, FL	8.1%	6.4%	7.2%	0.9
	Tampa-St. Petersburg-Clearwater, FL	9.8%	4.8%	5.8%	3.9
	West Palm Beach-Boca Raton, FL	10.4%	5.6%	4.8%	5.6
Georgia	Total	16.2%	12.7%	10.9%	5.3
	Albany, GA	10.7%	10.1%	9.1%	1.6
	Athens, GA	14.1%	10.4%	8.9%	5.2
	Atlanta, GA	16.8%	13.8%	11.9%	4.9
	Augusta-Aiken, GA-SC	13.2%	11.2%	10.6%	2.6
	Chattanooga, TN-GA	13.4%	10.7%	9.4%	4.0
	Columbus, GA-AL	12.0%	11.1%	11.3%	0.7

Source: First American LoanPerformance

HAWAII - KANSAS

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
	Macon, GA	14.7%	13.6%	14.9%	-0.2
	Savannah, GA	13.0%	9.6%	9.4%	3.6
Hawaii	Total	6.2%	2.8%	2.6%	3.5
	Honolulu, HI	5.5%	2.9%	2.6%	2.9
Iowa	Total	14.8%	11.5%	10.3%	4.3
	Cedar Rapids, IA	13.5%	10.9%	9.6%	3.9
	Davenport-Moline-Rock Island, IA-IL	15.0%	10.7%	9.0%	6.0
	Des Moines, IA	15.2%	11.0%	10.8%	4.4
	Dubuque, IA	13.0%	9.3%	9.7%	3.3
	Iowa City, IA	13.4%	10.8%	8.1%	5.3
	Omaha, NE-IA	15.7%	14.0%	12.0%	3.7
	Sioux City, IA-NE	14.5%	12.9%	13.1%	1.3
	Waterloo-Cedar Falls, IA	14.7%	11.4%	12.0%	2.7
Idaho	Total	7.2%	6.2%	7.3%	-0.2
	Boise City, ID	6.9%	6.1%	8.5%	-1.6
	Pocatello, ID	9.8%	9.2%	8.7%	1.1
Illinois	Total	14.8%	9.8%	8.9%	5.9
	Bloomington-Normal, IL	14.4%	9.7%	9.1%	5.3
	Champaign-Urbana, IL	13.0%	9.6%	7.7%	5.3
	Chicago, IL	13.9%	9.4%	8.8%	5.1
	Davenport-Moline-Rock Island, IA-IL	15.0%	13.1%	10.0%	5.0
	Decatur, IL	13.8%	11.5%	9.9%	3.8
	Kankakee, IL	17.3%	13.5%	13.6%	3.7
	No MSA	16.7%	10.4%	8.5%	8.1
	Peoria-Pekin, IL	14.6%	12.2%	11.7%	2.8
	Rockford, IL	14.5%	11.9%	11.1%	3.5
	Springfield, IL	14.6%	14.4%	11.4%	3.2
	St. Louis, MO-IL	14.3%	12.2%	10.8%	3.5
Indiana	Total	16.6%	13.6%	12.2%	4.4
	Bloomington, IN	12.5%	10.7%	9.8%	2.7
	Cincinnati, OH-KY-IN	15.1%	10.4%	10.6%	4.5
	Elkhart-Goshen, IN	15.3%	10.6%	10.2%	5.1
	Evansville-Henderson, IN-KY	15.8%	13.7%	12.2%	3.6
	Fort Wayne, IN	15.6%	12.7%	12.4%	3.2
	Gary, IN	14.2%	12.8%	11.8%	2.4
	Indianapolis, IN	17.9%	13.8%	13.3%	4.6
	Kokomo, IN	17.6%	12.2%	10.1%	7.5
	Lafayette, IN	14.4%	10.2%	9.7%	4.7
	Louisville, KY-IN	17.2%	14.2%	12.8%	4.4
	Muncie, IN	18.0%	15.0%	13.4%	4.6
	South Bend, IN	19.3%	15.0%	14.5%	4.8
	Terre Haute, IN	14.0%	15.4%	15.3%	-1.3
Kansas	Total	12.7%	10.6%	9.4%	3.3
	Kansas City, MO-KS	13.5%	10.9%	10.1%	3.4
	Lawrence, KS	10.9%	10.3%	7.3%	3.6
	Topeka, KS	12.8%	10.8%	8.7%	4.0
	Wichita, KS	11.9%	10.7%	9.1%	2.9

Source: First American LoanPerformance

KENTUCKY – MICHIGAN

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
Kentucky	Total	14.6%	11.5%	10.9%	3.6
	Cincinnati, OH-KY-IN	14.7%	11.2%	10.0%	4.6
	Clarksville-Hopkinsville, TN-KY	14.1%	9.4%	7.7%	6.4
	Evansville-Henderson, IN-KY	12.8%	13.0%	10.9%	1.9
	Huntington-Ashland, WV-KY-OH	11.5%	11.6%	10.5%	1.0
	Lexington, KY	12.5%	8.7%	9.6%	3.0
	Louisville, KY-IN	15.9%	13.0%	12.6%	3.3
	Owensboro, KY	11.3%	9.6%	9.0%	2.3
Louisiana	Total	16.6%	27.6%	10.0%	6.6
	Alexandria, LA	13.2%	13.6%	9.3%	3.9
	Baton Rouge, LA	12.7%	16.6%	10.9%	1.9
	Houma, LA	12.4%	18.5%	8.6%	3.8
	Lafayette, LA	11.1%	14.3%	9.2%	2.0
	Lake Charles, LA	11.5%	17.3%	9.3%	2.2
	Monroe, LA	12.3%	11.2%	10.7%	1.6
	New Orleans, LA	18.8%	35.8%	9.9%	8.9
	Shreveport-Bossier City, LA	12.2%	11.4%	10.0%	2.2
Massachusetts	Total	16.5%	9.1%	6.2%	10.3
	Barnstable-Yarmouth, MA	18.1%	9.1%	5.4%	12.7
	Boston, MA-NH	15.9%	8.3%	6.0%	9.9
	Brockton, MA	19.8%	10.6%	7.4%	12.4
	Fitchburg-Leominster, MA	16.5%	9.4%	5.6%	11.0
	Lawrence, MA-NH	18.8%	7.9%	4.9%	13.9
	Lowell, MA-NH	16.0%	8.2%	5.2%	10.8
	New Bedford, MA	16.7%	8.8%	4.9%	11.8
	Pittsfield, MA	15.9%	11.4%	6.9%	9.0
	Providence-Fall River-Warwick, RI-MA	15.4%	9.8%	4.9%	10.5
	Springfield, MA	13.9%	7.9%	6.5%	7.4
	Worcester, MA-CT	17.3%	9.1%	6.3%	11.0
Maryland	Total	8.7%	4.4%	4.5%	4.2
	Baltimore, MD	8.0%	4.6%	5.0%	3.0
	Cumberland, MD-WV	8.2%	6.6%	7.2%	1.0
	Hagerstown, MD	8.1%	3.7%	3.7%	4.4
	Washington, DC-MD-VA-WV	8.6%	3.6%	3.9%	4.7
	Wilmington-Newark, DE-MD	7.4%	5.0%	5.7%	1.7
Maine	Total	13.5%	7.7%	5.5%	8.0
	Bangor, ME	14.9%	9.1%	5.3%	9.6
	Lewiston-Auburn, ME	9.7%	7.0%	5.1%	4.7
	Portland, ME	13.7%	6.4%	4.2%	9.5
	Portsmouth-Rochester, NH-ME	13.2%	5.7%	8.5%	4.7
Michigan	Total	21.3%	14.9%	12.3%	9.0
	Ann Arbor, MI	18.5%	12.0%	10.0%	8.5
	Benton Harbor, MI	13.9%	10.4%	9.4%	4.5
	Detroit, MI	23.0%	17.2%	14.5%	9.5
	Flint, MI	20.3%	14.9%	12.4%	7.9
	Grand Rapids-Muskegon-Holland, MI	17.9%	12.4%	10.2%	7.7
	Jackson, MI	21.7%	14.5%	11.9%	9.8
	Kalamazoo-Battle Creek, MI	16.5%	12.8%	10.5%	6.0
	Lansing-East Lansing, MI	18.5%	12.6%	10.9%	7.6
	Saginaw-Bay City-Midland, MI	18.4%	14.5%	11.3%	7.1

Source: First American LoanPerformance

MINNESOTA – NEW HAMPSHIRE

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
Minnesota	Total	16.8%	10.6%	7.8%	9.0
	Duluth-Superior, MN-WI	13.4%	9.5%	8.8%	4.6
	Fargo-Moorhead, ND-MN	9.1%	6.4%	7.0%	2.2
	Grand Forks, ND-MN	12.6%	11.3%	6.7%	5.9
	La Crosse, WI-MN	18.6%	5.9%	6.6%	12.0
	Minneapolis-ST. Paul, MN-WI	17.1%	10.4%	7.9%	9.3
	Rochester, MN	15.5%	9.9%	8.7%	6.8
	St. Cloud, MN	17.1%	10.7%	7.9%	9.2
Missouri	Total	13.1%	10.1%	8.7%	4.4
	Columbia, MO	8.0%	6.2%	6.3%	1.7
	Joplin, MO	11.9%	7.8%	9.0%	2.9
	Kansas City, MO-KS	13.9%	11.5%	10.0%	4.0
	Springfield, MO	11.2%	6.9%	7.1%	4.1
	St. Joseph, MO	11.2%	6.3%	6.4%	4.8
	St. Louis, MO-IL	12.8%	9.9%	8.8%	4.0
Mississippi	Total	18.2%	23.1%	13.1%	5.1
	Biloxi-Gulfport-Pascagoula, MS	14.4%	30.2%	12.1%	2.3
	Hattiesburg, MS	16.5%	25.4%	14.5%	2.0
	Jackson, MS	21.3%	23.2%	13.3%	8.0
	Memphis, TN-AR-MS	16.2%	13.3%	13.3%	2.9
Montana	Total	8.9%	6.5%	7.3%	1.6
	Billings, MT	12.4%	9.1%	6.9%	5.6
	Great Falls, MT	13.2%	10.6%	10.8%	2.4
	Missoula, MT	6.8%	7.6%	7.8%	-1.0
North Carolina	Total	12.5%	10.8%	11.1%	1.4
	Asheville, NC	9.1%	7.4%	8.8%	0.3
	Charlotte-Gastonia-Rock Hill, NC-SC	12.3%	11.4%	12.1%	0.2
	Fayetteville, NC	10.5%	9.8%	11.2%	-0.8
	Goldsboro, NC	13.6%	13.7%	15.3%	-1.6
	Greensboro--Winston-Salem--High Point, NC	12.7%	11.8%	11.6%	1.1
	Greenville, NC	14.6%	13.1%	11.0%	3.7
	Hickory-Morganton-Lenoir, NC	12.9%	12.1%	11.5%	1.4
	Jacksonville, NC	9.7%	7.6%	8.6%	1.1
	Norfolk-Virginia Beach-Newport News, VA-NC	8.6%	2.4%	2.8%	5.8
	Raleigh-Durham-Chapel Hill, NC	12.5%	10.3%	11.3%	1.2
	Rocky Mount, NC	13.6%	12.0%	13.6%	0.0
	Wilmington, NC	7.2%	5.6%	7.5%	-0.3
North Dakota	Total	9.3%	6.5%	5.4%	4.0
	Bismarck, ND	7.8%	4.8%	4.3%	3.5
	Fargo-Moorhead, ND-MN	9.3%	6.4%	6.6%	2.7
	Grand Forks, ND-MN	11.0%	8.4%	7.9%	3.2
Nebraska	Total	13.1%	10.5%	9.0%	4.2
	Lincoln, NE	12.0%	9.4%	7.1%	4.9
	Omaha, NE-IA	13.2%	11.3%	10.4%	2.8
	Sioux City, IA-NE	15.1%	10.3%	16.4%	-1.3
New Hampshire	Total	12.2%	7.1%	4.8%	7.5
	Boston, MA-NH	22.7%	10.6%	8.0%	14.7
	Lawrence, MA-NH	14.9%	8.7%	6.4%	8.5
	Lowell, MA-NH	19.6%	13.4%	10.1%	9.6
	Manchester, NH	12.5%	7.3%	4.2%	8.3

Source: First American LoanPerformance

NEW JERSEY - OHIO

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
	Nashua, NH	12.3%	6.6%	3.9%	8.4
	Portsmouth-Rochester, NH-ME	13.6%	6.3%	4.5%	9.1
New Jersey	Total	12.5%	7.2%	6.8%	5.8
	Atlantic-Cape May, NJ	11.1%	5.6%	6.1%	4.9
	Bergen-Passaic, NJ	10.9%	6.0%	5.9%	5.0
	Jersey City, NJ	9.6%	4.5%	5.2%	4.3
	Middlesex-Somerset-Hunterdon, NJ	9.7%	6.2%	6.7%	3.0
	Monmouth-Ocean, NJ	13.1%	7.9%	6.7%	6.4
	Newark, NJ	13.3%	7.5%	7.3%	6.0
	Philadelphia, PA-NJ	12.1%	7.8%	7.4%	4.7
	Trenton, NJ	11.8%	7.8%	6.7%	5.0
	Vineland-Millville-Bridgeton, NJ	12.2%	7.4%	9.6%	2.3
New Mexico	Total	9.2%	8.6%	9.9%	-0.8
	Albuquerque, NM	9.0%	8.6%	9.9%	-0.9
	Las Cruces, NM	6.9%	6.9%	8.9%	-2.0
	Santa Fe, NM	10.0%	8.5%	10.1%	-0.1
Nevada	Total	11.8%	4.6%	2.9%	8.9
	Las Vegas, NV-AZ	11.7%	4.6%	3.1%	8.6
	Reno, NV	10.5%	3.2%	2.4%	8.1
New York	Total	12.5%	7.9%	6.0%	6.5
	Albany-Schenectady-Troy, NY	11.2%	8.5%	7.9%	3.3
	Binghamton, NY	11.7%	9.2%	10.2%	1.5
	Buffalo-Niagara Falls, NY	13.0%	12.8%	11.6%	1.4
	Dutchess County, NY	11.7%	7.5%	5.0%	6.6
	Elmira, NY	12.7%	8.9%	10.6%	2.1
	Glens Falls, NY	13.4%	8.2%	9.6%	3.8
	Jamestown, NY	14.8%	14.3%	12.9%	1.9
	Nassau-Suffolk, NY	12.2%	6.9%	5.5%	6.7
	New York, NY	11.9%	7.4%	5.6%	6.2
	Newburgh, NY-PA	11.5%	6.6%	5.4%	6.2
	Rochester, NY	12.3%	10.4%	9.9%	2.5
	Syracuse, NY	12.1%	10.3%	9.0%	3.2
	Utica-Rome, NY	12.5%	10.1%	10.3%	2.1
Ohio	Total	19.6%	16.4%	15.2%	4.4
	Akron, OH	18.9%	16.0%	15.4%	3.5
	Canton-Massillon, OH	18.6%	14.7%	14.2%	4.3
	Cincinnati, OH-KY-IN	16.6%	14.2%	14.2%	2.4
	Cleveland-Lorain-Elyria, OH	24.1%	21.0%	19.4%	4.7
	Columbus, OH	16.8%	14.5%	13.4%	3.4
	Dayton-Springfield, OH	18.7%	17.1%	17.1%	1.6
	Hamilton-Middletown, OH	15.1%	12.6%	12.5%	2.6
	Huntington-Ashland, WV-KY-OH	14.7%	10.0%	8.8%	5.9
	Lima, OH	17.0%	14.5%	12.5%	4.5
	Mansfield, OH	16.7%	13.9%	12.9%	3.8
	Parkersburg-Marietta, WV-OH	10.7%	8.7%	8.1%	2.6
	Steubenville-Weirton, OH-WV	12.9%	13.0%	11.5%	1.4
	Toledo, OH	18.3%	15.4%	13.9%	4.4
	Wheeling, WV-OH	13.4%	11.5%	10.4%	3.0
	Youngstown-Warren, OH	21.4%	18.9%	16.8%	4.6

Source: First American LoanPerformance

OKLAHOMA - TENNESSEE

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
Oklahoma	Total	13.0%	11.3%	10.9%	2.1
	Enid, OK	10.1%	9.0%	10.6%	-0.5
	Fort Smith, AR-OK	14.7%	11.4%	11.2%	3.4
	Lawton, OK	11.3%	9.5%	10.6%	0.6
	Oklahoma City, OK	12.1%	10.7%	10.4%	1.7
	Tulsa, OK	14.0%	12.3%	12.5%	1.5
Oregon	Total	7.2%	5.3%	6.4%	0.8
	Corvallis, OR	2.7%	3.5%	6.3%	-3.6
	Eugene-Springfield, OR	7.5%	4.9%	6.3%	1.2
	Medford-Ashland, OR	9.2%	4.1%	3.3%	6.0
	Portland-Vancouver, OR-WA	7.0%	5.2%	7.3%	-0.3
	Salem, OR	6.5%	6.1%	7.4%	-1.0
Pennsylvania	Total	12.6%	10.5%	10.5%	2.1
	Allentown-Bethlehem-Easton, PA	9.2%	7.6%	8.2%	1.0
	Altoona, PA	11.8%	13.0%	10.0%	1.7
	Erie, PA	16.5%	14.7%	13.0%	3.5
	Harrisburg-Lebanon-Carlisle, PA	11.1%	10.2%	9.8%	1.3
	Johnstown, PA	12.8%	12.7%	10.3%	2.5
	Lancaster, PA	10.1%	8.0%	8.1%	2.0
	Newburgh, NY-PA	14.8%	9.8%	10.9%	4.0
	Philadelphia, PA-NJ	11.5%	9.1%	9.5%	2.0
	Pittsburgh, PA	16.0%	14.7%	13.9%	2.2
	Reading, PA	9.4%	8.1%	8.9%	0.5
	Scranton--Wilkes-Barre--Hazleton, PA	13.1%	12.6%	12.4%	0.7
	Sharon, PA	15.5%	13.4%	12.7%	2.8
	State College, PA	9.2%	7.7%	8.7%	0.5
	Williamsport, PA	12.7%	9.9%	10.5%	2.2
	York, PA	9.1%	7.5%	7.5%	1.5
Rhode Island	Total	13.6%	6.6%	3.5%	10.0
	New London-Norwich, CT-RI	10.3%	5.9%	4.3%	6.0
	Providence-Fall River-Warwick, RI-MA	13.0%	6.1%	3.3%	9.6
South Carolina	Total	13.2%	11.9%	13.0%	0.2
	Augusta-Aiken, GA-SC	11.5%	11.4%	11.3%	0.3
	Charleston-North Charleston, SC	10.6%	8.0%	9.9%	0.8
	Charlotte-Gastonia-Rock Hill, NC-SC	13.6%	12.2%	11.8%	1.8
	Columbia, SC	14.3%	13.3%	14.6%	-0.2
	Florence, SC	15.6%	16.4%	15.8%	-0.2
	Greenville-Spartanburg-Anderson, SC	14.6%	13.5%	14.8%	-0.2
	Myrtle Beach, SC	7.8%	7.8%	10.8%	-3.0
	Sumter, SC	13.5%	16.9%	15.8%	-2.3
South Dakota	Total	11.8%	8.0%	7.1%	4.7
	Rapid City, SD	11.3%	6.9%	5.9%	5.4
	Sioux Falls, SD	14.4%	9.6%	9.1%	5.3
Tennessee	Total	13.4%	11.0%	9.9%	3.5
	Chattanooga, TN-GA	12.4%	9.5%	9.4%	3.0
	Clarksville-Hopkinsville, TN-KY	8.9%	9.0%	7.9%	1.0
	Jackson, TN	15.4%	14.5%	11.4%	4.1
	Johnson City-Kingsport-Bristol, TN-VA	8.7%	6.7%	6.7%	2.0
	Knoxville, TN	8.7%	7.4%	7.3%	1.4
	Memphis, TN-AR-MS	18.1%	15.0%	13.1%	5.0

Source: First American LoanPerformance

TEXAS - WASHINGTON

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
	Nashville, TN	11.0%	9.7%	9.3%	1.7
Texas	Total	13.1%	11.8%	9.9%	3.2
	Abilene, TX	9.9%	9.7%	12.7%	-2.8
	Amarillo, TX	11.6%	8.9%	9.6%	2.0
	Austin-San Marcos, TX	9.8%	10.2%	11.1%	-1.3
	Beaumont-Port Arthur, TX	14.1%	19.5%	10.9%	3.2
	Brazoria, TX	14.5%	13.6%	10.3%	4.2
	Brownsville-Harlingen-San Benito, TX	11.6%	10.5%	10.5%	1.1
	Bryan-College Station, TX	7.1%	7.7%	6.3%	0.8
	Corpus Christi, TX	10.3%	8.8%	10.6%	-0.3
	Dallas, TX	15.1%	12.8%	11.5%	3.6
	El Paso, TX	7.1%	6.3%	8.9%	-1.9
	Fort Worth-Arlington, TX	13.8%	11.1%	10.4%	3.4
	Galveston-Texas City, TX	13.1%	14.0%	10.4%	2.7
	Houston, TX	14.5%	13.7%	11.3%	3.2
	Killeen-Temple, TX	8.5%	8.6%	10.8%	-2.3
	Laredo, TX	11.2%	9.5%	8.9%	2.4
	Longview-Marshall, TX	8.1%	7.6%	6.5%	1.6
	Lubbock, TX	11.5%	8.1%	5.6%	5.9
	Mcallen-Edinburg-Mission, TX	10.4%	8.9%	9.1%	1.3
	Odessa-Midland, TX	8.3%	7.1%	7.6%	0.7
	San Angelo, TX	9.5%	9.1%	7.9%	1.6
	San Antonio, TX	9.3%	8.8%	9.3%	0.0
	Sherman-Denison, TX	11.6%	11.1%	10.0%	1.6
	Texarkana , TX-AR	12.9%	7.2%	8.0%	4.8
	Tyler, TX	11.2%	8.2%	7.4%	3.7
	Victoria, TX	8.3%	9.1%	8.1%	0.2
	Waco, TX	11.3%	8.2%	9.6%	1.7
	Wichita Falls, TX	11.0%	9.4%	9.6%	1.4
Utah	Total	7.8%	8.2%	10.0%	-2.2
	Flagstaff, AZ-UT	5.2%	11.7%	7.7%	-2.5
	Provo-Orem, UT	6.1%	8.2%	10.3%	-4.2
	Salt Lake City-Ogden, UT	8.3%	8.9%	11.2%	-2.9
Virginia	Total	9.9%	4.4%	3.8%	5.6
	Charlottesville, VA	6.2%	4.4%	4.0%	2.2
	Danville, VA	10.1%	6.9%	7.3%	2.8
	Johnson City-Kingsport-Bristol, TN-VA	6.9%	5.8%	4.8%	2.1
	Lynchburg, VA	9.2%	5.9%	6.3%	2.8
	Norfolk-Virginia Beach-Newport News, VA-NC	6.8%	4.3%	4.1%	2.7
	Richmond-Petersburg, VA	7.5%	6.2%	6.3%	1.3
	Roanoke, VA	9.6%	7.0%	6.8%	2.9
	Washington, DC-MD-VA-WV	9.8%	3.1%	2.5%	7.4
Vermont	Total	11.7%	7.0%	6.4%	5.4
	Burlington, VT	12.2%	6.7%	6.5%	5.7
Washington	Total	7.9%	5.9%	6.7%	1.2
	Bellingham, WA	6.7%	4.4%	5.3%	1.4
	Bremerton, WA	6.6%	5.4%	5.5%	1.1
	Olympia, WA	7.8%	4.9%	5.2%	2.6
	Portland-Vancouver, OR-WA	7.1%	4.1%	5.5%	1.7
	Richland-Kennewick-Pasco, WA	9.4%	7.3%	7.2%	2.1

Source: First American LoanPerformance

WISCONSIN - WYOMING

Change in Subprime Delinquencies at State and MSA Level

Percentage of Subprime Mortgages Where Payments Were Late By 60 Days or More

		February 2007	February 2006	February 2005	Percentage Point Change (2005 to 2007)
NATIONAL		12.4%	7.8%	6.7%	5.8
	Seattle-Bellevue-Everett, WA	7.3%	6.2%	7.3%	0.0
	Spokane, WA	8.0%	5.7%	7.9%	0.2
	Tacoma, WA	8.7%	6.0%	6.9%	1.8
	Yakima, WA	8.3%	8.2%	10.2%	-1.9
Wisconsin	Total	14.0%	9.3%	7.6%	6.4
	Appleton-Oshkosh-Neenah, WI	12.6%	8.4%	6.9%	5.7
	Duluth-Superior, MN-WI	17.3%	9.1%	8.2%	9.1
	Eau Claire, WI	15.1%	11.7%	13.8%	1.2
	Green Bay, WI	14.1%	9.3%	7.1%	7.0
	Janesville-Beloit, WI	14.5%	11.4%	11.0%	3.4
	Kenosha, WI	13.2%	7.2%	7.5%	5.6
	La Crosse, WI-MN	12.5%	7.7%	8.8%	3.8
	Madison, WI	11.5%	7.5%	5.6%	5.9
	Milwaukee-Waukesha, WI	12.4%	7.8%	6.9%	5.5
	Minneapolis-ST. Paul, MN-WI	16.2%	10.9%	5.2%	11.0
	Racine, WI	13.7%	9.1%	6.8%	7.0
	Sheboygan, WI	15.8%	8.8%	6.3%	9.5
	Wausau, WI	12.5%	11.0%	11.6%	0.8
West Virginia	Total	12.4%	10.9%	12.3%	0.1
	Charleston, WV	13.4%	17.8%	17.9%	-4.5
	Cumberland, MD-WV	5.4%	2.7%	2.9%	2.5
	Huntington-Ashland, WV-KY-OH	13.8%	15.0%	13.8%	0.0
	Parkersburg-Marietta, WV-OH	16.9%	19.5%	20.6%	-3.7
	Steubenville-Weirton, OH-WV	13.3%	15.3%	15.4%	-2.1
	Washington, DC-MD-VA-WV	10.9%	5.1%	7.5%	3.3
	Wheeling, WV-OH	12.3%	16.1%	12.0%	0.3
Wyoming	Total	6.1%	4.3%	4.8%	1.3
	Casper, WY	5.9%	4.4%	3.7%	2.3
	Cheyenne, WY	8.9%	4.3%	5.8%	3.1

Source: First American LoanPerformance

APPENDIX C: IMPACT OF FORECLOSURES ON LOCAL HOME PRICES

MSA	National Foreclosure Rank	Median Home Price	Decline in Value Caused by One Foreclosure Within 1/8 Mile (One City Block)
DETROIT, MI	1	$135,900	($1,223)
ATLANTA, GA	2	$218,500	($1,967)
INDIANAPOLIS, IN	3	$136,500	($1,229)
DENVER, CO	4	$239,100	($2,152)
DALLAS, TX	5	$133,900	($1,205)
FORT WORTH, TX	6	$117,800	($1,060)
LAS VEGAS, NV	7	$289,300	($2,604)
MEMPHIS, TN	8	$117,500	($1,058)
FORT LAUDERDALE, FL	9	$245,200	($2,207)
MIAMI, FL	10	$246,500	($2,219)
STOCKTON, CA	11	$379,600	($3,416)
SAN ANTONIO, TX	12	$97,200	($875)
RIVERSIDE, CA	13	$348,200	($3,134)
CLEVELAND, OH	14	$146,700	($1,320)
DAYTON, OH	15	$124,400	($1,120)
AKRON, OH	16	$141,100	($1,270)
AUSTIN, TX	17	$161,000	($1,449)
HOUSTON, TX	18	$123,400	($1,111)
COLUMBUS, OH	19	$155,600	($1,400)
JACKSONVILLE, FL	20	$162,000	($1,458)
KENOSHA COUNTY, WI	21	$238,100	($2,143)
CHICAGO, IL	22	$233,500	($2,102)
PALM BEACH, FL	23	$269,800	($2,428)
SALT LAKE CITY, UT	24	$177,900	($1,601)
CAMDEN, NJ-PA	25	$205,500	($1,850)
ORLANDO, FL	26	$193,200	($1,739)
LITTLE ROCK, AR	27	$108,700	($978)
WARREN, MI	28	$197,200	($1,775)
OKLAHOMA CITY, OK	29	$102,600	($923)
TOLEDO, OH	30	$125,500	($1,130)
TAMPA, FL	31	$163,300	($1,470)
SACRAMENTO, CA	32	$396,900	($3,572)
TULSA, OK	33	$106,900	($962)
PHOENIX, AZ	34	$207,300	($1,866)
CHARLOTTE, NC	35	$150,900	($1,358)
ALBUQUERQUE, NM	36	$146,900	($1,322)
NASSAU COUNTY, NY	37	$440,600	($3,965)
OAKLAND, CA	38	$594,500	($5,351)
FRESNO, CA	39	$251,000	($2,259)
SEATTLE - TACOMA, WA	40	$290,200	($2,612)
NEWARK, NJ	41	$383,700	($3,453)
BAKERSFIELD, CA	42	$210,700	($1,896)
SAN DIEGO, CA	43	$552,000	($4,968)
GARY, IN	44	$126,900	($1,142)
EL PASO, TX	45	$78,600	($707)
TUCSON, AZ	46	$167,400	($1,507)
PHILADELPHIA, PA	47	$209,000	($1,881)
EDISON, NJ	48	$350,300	($3,153)
CINCINNATI, OH	49	$143,400	($1,291)
PITTSBURGH, PA	50	$104,600	($941)

Sources: Dan Immergluck and Geoff Smith, "The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values," *Housing Policy Debate,* Vol. 17, Issue 1, 2006; U.S. Census Bureau, 2005.

APPENDIX D: STATE REGULATIONS

Table A: Predatory Lending Regulations at the State Level as of April 2007

Predatory Lending Regulations at the State Level As of April 2007

State	Education Programs to Prevent Predatory Lending	Existing State Regulations & Enforcement Mechanisms to Deter Predatory Lending Among State Supervised Lenders*	Enforcement Actions & Supervisory Processes to Battle Predatory Lending	Pending Bills to Deter Predatory Lending	Judicial Foreclosure Hearing[1]	Non-Judicial Foreclosure Hearing
AK	▯					▯
AL	▯	▯	▯	▯	▯	▯
AR	▯				▯	
AZ	▯		▯		▯	▯
CA	▯	▯	▯			▯
CO						▯
CT	▯	▯	▯	▯	▯	
DC						▯
DE	▯	▯	▯		▯	
FL	▯	▯	▯		▯	
GA		▯	▯	▯		▯
HI		▯	▯	▯		▯
IA	▯	▯	▯	▯	▯	
ID	▯	▯	▯			▯
IL	▯	▯			▯	
IN	i	▯			▯	
KS	▯	▯	▯		▯	
KY	▯	▯	▯		▯	
LA		i	▯		▯	
MA	▯	▯	▯	▯		
MD					▯	▯
ME		▯	▯			▯
MI	▯	▯	▯		▯	▯
MN		▯	▯	▯		▯
MO		▯		▯		▯
MS		▯	▯			▯
MT	▯	▯	▯		▯	
NC	▯	▯	▯			▯
ND					▯	
NE	▯	▯	▯		▯	
NH						▯
NJ	▯	▯	▯	▯	▯	
NM	▯	▯	▯		▯	
NV						▯
NY	▯	▯	▯		▯	
OH	▯	▯	▯	▯	▯	
OK		▯	▯			▯
OR	▯	▯	▯	▯		▯
PA					▯	
RI						▯
SC					▯	
SD		▯	▯		▯	▯
TN		▯	▯			▯
TX		▯	▯	▯		▯
UT				i	▯	
VA						▯
VT					▯	
WA	▯	▯	▯		▯	▯
WI					▯	
WV		▯	▯	▯		▯
WY						▯

Key: ▯ : in practice i: pending/ in process blank: no action or no action reported

Conference of State Banking Supervisors, "August 2003 Summary of State Banking Department Programs to Battle Predatory Lending"

National Law Consumer Law Center, "The Cost of Credit: Regulation, Preemption and Industry Abuses (3d, ed. 2005), Appendix 12.2.3 and 12.3

[1]Each state has foreclosure laws that dictate the process of foreclosure in that state. An important distinction in a state's foreclosure process is whether the foreclosure is conducted through the court system (judicial) or outside the court system (non-judicial) or both. In states that allow both types of foreclosure, the document used to secure the mortgage loan usually determines whether judicial or non-judicial foreclosure is used. General consensus suggests that "judicial foreclosure" is more helpful to the borrower trapped by predatory loans.

Table B: State Mortgage Regulatory Agency Licensing Survey

State Licensing Agency	Regulate and License Individuals (Not Just Companies)	Testing Requirements For Loan Originators and/or Executives	Require Continuing Education	Minimum Experience Requirements	Minimum Financial/ Credit Standards	Utilize Criminal Background Checks	Require Annual Financial Reports
AK	Alaska currently does not have statutes to regulate mortgage brokers and lenders						
AL			✓	✓	✓		✓
AR	✓		✓		✓	✓	✓
AZ	✓[1]	✓		✓	✓	✓	✓
CA DOC		✓				✓	✓
CA DRE	✓		✓		✓		
CO[2]	✓					✓	
CT	✓				✓	✓	
DC							✓
DE							✓
FL	✓	✓	✓		✓	✓	✓
GA			✓	✓	✓		✓
HI	✓						✓
IA	✓		✓			✓	
ID	✓		✓	✓	✓		✓
IL	✓	✓	✓	✓		✓	
IN DFI						✓	✓
IN SOS	✓		✓				
KS	✓		✓		✓	✓	✓
KY	✓		✓	✓		✓	
LA	✓	✓	✓	✓	✓	✓	✓
MA					✓	✓	✓
MD	✓	✓	✓	✓		✓	✓
ME	✓		✓	✓			✓
MI				✓	✓	✓	✓
MN						✓	
MO						✓	✓
MS	✓	✓	✓	✓		✓	✓
MT	✓	✓		✓	✓	✓	✓
NC	✓	✓	✓		✓	✓	✓
ND							✓
NE							
NH					✓	✓	
NJ	✓	✓		✓	✓	✓	
NM							✓
NV	✓		✓		✓	✓	✓
NY	✓			✓	✓	✓	
OH	✓		✓	✓		✓	✓
OK	✓	✓	✓	✓		✓	
OR	✓		✓				
PA	✓	✓	✓		✓	✓	✓
RI	✓		✓	✓	✓	✓	✓
SC	✓		✓	✓		✓	
SD	✓[3]						✓
TN	✓				✓		✓
TX OCC						✓	✓
TX SML	✓	✓	✓	✓	✓	✓	✓
UT DFI							
UT REC	✓	✓	✓			✓	
VA	✓				✓		
VT	✓			✓	✓		✓
WA	✓	✓	✓	✓	✓	✓	✓
WI	✓	✓	✓		✓	✓	
WV	✓		✓	✓	✓	✓	✓
WY	✓				✓		✓

*Source: Conference of State Bank Supervisors (CSBS) and American Association of Residential Mortgage Regulators (AARMR) "State Mortgage Regulatory Agency Licensing Survey" January 2006. Some states updated Fall, 2006.

*States that have two survey results have two separate non-depository regulatory agencies. Typically, one agency regulates mortgage lenders while the other regulates mortgage brokers.

Notes:

[1] Legislation has been introduced in Arizona to regulate individual brokers and lenders

[2] Legislation is pending to improve regulation for mortgage brokers and lenders in Colorado.

[3] Licensing Legislation waiting governor's signature and likely to be signed

Abbreviations:

DOC - Department of Corporations
DRE - Department of Real Estate
DFI - Department of Financial Institutions
SOS - Secretary of State
OCC - Office of Consumer Credit
SML - Savings and Mortgage Lending
REC - Real Estate Corporation

The Subprime Lending Crisis: The Economic Impact on Wealth, Property Values, and Tax Revenues, and How We Got Here

EXECUTIVE SUMMARY

As the losses caused by the subprime lending crisis continue to work their way through the financial markets, there is a growing awareness among policymakers and financial market regulators that we need to prevent the continuing foreclosure wave from affecting the broader economy. A significant increase in lax (and often predatory) subprime lending during a period of rapid housing price appreciation put risky adjustable rate mortgages in the hands of vulnerable borrowers who are now facing substantial payment shocks and risk foreclosure when their loans reset this year and next.

Part I of this report shows that unless action is taken, subprime foreclosure rates are likely to increase as housing prices flatten or decline, and the effects of the subprime crisis are likely to extend beyond the housing market to the broader economy. The decline in housing wealth will negatively affect consumer spending, and the forced sale of large numbers of homes is likely to negatively impact the prices of other homes.

Part II of this report shows that, unless action is taken, the number and cost of subprime foreclosures will rise significantly. For the period beginning in the first quarter of 2007 and extending through the final quarter of 2009, if housing prices continue to decline, we estimate that subprime foreclosures alone will total approximately 2 million.

Part II also includes forward looking, state-level estimates of subprime foreclosures and associated property losses and property tax losses, covering the second half of 2007 through the end of 2009. For that shorter period, and assuming only moderate housing price declines, we estimate that:

- Approximately $71 billion in housing wealth will be directly destroyed through the process of foreclosures.

- More than $32 billion in housing wealth will be indirectly destroyed by the spillover effect of foreclosures, which reduce the value of neighboring properties.
- States and local governments will lose more than $917 million in property tax revenue as a result of the destruction of housing wealth caused by subprime foreclosures.

Part III of the report highlights the underlying causes of the subprime crisis and explains how incentive structures in the subprime market work against the interests of borrowers and have had much to do with the dimensions of this crisis.

Finally, in Part IV, policy options aimed at reducing foreclosures and preventing the crisis from reoccurring in the future are offered.

PART I: THE HOUSING DOWNTURN AND ITS IMPACT ON SUBPRIME MORTGAGE FORECLOSURES

Over the past few months, as residential investment and housing prices have declined, delinquency and foreclosure rates for subprime mortgages have spiked sharply upward. The deteriorating performance of subprime loans is not suprising. As the subprime market expanded rapidly after 2001, so did the share of adjustable rate, "hybrid" loans issued to financially vulnerable borrowers. The ability of these borrowers to sustain hybrid mortgages has depended heavily on house price appreciation. As housing prices have flattened and declined, the ability of these households to refinance their mortgages has been reduced. The resulting rise in subprime foreclosures is likely to harm an already weak housing market, and the reduction in housing wealth has the capacity to reduce consumer spending and economic growth.

Housing Price Declines Will Worsen Subprime Loan Delinquencies And Home Foreclosures

The root of the subprime mortgage crisis is the prevalence of troubling loans called "2/28" and "3/27" hybrid adjustable rate mortgages (ARMs) that were largely sold to financially vulnerable borrowers without consideration for their ability to

afford them. A typical "2/28" hybrid ARM has a fixed interest rate during the initial two year period. After two years, the rate is reset every six months based on an interest rate benchmark (such as the London Interbank Bid Offered Rate, or "LIBOR"). In the current environment, resets have caused payments to rise by at least 30 percent, to an amount that many borrowers can no longer afford. As a result, the delinquency and foreclosure rates for subprime adjustable rate mortgages have been sharply rising. For more information about the characteristics of subprime loans and borrowers, see Box A.

When housing prices were rising, subprime borrowers could sell or refinance their homes to pay off their loans before they reset to unaffordable rates. As housing prices flatten or decline, these options dwindle. This section explains how the weakening housing market is likely to impact subprime delinquencies and foreclosures in the months ahead. For a detailed examination of the subprime market and its expansion, see Box B.

Subprime Lending Has Depended on Rapid House Price Appreciation

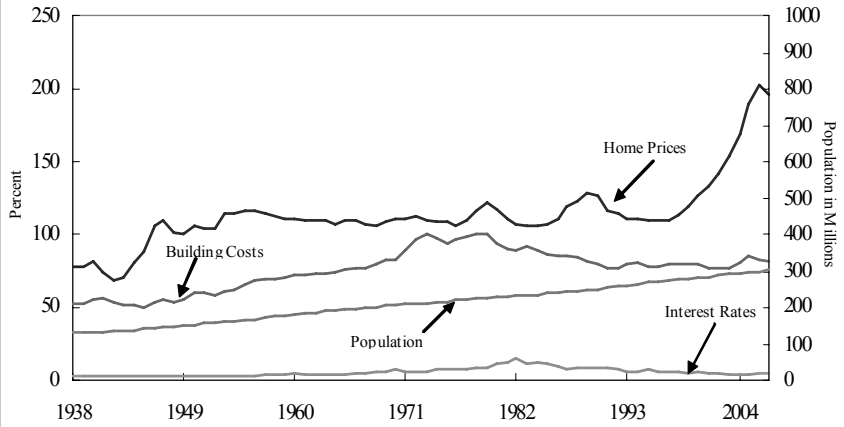
The period of rapid housing price appreciation that began in 1997 has helped fuel increased volumes of subprime lending and masked the weaknesses in underwriting quality and predatory tactics that accompanied it.

Beginning in 1997, the U.S. witnessed house price appreciation that was highly unusual in historical terms. Between 1997 and 2006, real home prices increased by nearly 85 percent.[1] Sustained price increases near this magnitude have only been observed once during the twentieth century, in the period immediately after World War II[2] (See Figure 1). In fact, during the period 2001 through 2005, the annual rate of house price appreciation accelerated. The S&P/Case-Shiller® Home Price Index shows annual price appreciation rising from slightly over eight and one-half percent in 2001 to more than 15 percent in 2005.

Not every part of the housing market witnessed this rate of home

price appreciation. In some states and cities there was significant price appreciation, while it was more moderate in others. For example, Figure 2 shows the difference between home price appreciation in Michigan, Ohio, California, and Florida. But price increases were sufficiently widespread to produce significant nationwide increases in housing prices.

Figure 1: U.S. Housing Market in Historical Perspective
Shiller U.S. Real Housing Price Index and Other Economic Indicators, 1938-2007



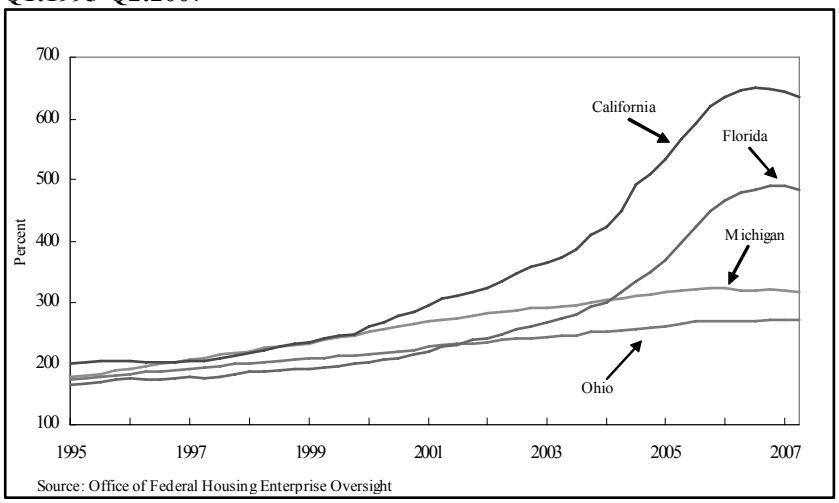
Source: *Irrational Exuberance,* 2nd Edition, 2005, by Robert J. Shiller, Figure 2.1 as updated by author.

Housing Price Appreciation Reduced Subprime Delinquencies and Foreclosures

The deterioration in underwriting standards in the subprime market as the market expanded is well documented. (For a discussion on declining underwriting standards in subprime lending, see Box B.) Although underwriting standards in the subprime lending market began to decline after 2001, the effects of this decline were, until recently, mitigated by house price appreciation. If a borrower is struggling to make mortgage payments, but the value of his house has appreciated, he can solve his financial problems at least temporarily by refinancing the mortgage. Cash can be withdrawn from the increased equity in the house, and the new, higher mortgage can be sustained for a while. The house can also be sold, and the loan principal repaid.

However, when house price appreciation does not create equity, borrowers' financial weakness cannot be disguised and default rates rise.

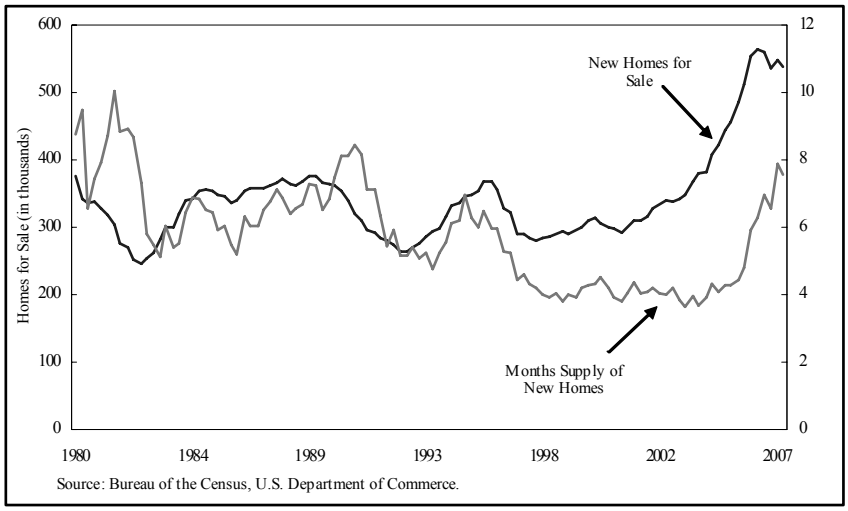
Figure 2: House Price Appreciation Has Varied Across States
House Price Index for Homes in Michigan, Ohio, California and Florida, Q1:1995-Q2:2007



There is systematic evidence that when home prices appreciate, subprime mortgage defaults decline. Using a very large sample of subprime mortgages securitized between 1999 and 2002, researchers at the Center for Responsible Lending found statistically significant correlations between the odds of foreclosure and cumulative price appreciation in a Metropolitan Statistical Area (MSA).[3]

The option to sell or refinance also should reduce delinquencies, which are the precursors to default and foreclosure. Recent work by economists at the Federal Reserve Bank of San Francisco shows strong negative correlations between delinquency rates and cumulative house price appreciation across MSA's during 2006.[4] This research also indicates that house price appreciation significantly improved the performance of subprime loans.

Figure 3: Home Production Has Outpaced Demand



Subprime Problems are Likely to Accelerate House Price Declines

The Housing Market Is Contracting

Unfortunately, conditions in the housing market indicate that house price appreciation will no longer be able to disguise the financial precariousness of the millions of borrowers whose subprime adjustable rate mortgages are about to reset. The decade of steady house price appreciation appears to be at an end. Nationally, house prices began to decline in 2006 and are now down approximately 3.2 percent from their peak in the second quarter of 2006.[5]

In fact, the housing market has contracted significantly for more than a year. Inventories of unsold new homes have increased, and the monthly supply of new homes has risen (See Figure 3). The Federal Reserve has estimated that so far, declines in residential investment have reduced the annual rate of GDP growth by about three-fourths of a percent over the past year and a half.[6]

A Housing Asset Bubble May Be Bursting

As residential investment in construction declines and house prices fall, there is reason to be concerned about the longer term prospects for housing values. There is apprehension that the economy is experiencing the bursting of a housing price "bubble" – a situation in which housing prices are high only because market participants believe that prices will be high tomorrow. In other words, home prices deviate significantly from the equilibrium level consistent with market fundamentals. When an asset bubble bursts, large price appreciation can be followed by sudden and large price declines.

If a housing price bubble does exist, then house price levels can be affected dramatically by shifts in expectations.[7] There is some evidence that expectations about housing prices are changing. The National Association of Home Builders/Wells Fargo Housing Market Index (HMI), based on monthly surveys of a panel of homebuilders, reached an historic low in October 2007.[8] See Figure 4.

A NOTE ON THE HOUSING BUBBLE DEBATE

There is a substantial body of economic research that attempts to explain housing prices in terms of supply and demand fundamentals such as construction costs, interest rates, employment growth, and household income.[9] On the basis of this line of research, some economists argue that the housing price appreciation we have witnessed is not a bubble. These economists focus on the characteristics of local markets, and argue that once accurate measures of local supply and demand factors are carefully examined, there is scant evidence that housing prices have deviated significantly from fundamental values.[10]

There is, however, substantial evidence pointing in the other, less sanguine direction. Using state-level data for 1985 through 2002, Case and Shiller provide econometric evidence that, in eight states, fundamentals do not explain home price appreciation.[11] Dean Baker from the Center for Economic and Policy Research argues that at the aggregate level it is difficult to point to changes in economic fundamentals that convincingly explain why housing prices began to increase in the mid-1990's, rather than at some other time.[12] He points to data showing that GDP, income, and population growth during this period were not unusually high, and notes that any constraint on supply caused by urban density or building regulation surely existed well before prices began to climb. The data in Figure 1 are consistent with the points made by Baker.

Subprime Foreclosures Will Put Additional Downward Pressure on the House Prices

It is widely expected that, as the large number of subprime 2/28 and 3/27 hybrid ARMs originated during and after 2004 reset to their higher payment rates, the volume of subprime delinquencies and defaults will rise substantially. Many financially vulnerable borrowers will be facing substantially higher payments, and the lack of house price appreciation will prevent sale or refinance.

The Federal Deposit Insurance Corporation (FDIC), citing First America LoanPerformance data on securitized subprime and near-prime (so-called "Alt-A") mortgages, estimated in March 2007 that there were approximately 2.1 million hybrid nonprime ARMs outstanding. LoanPerformance data cover about 70 percent of subprime originations.[13] This implies that as of March there were roughly 3 million nonprime mortgages, many of which will reset in the next three years.

From Mortgage Bankers Association (MBA) data we know that the average value of all subprime ARM loans in 2005 was about $200,000. If we use this number as the average value of for all nonprime loans then there were approximately $600 billion in outstanding nonprime mortgages as of March. Since then, the number and amount of hybrids yet to reset will be somewhat smaller. However, the numbers are significant.

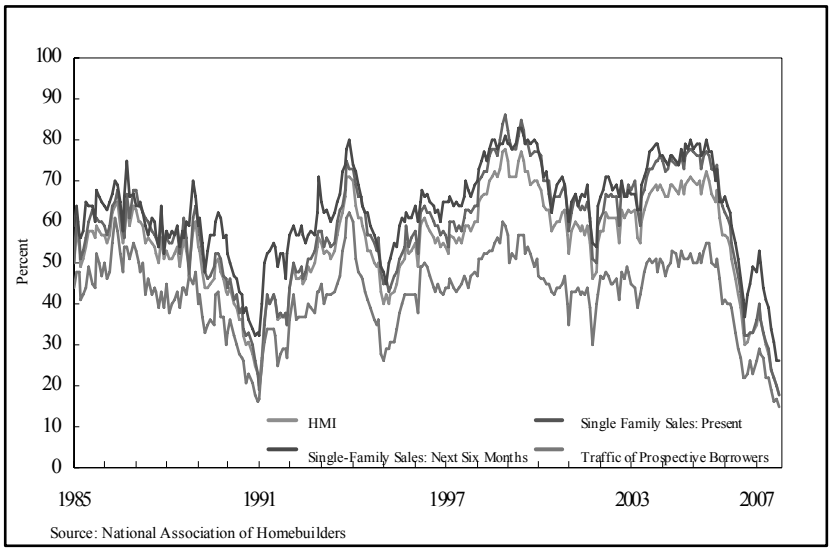
While many outstanding subprimes are hybrids, there are many other subprime borrowers who are also at high risk of default. Several studies of subprime mortgages show that cumulative default rates are very high. Estimates range from almost 18 percent to more than 20 percent.[15] Should housing prices decline further, cumulative defaults are likely to increase.

Using data on individual subprime mortgages originated between 1998 and the first three quarters of 2006, researchers at the Center for Responsible Lending estimated cumulative foreclosures of 2.2 million, with losses to homeowners of $164 billion.[16] Although this forecast tried to take account of the

effect of slowing house price appreciation, it was published in December 2006. Since that time housing prices have continued to decline.

Figure 4: Expectations About Housing Market Reached Historic Lows in October 2007

NAHB/Wells Fargo Housing Market Index (HMI) and Its Three Components Seasonally Adjusted, January 1985-August 2007



THE IMPACT OF SUBPRIME FORECLOSURES ON HOMEOWNERSHIP

In addition to property value reductions, foreclosures in the subprime market have eroded some of the gains in homeownership rates for minority households. For example, the Center for Responsible Lending (CRL) estimates that the 2005 vintage of subprime loans will lead to 98,025 foreclosures by black homeowners relative to only 50,925 new black homeowners, or a net reduction in 47,101 black homeowners.[20] Similarly, CRL estimates a net decline in homeownership among Hispanic families of 37,693.[21]

BOX A: CHARACTERISTICS OF SUBPRIME LOANS AND BORROWERS

Subprime Loans Go to Higher Risk Borrowers, Who Pay Higher Rates
Subprime mortgages are issued to higher risk borrowers. They typically have inconsistent credit histories, lower levels of income and assets, or other characteristics that increase the credit risk to lenders.[14] This is reflected in lower average FICO credit scores, and greater average loan-to-value ratios. These borrowers pay substantially higher interest rates and fees than other borrowers, and are more likely to be subject to prepayment penalties, which make it costly to refinance loans in the early years of their life (See Figure 15 in Appendix).

Subprime Loans Typically Have Higher Delinquency and Default Rates
Because of the higher risk characteristics of subprime borrowers, subprime loans typically have higher delinquency and default rates. As can be seen from Figure 11 in Appendix, the delinquency rates for subprime mortgages are usually several times that of comparable prime mortgages. The same is true for foreclosure rates, as can be seen in Figure 13 in Appendix. It is notable, however, that delinquency and foreclosure rates of subprime adjustable rate mortgages have diverged sharply from those of prime adjustable rate mortgages since 2006.

The Effects of Foreclosures and House Price Declines Will Be Significant

Foreclosures Will Harm Neighboring Home Owners and Local Housing Markets

Foreclosures can have a significant impact in a community in which the foreclosed property is located. This is particularly true when the factors that led to one foreclosure drive a concentration of foreclosures in the same neighborhood, for example in a spatial concentration of subprime lending. A concentration of home foreclosures in a neighborhood hurts property values in several ways. A glut of foreclosed homes for sale depresses home market values for the other owners. Neighboring businesses often experience a direct monetary loss from reduced sales and neighborhood landlords experience a loss or reduction in rental income. Moreover, the homes left vacant by foreclosure lower the desirability of the neighborhood since there is often an increase in crime associated with a vacant house.[17]

As concentrated foreclosures persist in a community, the value of surrounding homes may decline. Dan Immergluck and Geoff Smith survey the literature on this subject and estimate the impact of foreclosures on nearby property values using data on foreclosures and neighborhood characteristics in the Chicago area.[18] They found that conventional foreclosures have a statistically and economically significant effect on nearby property values. In particular, they found that each conventional foreclosure within a one-eighth mile of a single-family home produces at least a 0.9 percent lower property value, and may be closer to 1.5 percent in low to moderate income communities.

Similarly, Shlay and Whitman find significant affects of abandoned property on nearby housing values in Philadelphia.[19] They find that an abandoned property will lower property values on homes located within 150 feet by $7,627 (or 10.1 percent) and will lower property values on homes located within 450 feet by $3,542 (or 4.7 percent). As did Immergluck and Smith in Chicago, Shlay and Whitman find that the effects of abandoned properties on nearby home values are cumulative. They find that, on average, home values on the block decline by 9.1 percent in the case of one abandoned home on the block, and decline on average by 15.0 percent for 5 abandoned properties on the block.

Large House Price Declines Have the Potential to Reduce Growth and Employment

Should housing prices decline dramatically, the effects could be significant. To the extent that price declines reflect a decline in demand for new housing, construction activity will decline. This contraction is already under way, and has reduced residential investment sufficiently so that GDP growth has declined markedly in the past year.

House price declines can also affect economic activity through their effect on household wealth. Econometric work has established that household wealth, along with income, helps to determine the level of aggregate consumption. Higher levels of wealth lead to higher consumption, all things being equal. Since

declines in home prices reduce wealth, they reduce consumption and thus output and employment.[28] These effects occur with significant time lags.

Federal Reserve Board Governor Frederic Mishkin has reported on simulations of Federal Reserve macroeconomic models of the U.S. economy in which housing prices are assumed to experience an exogenous 20 percent decline. One model shows real GDP declining one-half percent relative to baseline after three years, another shows a GDP decline of one and one-half percent, with the largest decline occurring somewhat earlier.[29]

While these outcomes are significant, they may understate the effects of large price declines. If the price of houses were to fall 20 percent in a short period of time, we might well see a shift in overall business confidence. This could produce negative effects on credit markets, as recent events have illustrated. Higher interest rates or restrictions on business credit can in turn reduce real economic activity. In addition, business decision-making and capital investment can be affected by any changes in confidence.

BOX B: THE SUBPRIME MARKET EXPANDED RAPIDLY AND UNDERWRITING STANDARDS DETERIORATED DURING 2001-2006

Subprime Market Expanded Rapidly During 2001-2006

Subprime mortgages are a relatively new financial product. As former Federal Reserve Governor Edward Gramlich noted, they were made possible by legal changes dating from the 1980s, which eliminated the interest rate ceilings imposed by state usury laws, and by the development of a secondary mortgage market that allowed loan underwriters to fund subprime mortgages through the capital markets.[22]

Subprimes now have a substantial presence in the mortgage market. The share of subprime mortgages in total mortgage originations has risen over time, with the most rapid expansion occurring in the period 2001 to 2006. In 2001, $190 billion in subprimes were originated, about 8.6 percent of the total mortgages originated that year. By 2005, the amount of subprime originations had risen to $625 billion, about 20 percent of the total. Subprime originations declined in 2006 to $600 billion, but still made up 20 percent of all originations (See Figure 8). As a consequence, the share of subprimes in the

total number mortgages outstanding is now significant, rising from 2.6 percent in 2001 to 14.0 percent in the second quarter of 2007.[23]

In the past, borrowers who did not qualify for prime loans turned to the Federal Housing Authority (FHA) and Veterans' Administration (VA) for loans. Indeed, FHA and VA lending fell from 28.5 percent of the market in 1998 to 9.3 percent of the market (as of September 2007).[24] Lending backed by those government entities declined as housing prices rose, because FHA limits fell below median home prices in some regions. Additionally, borrowers may have been attracted to the lower initial payments available with many subprime loans.

Underwriting Standards Deteriorated As the Market Expanded

There have been significant changes in the types of subprime loans made in recent years, reflecting lower underwriting standards. As can be seen in Figure 10, between 2001 and 2006 adjustable rate mortgages (ARMs) as a share of total subprime loans originated increased from about 73 percent to more than 91 percent. The share of loans originated for borrowers unable to verify information about employment, income or other credit-related information ("low-documentation" or "no-documentation" loans) jumped from more than 28 percent to more than 50 percent. The share of ARM originations on which borrowers paid interest only, with nothing going to repay principal, increased from zero to more than 22 percent.

Over this period the share of subprime ARMs that were originated as "hybrids" increased dramatically. The share of 2- and 3-year hybrid ARM's accounted for more than 72 percent of all subprime ARM's originated in 2005 (See Figure 12 in Appendix).

Hybrid ARMS underwritten to subprime borrowers are posing the greatest problems today. For a typical 2/28 hybrid loan, the interest rate and mortgage payment are fixed during the initial two year period. After the initial two years the rate is reset every six months, with a gross margin added to an interest rate index such as LIBOR. Payments can rise substantially when they are reset at the end of the initial fixed rate period. Cagan has estimated that subprime ARMs resetting in 2008 will experience an average 31 percent payment increase.[25]

There are millions of subprime hybrids that will reset in the remainder of 2007 and in later years. Cagan has estimated that 2.17 million subprime ARMs will have their first reset between 2007 and 2009.[26] The Federal Deposit Insurance Corporation has estimated that there were about 2.1 million nonprime (i.e. subprime and Alt-A) hybrid ARMs outstanding in March of 2007.[27]

Loan Performance Has Reflected the Underwriting Decline

Although underwriting standards declined during 2001-2006, loan performance did not immediately deteriorate. In fact, subprime performance

between 2001 and 2005 was good by historical standards. As can be seen in Figures 11 and 13, aggregate delinquency and foreclosure rates declined during 2001-2005. They have since turned sharply upward. The data in Figure 14 in the Appendix, which track the delinquency rates of subprime mortgages from the time at which they were originated, tell a qualitatively similar story. Loans originated during 2001-2005 perform better than those originated in 2000. Noticeably higher delinquency rates appear for loans originated in 2006 and 2007.

It is important to notice, however, that the trends in subprime loan performance between 2001 and 2005 could hardly be characterized as normal. During this period aggregate foreclosure and delinquency rates were well below those observed during the years 1998 through 2002. Loans originated between 2001 and 2005 were performing well, but those originated in 2000 had performed less well.

Since underwriting deteriorated from 2001 to 2005, and the accelerating housing price boom was giving subprime borrowers important help (see Part II), a cautious analyst might have questioned whether the improvements in subprime performance could be sustained. The financial intermediaries who expanded the supply of these loans were apparently not troubled by this issue. The reasons for their lack of curiosity may lie in the strong incentives they had for expanding the subprime market.

PART II: STATE-LEVEL ESTIMATES OF THE ECONOMIC EFFECTS OF SUBPRIME FORECLOSURES

To better understand how subprime lending and declining housing prices may affect households and communities in the near future, we have made quantitative estimates of the potential scale of foreclosures and their costs at the state and national levels. We first discuss entirely forward looking, state level estimates, covering the second quarter of 2007 through the end of 2009. We estimate the number of foreclosures, the loss in housing value that directly results from each foreclosure, the effect that a foreclosure has on the value of neighboring houses, and the state and local government tax revenues that will be lost as housing values decline.

As is made clear below, these state level estimates rely on housing price forecasts which show moderate housing price declines. It was necessary to use these forecasts to obtain state level results. However, it is quite possible that housing price

declines will be substantially larger. Therefore we also present national level foreclosure and property loss estimates, assuming larger future housing price declines. This allows us to learn about the scale of economic damage if the housing market evolves in a less favorable way.

The results of the state level estimates, although based on forecasts of moderate housing price decline, are quite sobering. We estimate there will be approximately 1.3 million foreclosures and a loss of housing wealth of more than $103 billion through the end of 2009 (including approximately $71 billion in direct costs to homeowners and $32 billion in indirect costs caused by the spillover effects of foreclosures). The estimated aggregate cumulative subprime foreclosure rate for this period is 18 percent (See Figures 5 and 6). The total loss in property tax revenue is also high, amounting to more than $917 million. The ten states with the greatest number of estimated foreclosures, in descending order, are California, Florida, Ohio, New York, Michigan, Texas, Illinois, Arizona, Pennsylvania and Indiana.[30] There are, unfortunately, several others that are close behind in the rankings.

The effects of larger price declines could considerably increase the magnitude of these damages. For example, Moody's forecasts that, in the aggregate, housing prices will decline by about 6.9 percent between Q3 2007 and Q2 2009 and rise mildly thereafter. If we instead assume that the aggregate price decline is 20 percent over that period, the total number of foreclosures for the period beginning in the first quarter of 2007 and extending through the final quarter of 2009 would be nearly 2 million and the loss of property values would total about $106 billion.

Several assumptions are necessary to make the state level estimates, and we have been deliberately conservative when making them. We have assumed that all foreclosures over the 2007-2009 period will come from the stock of subprime mortgages outstanding at the end of the second quarter of 2007. This is a very conservative assumption. The growth in the

outstanding stock of subprime loans through the second quarter of 2007 indicates that incremental subprime loans are still being made. However, because we cannot forecast the course of future lending, we assume that all foreclosures come from the existing stock. This biases our estimates downward. We also assume that once a mortgage enters foreclosure it is foreclosed within a year. Although there are variations across jurisdictions, the average maximum amount of time to foreclose is less than a year.[31]

To estimate the numbers of mortgages that will be foreclosed, we begin by examining what determines the fraction of mortgages in foreclosure (foreclosure rate) during a year. It is reasonable to suppose that, holding the risk characteristics of borrowers constant, the foreclosure rate will depend heavily on house price appreciation and the economic fortunes of borrowers.[32] If house prices appreciate, refinance or sale is easier. If general economic conditions are good, it is more likely that households will be able to meet their financial commitments. As it turns out, both these factors are significant determinants of the foreclosure rate.

Figure 7 shows the results of state-level cross sectional regressions of subprime foreclosure rates for 2006 on two independent variables – cumulative housing price appreciation between 2004 and 2006, and cumulative employment growth in the same period. The cumulative housing price appreciation variable is an index of changes in home equity, and the cumulative employment growth variable is an index of the ease of finding employment and the overall performance of the real economy. Both variables are statistically significant. The significance of the employment variable highlights the importance of developments in the real economy for loan outcomes. However, we do not attempt to estimate changes in employment when we use these results. If employment growth were to slow during our forecast period, foreclosure rates likely would be higher than our estimates.

Figure 5: Impact of Subprime Foreclosures on Home Equity, Property Values and Property Taxes

State	Estimated Outstanding Subprime Loans	Average Home Value (2007–Q2)	Estimated Total Subprime Foreclosures 3Q07–4Q09	Estimated Cumulative Loss of Property Value (in 2007 dollars)			Estimated Cumulative Loss of Property Taxes (in 2007 dollars)		
				Total	Direct	Neighborhood	Total	Direct	Neighborhood
Alaska	13,590	$261,329	1,010	$67,254,739	$58,986,920	$8,267,817	$699,045	$613,110	$85,936
Alabama	79,483	$129,986	8,054	$308,795,701	$260,406,362	$48,389,418	$946,589	$798,255	$148,334
Arkansas	38,765	$116,390	3,966	$118,170,828	$102,917,482	$15,253,346	$590,225	$514,039	$76,186
Arizona	250,799	$247,412	52,372	$2,852,375,215	$2,516,539,104	$335,836,112	$14,665,912	$12,939,161	$1,726,751
California	1,030,920	$446,800	191,144	$23,673,462,592	$18,213,499,917	$5,459,962,675	$110,921,021	$85,338,594	$25,582,427
Colorado	159,845	$248,141	27,820	$1,781,086,893	$1,505,046,353	$275,990,539	$10,300,802	$8,704,583	$1,596,218
Connecticut	83,575	$282,815	14,079	$1,406,560,135	$874,646,011	$530,914,124	$10,040,191	$11,848,249	$7,191,941
D.C.	11,356	$370,114	1,971	$256,200,921	$145,777,520	$110,431,394	$943,589	$536,882	$406,706
Delaware	23,595	$232,700	3,691	$221,056,208	$185,506,098	$35,550,110	$840,033	$704,940	$135,094
Florida	708,195	$251,031	137,341	$12,128,824,487	$8,262,592,951	$3,866,231,537	$89,572,368	$61,019,930	$28,552,438
Georgia	254,783	$182,552	36,753	$2,007,510,628	$1,479,514,992	$528,003,636	$14,736,313	$10,860,470	$3,875,843
Hawaii	26,608	$529,346	3,638	$928,771,180	$422,825,372	$505,945,758	$2,119,850	$965,067	$1,154,783
Iowa	38,270	$116,251	8,137	$257,523,984	$210,571,376	$46,952,608	$3,238,490	$2,648,038	$590,452
Idaho	34,033	$202,041	5,853	$204,680,754	$244,060,296	$40,620,458	$2,208,955	$1,891,132	$314,823
Illinois	286,846	$241,929	59,328	$5,319,586,969	$3,176,243,537	$2,143,343,432	$81,334,944	$48,563,843	$32,771,100
Indiana	167,343	$123,346	38,626	$1,371,531,634	$1,061,769,291	$309,762,323	$12,783,538	$9,896,358	$2,887,180
Kansas	45,531	$126,347	5,948	$199,985,858	$166,701,815	$33,284,043	$2,450,836	$2,042,972	$407,904
Kentucky	69,400	$124,907	13,428	$504,632,385	$371,735,302	$132,897,083	$3,404,997	$2,508,376	$896,621
Louisiana	82,440	$137,506	13,372	$497,167,560	$411,640,239	$85,527,322	$775,876	$642,403	$133,473
Massachusetts	115,780	$323,303	22,292	$3,009,182,395	$1,557,268,422	$1,451,913,973	$25,966,435	$13,432,701	$12,523,934
Maryland	168,430	$308,530	25,057	$2,732,661,008	$1,599,628,344	$1,133,032,664	$19,055,963	$11,154,863	$7,901,100
Maine	24,460	$185,475	5,583	$296,733,417	$224,333,232	$72,400,186	$3,076,978	$2,326,224	$750,754
Michigan	275,931	$141,914	65,607	$3,081,807,231	$2,076,307,211	$1,005,500,019	$39,643,339	$26,708,923	$12,934,416
Minnesota	121,471	$220,848	27,871	$1,626,786,871	$1,345,008,024	$281,783,847	$13,908,168	$11,499,065	$2,409,103
Missouri	144,630	$142,012	19,594	$799,362,087	$612,901,071	$186,461,017	$6,793,669	$5,208,962	$1,584,707
Mississippi	52,241	$112,309	7,927	$233,808,373	$200,777,043	$33,031,330	$1,153,208	$990,289	$162,920
Montana	10,970	$209,270	1,266	$63,027,105	$60,665,000	$2,362,105	$555,693	$534,666	$20,027
North Carolina	100,303	$172,531	22,977	$1,130,190,663	$876,614,762	$261,575,901	$8,611,693	$6,632,115	$1,979,578
North Dakota	3,848	$117,971	499	$13,613,289	$13,122,445	$490,793	$196,074	$189,025	$7,069
Nebraska	25,105	$120,894	3,249	$112,731,544	$87,343,376	$25,388,168	$1,919,841	$1,485,772	$434,069
New Hampshire	30,544	$250,101	4,302	$461,256,428	$231,094,893	$230,161,535	$3,534,584	$3,774,915	$3,759,669
New Jersey	179,073	$333,803	35,117	$6,306,612,220	$2,475,729,646	$3,830,882,574	$99,312,800	$38,986,326	$60,326,473
New Mexico	32,598	$184,917	4,882	$223,836,424	$204,488,218	$19,348,207	$1,184,377	$1,092,589	$91,778
Nevada	134,528	$280,575	20,890	$1,890,032,156	$1,617,296,543	$92,735,612	$8,144,318	$7,040,194	$104,124
New York	364,433	$358,598	67,836	$9,415,468,234	$5,116,483,447	$4,298,984,826	$102,440,543	$55,667,475	$46,773,068
Ohio	293,566	$134,668	82,197	$3,678,841,205	$2,470,687,248	$1,208,153,957	$46,529,722	$31,249,077	$15,280,645
Oklahoma	70,204	$110,006	11,156	$319,256,532	$273,411,233	$45,845,299	$2,287,161	$1,958,724	$328,437
Oregon	88,415	$267,676	12,625	$852,241,323	$719,774,955	$132,466,368	$7,189,661	$6,072,151	$1,117,510
Pennsylvania	274,329	$161,098	45,470	$2,820,875,596	$1,616,915,771	$803,959,825	$34,395,788	$22,906,307	$11,389,481
Rhode Island	26,033	$269,181	5,033	$662,456,660	$328,832,356	$333,624,304	$7,137,593	$3,542,982	$3,594,611
South Carolina	99,118	$168,118	16,810	$777,434,079	$626,257,682	$151,176,397	$4,465,160	$3,596,880	$868,276
South Dakota	6,192	$127,871	880	$26,826,229	$25,279,391	$1,546,838	$350,218	$330,024	$20,194
Tennessee	163,053	$138,636	10,133	$706,993,104	$561,518,235	$145,474,869	$4,939,188	$3,922,873	$1,016,315
Texas	536,228	$147,533	61,339	$2,641,781,864	$2,028,046,512	$613,735,352	$49,174,220	$37,750,129	$11,424,091
Utah	73,934	$249,796	11,324	$611,349,592	$579,487,942	$31,861,651	$3,841,975	$3,642,935	$199,040
Virginia	103,371	$269,724	25,752	$2,190,332,023	$1,439,482,210	$750,850,613	$14,088,415	$9,225,183	$4,863,232
Vermont	6,289	$202,856	1,316	$73,332,809	$56,894,221	$16,438,588	$1,153,567	$894,979	$258,588
Washington	156,830	$304,081	21,282	$1,751,422,346	$1,411,662,184	$339,760,161	$15,419,847	$12,428,536	$2,991,311
Wisconsin	83,645	$164,214	17,688	$840,565,572	$638,177,777	$202,387,795	$14,626,355	$11,104,684	$3,521,671
West Virginia	19,706	$131,703	1,733	$60,805,973	$52,026,965	$8,779,007	$286,066	$244,765	$41,301
Wyoming	7,971	$180,971	973	$40,189,745	$39,468,001	$721,744	$213,769	$209,931	$3,839
United States	7,366,460	$252,777	1,324,291	$103,041,748,445	$70,839,860,303	$32,201,888,142	$917,056,256	$599,640,662	$317,415,594

Sources: Number of outstanding subprime mortgages and current subprime foreclosure rates from Mortgage Bankers Association survey data; average home value calculated using the 2006 Home Mortgage Disclosure Act (HMDA) data for subprime first-lien loans and loan-to-value ratios courtesy of the Center for Responsible Lending; historical home price indices from the Office of Federal Housing Enterprise Oversight (OFHEO); forecasts of OFHEO price indices from Moody's Economy.com; Congressional Budget Office (CBO) forecasts of personal consumption expenditure deflators; state property tax rates from U.S. Census Bureau and the Tax Foundation; state household densities, by MSA, from the U.S. Census Bureau.

Figure 6: Projected Economic Costs of the Subprime Mortgage Crisis State-by-State

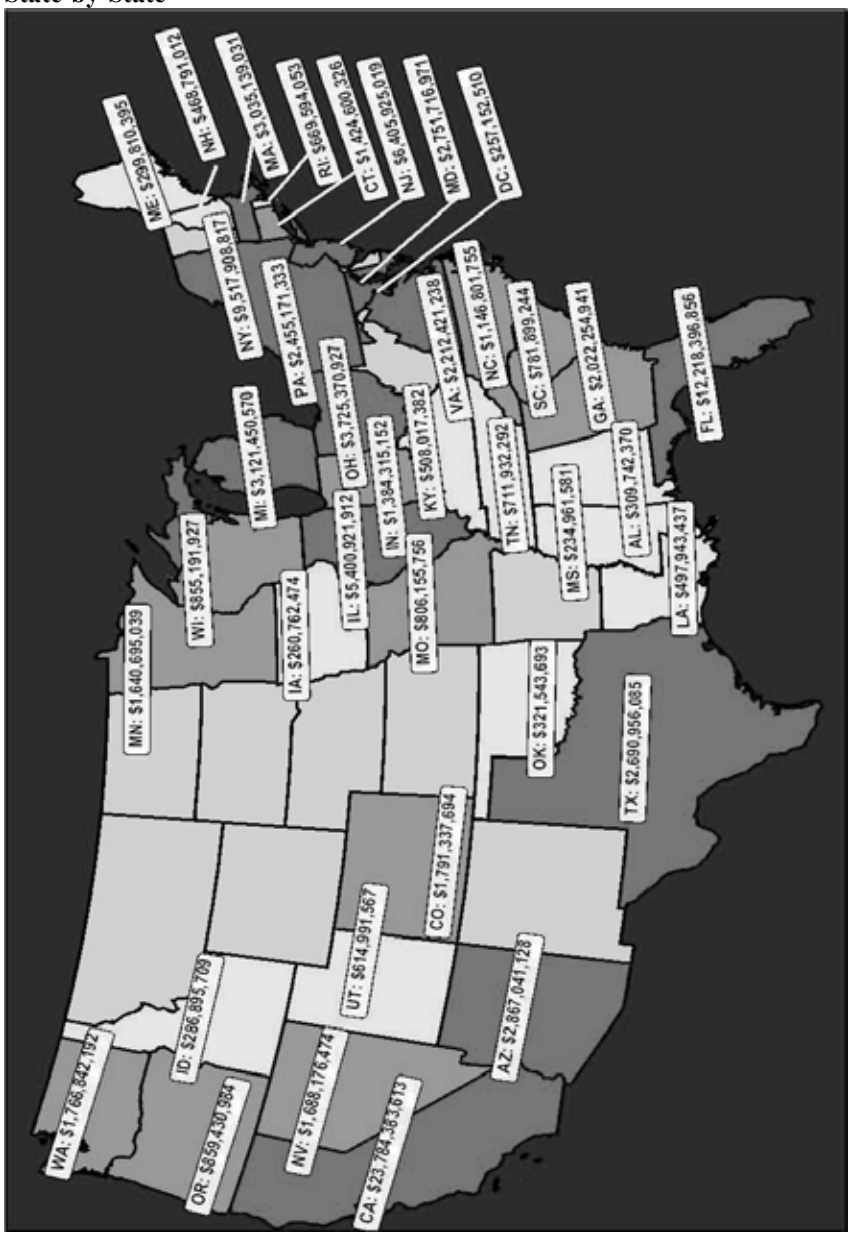


Figure 7: State-Level Foreclosure Rate Regressions

Independent Variable	Dependent Variable	
	Foreclosure Rate ARM	Foreclosure Rate FRM
House Price Appreciation (2004-2006)	-14.80 **	-9.27 **
	(2.058)	(1.655)
Employment Growth (2004-2006)	-19.22 **	-11.19 *
	(5.930)	(5.384)
Constant	8.88 **	5.42 **
	(0.570)	(0.523)
Observations	51	51
R^2	0.712	0.490

* Significant at 95% level.
** Significant at 99% level.

Data Sources: Foreclosure rate are Mortgage Bankers Association "foreclosure inventory"; House Price Appreciation is calculated from Office of Federal Housing Enterprise Oversight housing price indices; Employment Growth is calculated from Bureau of Labor Statistics "employees on non-farm payrolls," seasonally adjusted. All data accessed via Haver Analytics.

To estimate future foreclosure rates, we use current foreclosure rates, the coefficients on house price appreciation reported in Figure 7, and estimates of future housing prices. That is, we calculate foreclosure rates according to $FC_t = FC_{t-1} + b(DHPA_t)$, where FC_t is the foreclosure rate in year t, FC_{t-1} is the foreclosure rate in the previous year, $DHPA_t$ is the change in cumulative two-year housing price appreciation between years t and t-1, and b is the estimated coefficient of HPA (house price appreciation) as reported in Figure 7. The values for the variable $DHPA_t$ are calculated using forecasts of state-level housing price indices from the Office of Federal Housing Enterprise Oversight (OFHEO). The forecasts were produced by Moody's Economy.com. We estimate foreclosure rates separately for fixed rate and adjustable rate mortgages. These foreclosure rates are used to calculate the absolute number of foreclosures in a given period. [33]

Using our estimates of the number of subprime foreclosures, we then estimate the associated economic costs. Research has shown that foreclosure causes a decrease in the value of the foreclosed house.[34] We estimate this direct loss in housing wealth by discounting the average loan value of a subprime mortgage. We apply a 22 percent discount rate to the average home value associated with subprime loans (net of the loss due to the decline in home prices) to calculate this loss. [35]

Foreclosures also affect the values of neighboring houses. We estimate the effect of a foreclosure on surrounding house prices as 0.9 percent of the value of all single family houses within 1/8th mile of a foreclosed house.[36] We use MSA-level population densities to estimate the number of houses within one-eighth mile of each foreclosed house.[37]

The loss in property taxes caused by housing price losses is calculated by assuming that average state property tax rates remain unchanged through the end of 2009. Tax losses are calculated by applying existing property tax rates to the change in housing values caused by foreclosure (net of the loss due to the decline in home prices).

We conclude by noting that the forecast values for housing prices clearly play a pivotal role in this analysis, and that the price forecasts we have used are likely to be conservative. The Moody's data are forecasts of future values of OFHEO housing price indices. However, in recent quarters the OFHEO indices have not reflected the same downward movement in housing prices registered in other price measures. For example, the national OFHEO index had not peaked by the second quarter of 2007, but the S&P/Case-Shiller® U.S. national home price index peaked in the second quarter of 2006 and had declined by 3.2 percent by the end of the second quarter of 2007. Therefore it is possible that the price forecasts we have used will not pick up all of the likely housing price declines over the near term.

To account for this possibility, we have applied the procedure developed for state level estimates to aggregate foreclosures, assuming a 20 percent decline in aggregate home prices. A price decline of that amount is not out of the question. When simulating the possible macroeconomic effects of housing price declines, the Federal Reserve recently assumed a 20 percent decline in aggregate housing prices.[38] Moreover, futures contracts based on the S&P/Case-Shiller® indices are predicting that housing prices may decline as much as 10 percent over the coming year.[39] Since the S&P/Case-Shiller® indices already show a 3.2 percent decline over the past year, calculating

subprime foreclosures by assuming a 20 percent decline in the OFHEO price indices over two years seems unfortunately plausible. Under these assumptions, the number of foreclosures for the period covering the third quarter of 2007 through the end of 2009 is approximately 1.66 million, and the associated property loss is about $106 billion.[40] If we add in an estimate of foreclosures in the first half of 2007, the foreclosure total rises to approximately 2 million.

PART III: THE ORIGINS OF THE SUBPRIME LENDING CRISIS

The discussion above highlights the potential economic damage that could result if subprime foreclosures are allowed to proceed unchecked. In this section we investigate the underlying causes of the subprime mortgage crisis in an effort to identify policy approaches that could prevent the reoccurrence of such a threat to homeownership, household wealth, and the broader economy.

Financial Intermediaries Drove The Expansion Of The Subprime Market

Most Lending Organizations Make Few Subprime Loans

The expansion of subprime mortgages during the years 2001 through 2006 came, for the most part, through a well defined channel of financial intermediaries. The intermediaries in this channel – brokers, mortgage companies, and the firms that securitize these mortgages and sell them on to the capital markets – had strong incentives to increase the supply of these loans. One outcome was a significant increase in the rate of homeownership. From 1994 to 2005, the overall homeownership rate rose from 64 to 69 percent.[41] However, since brokers and mortgage companies are only weakly regulated, another outcome was a marked increase in abusive and predatory lending.

Most Subprime Loans Are Originated Through Mortgage Brokers

The mortgages underwritten by subprime lenders come from many sources, but the overwhelming majority is originated through mortgage brokers. For 2006, Inside Mortgage Finance

estimates that 63.3 percent of all subprime originations came through brokers, with 19.4 percent coming through retail channels, and the remaining 17.4 percent through correspondent lenders.[42] Their data show the broker share increasing from 2003 through 2006.[43,44] For the mortgage market in total, Inside Mortgage Finance estimates that 29.4 percent of mortgages were originated by brokers in 2006. This percentage does not change much between 2003 and 2006.[45]

Independent Mortgage Companies and Other Mortgage Specialists Account for Most Subprime Lending

Most subprime loans are made by companies that specialize in mortgage lending. Using 2005 Home Mortgage Disclosure Act (HMDA) data, former Federal Reserve Governor Edward Gramlich concluded that "30 percent of [subprime] loans are made by subsidiaries of banks and thrifts, less [*sic*] lightly supervised than their parent company, and 50 percent are made by independent mortgage companies, state-chartered but not subject to much federal supervision at all."[46]

Because they are not deposit-taking institutions, the independent mortgage companies and bank subsidiaries are not subject to the safety and soundness regulations that govern federal or state banks. These entities are less closely monitored under the Home Owners' Equity Protection Act (HOEPA) and the Community Reinvestment Act. They are state-chartered and subject to state law. Some states have tried to apply federal predatory lending advisories to all lenders or regulate brokers or lenders in their state, but the resources that states have for oversight are far fewer than those of the federal government.[47]

Most Subprime Loans are Securitized via Non-Agency Conduits to the Capital Markets

Lenders hold only a fraction of the subprime loans they make in their own portfolios. Most are sold to the secondary market, where they are pooled and become the underlying assets for residential mortgage backed securities. As can be seen from the data in Figure 8, the percentage of subprime mortgage securitized rose rapidly after 2001, reaching a peak value of more than 81

percent in 2005. Deposit-taking institutions such as banks and thrifts, which deal mostly in lower-priced mortgages, sell their mortgages primarily to government sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac. Independent mortgage companies, however, make their secondary market sales primarily to other financial market outlets (See Figure 9).[48] Hence whatever influence the GSEs have on lender underwriting standards is missing from much of the subprime market since securitization is done by other market participants.

Figure 8: Mortgage Origination Statistics

	Total Mortgage Originations (Billions)	Subprime Originations (Billions)	Subprime Share in Total Originations (percent of dollar value)	Subprime Mortgage Backed Securities (Billions)	Percent Subprimes Securitized (percent of dollar value)
2001	$2,215	$190	8.6	$95	50.4
2002	$2,885	$231	8.0	$121	52.7
2003	$3,945	$335	8.5	$202	60.5
2004	$2,920	$540	18.5	$401	74.3
2005	$3,120	$625	20.0	$507	81.2
2006	$2,980	$600	20.1	$483	80.5

Source: Inside Mortgage Finance, The 2007 Mortgage Market Statistical Annual, Top Subprime Mortgage Market Players & Key Data (2006).

MARKET INCENTIVES FACILITATED PREDATORY LENDING

Broker and Lender Incentives Work Against Borrowers

Mortgage brokers are salesmen who want to maximize their net income. Their interest in providing the least expensive mortgage is limited. In fact, lenders provide them incentives to do the opposite. Lenders sometimes pay brokers so-called "yield-spread premiums," when they sell loans with interest rates above the minimum acceptable rate for the loan.[49] Some brokers may also receive higher fees for selling mortgages with prepayment penalties.[50]

Moreover, since mortgage brokers bear little or no risk when a borrower defaults, they have no economic incentive to originate loans that a borrower can afford in the long term. Brokers also lack strong legal incentives to act in the interest of borrowers.

Under state law brokers are not fiduciaries, who must put the interest of their clients first. Nor do they have a duty to sell their clients products which are at least suitable to their circumstances, as registered securities brokers do.

Figure 9: Subprime Lenders Usually Securitize Loans Through Non-GSE Conduits (Percent Distribution)

Higher-Priced Specialized Lender Percent Sold in 2004	Not Sold	GSE	Private	Bank or Thrift	Mortgage Company	Affiliate Institution	Other Conduits	Total
Deposit Taking Organizations								
Credit Unions	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5
CRA-Regulated Lenders								
Assessment Area Lenders	1.4	0.0	0.0	0.1	0.0	0.0	1.0	2.6
Outside Assessment Area	4.1	0.0	0.0	0.7	0.0	0.3	8.3	13.5
Independent Mortgage Bankers	12.6	0.1	1.7	0.6	12.4	1.6	54.4	83.4
All Loans	18.4	0.1	1.7	1.5	12.5	1.9	63.8	100.0

Lower-Priced Specialized Lender Percent Sold in 2004	Not Sold	GSE	Private	Bank or Thrift	Mortgage Company	Affiliate Institution	Other Conduits	Total
Deposit Taking Organizations								
Credit Unions	5.6	1.3	0.0	0.1	0.3	0.1	0.4	7.8
CRA-Regulated Lenders								
Assessment Area Lenders	18.8	11.6	0.0	0.9	0.5	2.3	2.9	37.0
Outside Assessment Area	8.6	10.1	0.1	1.0	1.0	2.8	5.4	29.0
Independent Mortgage Bankers	1.5	5.6	0.5	2.1	6.0	0.2	10.4	26.2
All Loans	34.5	28.5	0.6	4.0	7.8	5.5	19.1	100.0

Source: Apgar, et al. 2007.
Note: Higher-Priced Specialized Lenders are, approximately, firms that specialized in subprime lending. Lower-Priced Specialized Lenders tend to make few subprime loans. See the discussion in Apgar et al. (2007).

Because mortgage companies sell many of the loans they underwrite to the secondary market, they have an interest in underwriting loans that are desired by the secondary market investors.[51] This observation has special weight because of developments in non-mortgage financial markets. In recent years, as hedge funds have proliferated and the market for structured financial products has expanded, there has been significant demand for high-yield assets that can underlie

collateralized debt obligations (CDOs) and other financial derivatives. Subprime mortgages have, until recently, been considered terrific assets to include in CDO structures. Hence subprime lenders have had a strong incentive to underwrite high-yielding subprime mortgages, whether or not these loans were best interests of the borrowers.

Predatory Lending Practices

Given the financial incentives for brokers and lenders to provide an increasing volume of high yield mortgages, it is no surprise that tactics were invented to meet the demand. The rapid expansion of 2/28 and 3/27 hybrid ARMs, and the imposition of prepayment penalties, are examples of financial innovations that were widely adopted by subprime lenders.[52] Both made it possible for loan originators to expand lending—hybrid ARMs by allowing credit-constrained borrowers to pay initially low rates on mortgages, and prepayment penalties by raising returns on loans. However, both innovations can have abusive or predatory results.

Figure 10: Underwriting Standards in Subprime Home-Purchase Loans

	ARM Share	IO Share	Low-No-Doc Share	Debt Payments-to-Income Ratio	Average Loan-to-Value Ratio
2001	73.8%	0.0%	28.5%	39.7	84.04
2002	80.0%	2.3%	38.6%	40.1	84.42
2003	80.1%	8.6%	42.8%	40.5	86.09
2004	89.4%	27.2%	45.2%	41.2	84.86
2005	93.3%	37.8%	50.7%	41.8	83.24
2006	91.3%	22.8%	50.8%	42.4	83.35

Source: Freddie Mac, obtained from the International Monetary Fund via http://www.imf.org/external/pubs/ft/fmu/eng/2007/charts.pdf.
Notes: "ARM" represents "adjustable rate mortgages"; "IO" represents interest-only mortgages, where payments do not retire the principal value of the loan; "Low-No-Doc" represents low or no documentation mortgages.

In the abstract, ARM loans need not work to the disadvantage of borrowers. Subprime hybrid ARMs, however, have frequently been made on the basis of the borrower's ability to pay at the low initial rate rather than the reset rate. This is reflected in public disclosures of lenders, who make it clear that they qualify

borrowers for loans on the basis of their ability to make payments at or near the initial rate.[53] It is also reflected in loan performance. When hybrids reset there is a dramatic rise in prepayments as borrowers refinance and an increase in the default rate. Prepayments and defaults are very sensitive to the size of these shocks. Pennington-Cross and Ho estimate that "a one-standard-deviation increase in the size of the shock is associated with an almost 50 percent increase in the probability of prepaying and more than a 25 percent increase in the probability of defaulting."[54] By underwriting hybrid loans on the basis of the initial rate, lenders make it more probable that a subprime borrower must sell, refinance or default at reset. This means there is increased lender reliance on asset values and prepayment fees to provide earnings, and less consideration of borrower ability to pay.

Mortgage lending on the basis of asset value, without regard to borrower ability to pay, is widely recognized as predatory and harmful to borrowers. HOEPA recognizes asset-based mortgage lending as predatory, as do several state statutes.[55] Several researchers also regard asset-based mortgages as predatory.[56] However, HOEPA coverage is limited. Because HOEPA applies only to loans that have an annual percentage rate that exceeds a very high threshold, less than one percent of subprime loans are covered.[57] Currently at least 41 states have laws which restrict predatory mortgage lending, but the terms and enforcement of these statutes are uneven.[58]

Moreover, unscrupulous originators can evade state law by falsifying information or making "no documentation" loans that make loans appear affordable even when they are not.[59] The remarkable expansion of low document and no document loans, observable in Figure 10, is likely to reflect something more than risk-taking by lenders. It may also measure the determination of originators to evade state controls on predatory lending.

Prepayment penalties, which are frequently imposed on all types of subprime loans at a very high relative and absolute rate (See Figure 15), have the potential to strip housing equity from

subprime borrowers. As Farris and Richardson note: "The typical penalty is six months' interest on up to 80 percent of the original mortgage balance. For a subprime loan at 12 percent interest, this means that a prepayment penalty amounts to nearly 5 percent of the loan balance. For a $150,000 loan, the fee is $7,500, which was about 40 percent of the total net wealth of the median black family in 2001."[60] Hence, sale or refinance during the penalty period, which often lasts three or more years, is very costly to subprime borrowers. A subprime 2/28 borrower with the example $150,000 mortgage, who began with $15,000 in equity, would have no equity after two refinancings (even ignoring closing costs and other fees), unless the price of his house had appreciated.

Prepayment penalties also raise the likelihood that a subprime borrower will default. In a study of subprime refinance loans originated in 1999, Quercia et al. concluded that prepayment penalties raise the odds of foreclosure, risk factors held constant.[61] This most likely results from the fact that prepayment penalties prevent subprime borrowers from refinancing their loans when interest rates decline or their credit standing improves.

Prepayment penalties are sometimes explained as a means of compensating lenders for unanticipated interruption to the stream of mortgage payments. However, it is also usually understood that a prepayment penalty should lower the interest rate on the loan, all things being equal, since the lender has insurance against early payment. This does not appear to be the case in the subprime market. Borrowers with prepayment penalties do not receive lower interest rates compared to similar borrowers without penalties.[62]

There is also evidence that the sales effort of mortgage brokers and mortgage companies has meant that subprime loans are more likely to be sold to more vulnerable members of the population, even when those borrowers might qualify for less expensive mortgages. In a study of a random sample of borrowers who took out mortgages during 1999 and 2000, Courchane et al.

examined whether factors other than credit risk indicators (such as FICO score and the loan to value ratio) explain who receives a subprime loan.[63] Their results show that those who do not search for the best price, who are not offered choices about mortgage terms, who obtain their mortgage through a broker, who are Hispanic, or are older than 65 are more likely to obtain a subprime mortgage, credit risk factors held constant.[64] A second study by Lax et al. reaches very similar conclusions.[65]

PART IV: POLICY RESPONSES

The following section proposes several policy options that lawmakers should consider to reduce foreclosures and prevent future foreclosure epidemics and associated economic losses.

Increase Resources For Nonprofit Housing Counselors Specializing In Foreclosure Prevention

There is a broad consensus among the Administration, Congress, private sector participants and consumer protection groups that the role of housing counselors as intermediaries between borrowers and lenders/loan servicers is critical in helping prevent foreclosures. Housing counseling agencies across the country are working on behalf of struggling borrowers to negotiate safe and affordable loan modifications and refinancings in an effort to prevent foreclosures. Because of the often competing incentives of the market players involved in the securitization of subprime loans, borrowers are often at a loss when it comes to figuring out how they can financially mitigate an unaffordable rate reset. Nonprofits that specialize in foreclosure prevention have been highly effective in acting on behalf of borrowers to explore their options with their lenders.

In the FY2008 Senate Transportation, Housing and Urban Development (HUD) Appropriations bill, a $100 million appropriation targeted to HUD-certified foreclosure-avoidance nonprofits was approved. The bill also included $100 million in loss mitigation funding for both nonprofits and private entities. This is a significant additional funding stream targeted to preventing foreclosures, but more resources are urgently needed.

Direct Servicers And Lenders To Make Safe And Sustainable Modifications, Or Refinancing

The most effective way to help prevent foreclosures for hybrid ARM borrowers that cannot afford their payments after the rate reset is to modify the terms of their loan to make them affordable. The Center for Responsible Lending (CRL) estimates that 20 percent of existing borrowers that were able to repay their loans before their rates reset but cannot refinance to conventional loans could afford their loans over the life of the mortgage if their current "teaser" interest rate was fixed at that rate. CRL estimates that another 20 percent of borrowers—those unable to pay the teaser rate because they may have been placed into stated income loans they could not afford, for example—could afford their mortgages only if their principal balance or interest rate was reduced to make it possible for them to afford the lower payments on the reduced loan balance. Legislation is currently pending in Congress to temporarily change the tax law to let homeowners avoid paying taxes on any forgiven debt in loans being restructured by financial institutions.

The federal regulators have issued guidance to lenders and servicers to engage in loss mitigation efforts prior to pursuing foreclosures, and lawmakers should put pressure on the private sector players to step up their efforts to help subprime ARM borrowers before their loan resets. Policymakers should also emphasize the importance of servicers developing a rules-based approach to doing loan modifications so that the servicers can handle the volume of borrowers whose loans are due to reset. Policymakers may also consider requiring specific loss mitigation efforts prior to any foreclosure filing by creating an affirmative duty for lenders and servicers prior to foreclosure.

Increase FHA's Ability To Refinance

Congress is currently working to pass the Federal Housing Administration's (FHA) Modernization Act of 2007, which would increase FHA's capacity and flexibility to insure subprime mortgages that can be refinanced. The proposal is designed to make FHA-insured loans a more attractive option to lenders and borrowers by increasing allowable loan limits and lowering

down-payment requirements. The Administration has backed the proposal.

Expand Capability of Government Sponsored Enterprises to Refinance Subprime Borrowers

Expanding the near-term capabilities of the government sponsored enterprises (GSEs) Fannie Mae and Freddie Mac to help subprime borrowers through refinancings could help curb the pace and volume of foreclosures. Both Fannie Mae and Freddie Mac have specialized, affordable loan products that they make available to subprime borrowers. Both of the GSEs are currently constrained by portfolio limits imposed upon them by their safety and soundness regulator, the Office of Federal Housing Enterprise Oversight. Temporarily raising the GSE portfolio limits, if the increase is focused on the key problem of refinancing subprime ARMs, could provide much needed funding to mortgage lenders who will be able to refinance struggling borrowers in safe and sustainable loan products.

Amend the Bankruptcy Code to Protect Families from Foreclosure

Many of today's subprime borrowers have loans that are greater than the value of their homes, which means foreclosure will not extinguish their debts. Bankruptcy could be a highly effective tool for helping families recover from subprime loans, but today's bankruptcy code prevents courts from providing relief on mortgage loans. In fact, the law singles out the home mortgage loan as the one debt the courts are not permitted to modify. To address the subprime crisis, policymakers could amend the bankruptcy code to either temporarily or permanently exclude primary home loans from the remedies that are available on other, less important debts. This would allow borrowers to pay the fair market value of their home and to keep that home, rather than seeing the home sold to a third party for its liquidation value.

Reform Mortgage Lending and Ban Predatory Lending Practices

The prevalence of predatory lending that helped fuel the volume

of risky subprime loans was enabled by a patchwork of federal and state regulations that was all-too-easily evaded by subprime mortgage brokers and lenders. Federal laws are needed that would offer predatory lending protections to homeowners, restore common sense underwriting practices and ensure a borrower's ability to pay. At a minimum, the federal government should require lenders to determine that the borrower has the ability to repay a loan at the fully-indexed rate and assume fully amortized payments. Federal banking regulators have issued strong guidance requiring depository banks and their affiliates to underwrite loans at the fully indexed interest rate, but a clear federal standard is needed that apply this requirement to the whole mortgage market. Policymakers should also require lenders to verify a borrower's income using tax documents or other reasonable documentation.

Policymakers may also want to require mortgage lenders to escrow for taxes and insurance on all mortgage loans. Failing to escrow for taxes and insurance on a subprime loan is an unfair and deceptive practice that contributes to high rates of foreclosure.[64] Furthermore, eliminating prepayment penalties and yield-spread premiums on subprime loans would help discourage steering of borrowers into unnecessarily expensive loans.

Policymakers should also consider regulating mortgage brokers and originators under the existing Truth in Lending Act (TILA) by establishing a fiduciary duty between brokers and their customers, and a duty of good faith and fair dealing standard for all originators. An important takeaway from the subprime mortgage crisis is that too often mortgage originators have no incentive to act in the borrowers' best interest. Instead their interests are aligned with securitizers that repackaged the subprime loans into securities designed to maximize attractiveness to investors.

Make Sure All Borrowers Understand the Terms of Their Mortgages

The current subprime mortgage crisis has made it clear that the mortgage finance system does not require that borrowers

understand how their loans work. As explained above, subprime mortgage origination has been accompanied by a rise in predatory lending practices that can lead borrowers to believe that they can afford their loans or refinance before they reset to a much higher payment. Policymakers should consider requiring that all mortgage lenders disclose the basic facts about the mortgage loan that they underwrite for the borrower. This form should be easy to understand and not exceed one page in length.

The borrower should receive this one-page form from the lender well before the closing of his or her loan. At a minimum, the form should require that the borrower know the amount of the loan, the property's appraised value, the term of the loan, the payments at each reset date, and today's estimate of how much the rate will increase (the fully indexed rate), as well as the maximum possible rate on the loan. Other disclosures would include, in plain language, any prepayment fees and other estimated costs and fees due at closing.

APPENDIX:

Figure 11: Comparison of Prime Versus Subprime Delinquency Rates, Total US 1998-2007

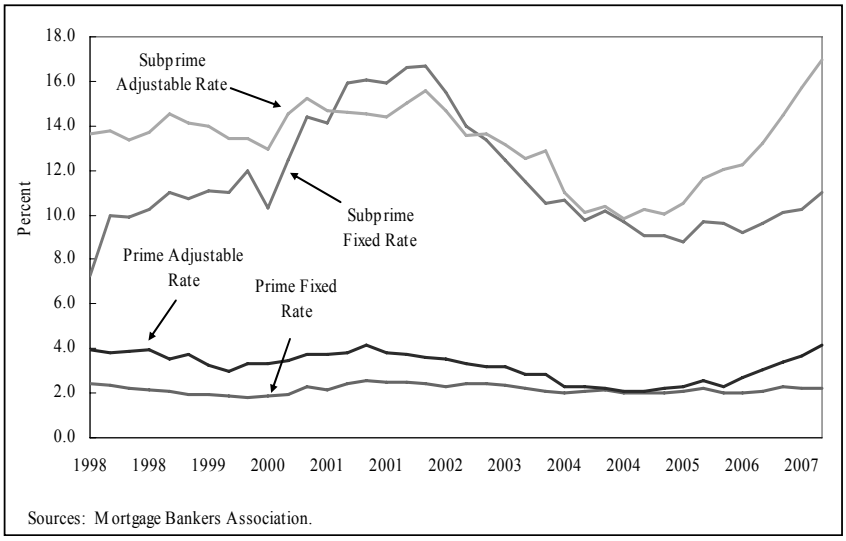
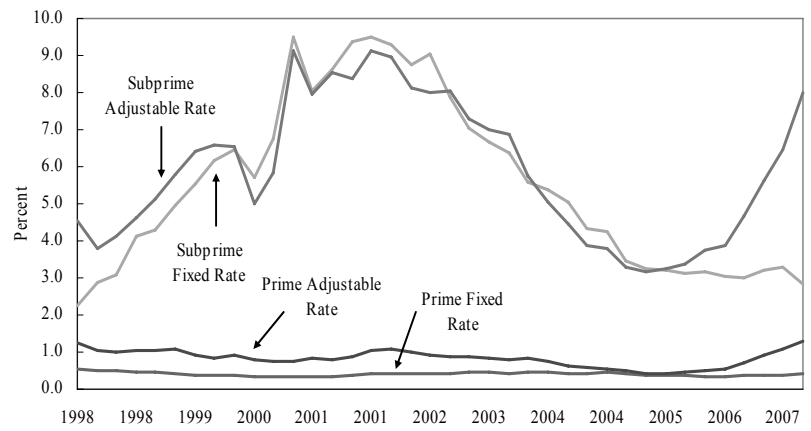


Figure 12: Subprime Mortgage Backed Security Composition
An Analysis of Private Label Securitization Data

	IO Share	Negative Amortization Share	2- and 3-year Hybrid Adjustable Rate	5- 7- and 10-year Hybrid Adjustable Rate
2001	0.0%	0.0%	59.5%	0.8%
2002	1.2%	0.0%	65.4%	1.4%
2003	4.1%	0.0%	63.1%	1.4%
2004	16.2%	0.0%	73.5%	1.5%
2005	27.2%	0.0%	72.2%	1.5%
2006	17.0%	0.0%	50.3%	2.0%

Source: Sandra L. Thompson, Director of Supervision and Consumer Protection, FDIC, statement before the Committeee on Banking, Housing and Urban Affairs, U.S. Senate, March 22, 2007. Data from LoanPerformance

Figure 13: Comparison of Prime Versus Subprime Foreclosure Rates, Total U.S. 1998-2007



Sources: Mortgage Bankers Association.

Figure 14: Recent Subprime Vintages Have Performed Poorly (Percent of Loans 60+ Days Delinquent by Year of Origination)

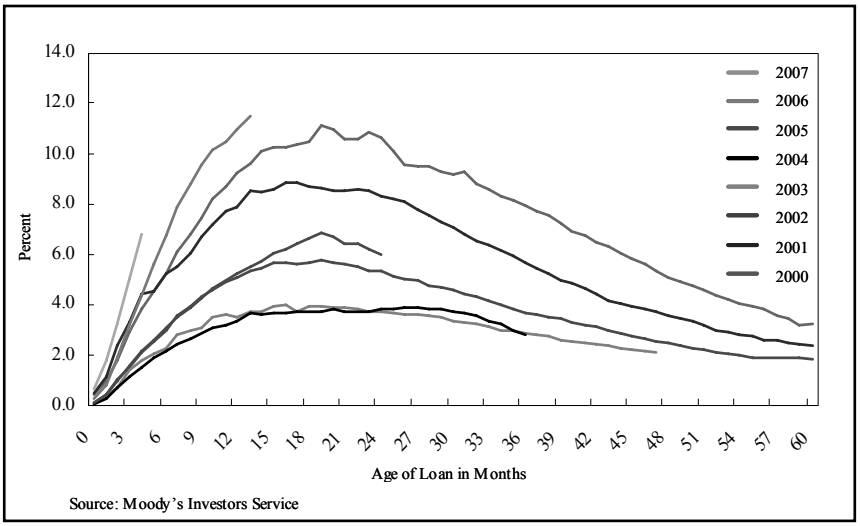


Figure 15: FICO Score and Sector: 2005 Originations

Sector	Average Loan Size	FICO Score	Combined Loan-to-Value	Percent Prepayment Penalty	Gross Margin (in basis pts.)
Prime ARM	$453,000	732	73.9	15.4	256.2
Near Prime ARM	$321,000	711	80.0	52.6	282.4
Subprime ARM	$200,000	624	85.9	72.4	582.6
Prime Fixed	$499,000	742	70.6	1.7	N/A
Near Prime Fixed	$215,000	717	76.2	15.6	N/A
Subprime Fixed	$128,000	636	81.2	76.6	N/A

Source: Mortgage Bankers Association, Characteristics of Outstanding Residential Mortgage Debt: 2006, MBA Data Notes, January 2007, p. 5.

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[30] This ranking is closely correlated with the size of the outstanding stock of subprime mortgages, but the correlation is not perfect. As we explain below, expected housing price movements affect foreclosure outcomes, and these expected changes are not identical across states.

[31] Calculations from data at http://www.realtytrac.com/foreclosure_laws_overview.asp and at www.stopforeclosure.com.
[32] See the discussion of the role of price appreciation in subprime loan performance in Part I above.
[33] For example, let FC_1 be the estimated ARM foreclosure rate covering Q3 2007 through Q2 2008 and let FC_2 be the ARM foreclosure rate for Q3 2008 through Q2 2009. Let T be the number of subprime ARMs outstanding in at the beginning of Q3 2007. Then for the last two quarters of 2007, the number of ARM foreclosures is estimated by $.5* FC_1*T$. The number of ARM foreclosures in 2008 is estimated as $.5* FC_1*T + .5* FC_2*T*(1-.5* FC_1)$.
[34] See the discussion in Part I above.
[35] See A. Pennington-Cross (2006). The Value of Foreclosed Property, The Journal of Real Estate Research, April-June 2006, Volume 28, Number 2, p. 204.
[36] See D. Immergluck and G. Smith (2006), p. 69. Immergluck and Smith also discuss a higher estimate of neighborhood effects, but we use their more conservative value in our calculations.
[37] We estimate the number of houses affected within 1/8th mile net of the number of foreclosures.
[38] See Mishkin (2007).
[39] Robert Shiller, Professor of Economics, Yale University, statement on "Evolution of an Economic Crisis?: The Subprime Lending Disaster and the Threat to the Broader Economy," before the Joint Economic Committee, U.S. Congress, September 19, 2007, p. 2. Shiller cites a 13 percent real decline. Given a three percent inflation rate, this translates to a 16 percent nominal decline.
[40] Note that total property loss is only slightly higher than the loss calculated in our state level forecast. This is a consequence of assuming greater housing price declines.
[41] Bureau of the Census, U.S. Department of Commerce.
[42] Mortgage brokers originate and process loans for a number of lenders for a fee or other compensation, and generally do not use their own funds for closing. Correspondent lenders deliver loans to a lender, but fund the closing with their own money. Retail lenders offer mortgages directly to the public.
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War at Any Price?: The Total Economic Costs of the War Beyond the Federal Budget

EXECUTIVE SUMMARY

The long wars in Iraq and Afghanistan have cost the United States in many ways. For the American Armed Forces, the human toll has been profound: as of November 9, 2007, 4,578 American soldiers have lost their lives, and 30,205 have been wounded, many of them gravely. The damage to our international reputation at a time when the United States faces grave security challenges all over the world has also been severe. And the full economic costs of the war to the American taxpayers and the overall U.S. economy go well beyond even the immense federal budget costs already reported. These "hidden costs" of the Iraq war include the ongoing drain on U.S. economic growth created by Iraq-related borrowing, the disruptive effects of the conflict on world oil markets, the future care of our injured veterans, repair costs for the military, and other undisclosed costs.

In this report, the Joint Economic Committee estimates the total costs of the long war in Iraq to the American economy as a whole:

- The total economic costs of the wars in Iraq and Afghanistan so far have been approximately double the total amounts directly requested by the Administration to fight these wars.
- The future economic costs of a prolonged military presence in Iraq would be massive. Even assuming a considerable drawdown in troop levels, total economic costs of the wars in Iraq and Afghanistan (with the vast majority of costs a result of in the war Iraq) would amount to $3.5 trillion between 2003 and 2017. This is over $1 trillion higher than the recent Congressional Budget Office (CBO) Federal cost forecast for the same scenario, which counted only direct spending and interest paid on war-related debt resulting from that spending.
- The total economic cost of the war in Iraq to a family of

four is a shocking $16,500 from 2002 to 2008. When the war in Afghanistan is included, the burden to the American family rises to $20,900. The future impact on a family of four skyrockets to $36,900 for Iraq and $46,400 for Iraq and Afghanistan when all potential costs from 2002 to 2017 are included.

The American people and Democrats in Congress have urged a dramatic change of course in Iraq. This war has cost Americans far too much, in terms of lives, dollars, and our reputation around the world. This report also demonstrates that a change in course would bring substantial economic savings to our country.

Through 2008, the True Cost of the War Has Been Double the Administration's Budgeted Cost

To date, the President has requested a total of $607 billion for the Iraq war alone since 2003. This is over ten times higher than the $50 to $60 billion cost estimated by the Administration prior to the start of the war. Costs have increased every year since the start of the war in 2003. The Administration has requested $804 billion for the Iraq and Afghanistan wars combined (CRS 2007, Bumiller 2003).[1]

To provide some perspective on these figures, just the funds requested for the Iraq war through 2008 would have been sufficient to provide health insurance coverage to all of America's uninsured for the 2003-2008 period. (There were approximately 45 million uninsured Americans at the start of the war in 2003 and this number rose to 47 million by 2006, which is the latest figure available from the U.S. Census Bureau).

But even beyond these direct fiscal impacts, there are a large number of costs that do not appear directly in Administration funding requests for the Iraq war. The most important of these include the following:

- **Borrowed money to finance the Iraq War has displaced productive investment.** Since taxes have been cut and other spending has increased since the beginning

of the Iraq war, it seems clear that the war has been and continues to be funded using borrowed money. The increase in government borrowing displaces substantial amounts of productive investment by U.S. businesses, thus reducing productivity in the economy over many future years. Interest costs paid by taxpayers are only a subset of these costs.

- **Substantial Iraq-related costs have been borrowed from foreigners**. The interest payments on this debt constitute a flow of funds from Americans to those foreigners who have bought our debt**.**
- **The war in Iraq has disrupted world oil markets leading to increased prices.** The Iraq war has occurred in a context of greatly increasing world demand for oil, as well as declining excess production capacity. Both the direct effect of the war in reducing Iraqi oil production and the indirect effect of creating greater instability in the Middle East can act to increase oil prices. Relatively small increases in oil prices can have substantial economic effects.
- **Other economic and budgetary costs have grown due to the Iraq war.** These expenditures include the costs of treating the wounded and disabled, lost productivity from those injured, potential future expansions in the size of the military made necessary by the war, the costs of repair and refit for military equipment, increases in recruitment and retention costs for the military, and economic disruptions created by the deployment of the Reserves.

Table 1: Requested Appropriations and Total Costs Accrued So Far, FY2002 Through FY2008

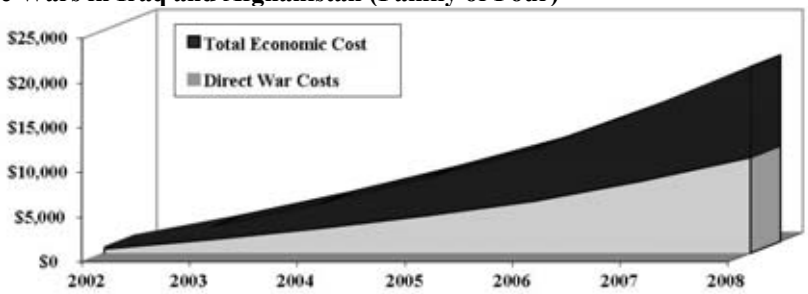
	IRAQ WAR ONLY	IRAQ AND AFGHANISTAN
Direct Appropriations*	$607 Billion	$804 Billion
Total Costs**	$1.3 Trillion	$1.6 Trillion
Costs per Family of Four***	$16,500	$20,900

Budget costs in nominal dollars, flow of economic costs discounted to the relevant budget year. See Appendix B for discussion of methodology.
* Based on CRS and CBO cost estimates of direct appropriations. Includes Administration's FY 2008 request for war funding, which has not been passed by Congress.
** Based on total sum of present value costs accrued in each budgetary year from 2002-2008
*** Total over 2002-2008 period.

The sum of the costs listed above raises the economic costs of the war from $607 billion in direct funding for the Iraq war to $1.3 trillion. If spending in Afghanistan is included, costs could reach $1.6 trillion by the close of FY 2008.

There are numerous other impacts of these wars that are not listed above and are difficult if not impossible to measure. These include the horrible human cost of the nearly 4,000 U.S. fatalities since the start of military operations in Iraq, the impact on our reputation and credibility throughout the world, and the budgetary and economic costs to other nations besides the U.S. (most notably Iraq). Finally, the debate over the broader national security impacts of the Iraq war, and related costs or benefits, is a complex issue that goes beyond the scope of this report (DoD 2007).

Chart 1: Average American Family Will Bear Heavy Burden to Pay for the Wars in Iraq and Afghanistan (Family of Four)



Source: CRS (2007) for prior appropriations and spending requests, JEC staff calculations. 2008 appropriation request drawn from Administration requested supplemental.

If We Don't Change Course, the Cost of the War Will Balloon to $3.5 Trillion

The costs described above represent only the impacts of the Iraq war through the close of FY 2008 (if the President's current budget requests are approved in full). Yet at least some spending on the war will continue beyond FY 2008. Assumptions about the future course of the war are necessary to forecast the full eventual fiscal and economic impacts. Because the Administration has not been clear about future plans for U.S. forces in Iraq, these assumptions must be hypothetical.

This study mainly examines potential future costs over a ten year window, up to the year 2017, similar to the budget spending window that the CBO used. The paper focuses on a scenario corresponding to the recent statement by Secretary of Defense Robert Gates that a protracted "Korea-like" presence would be required in Iraq. This scenario involves a drawdown in Iraq troop levels of 66 percent by the year 2013, and a smaller drawdown of 33 percent in Afghanistan forces. The scenario also assumes that some active conflict with insurgents continues over the period (CBO 2007a).

Table 2: Possible Economic Costs of Staying the Course (Through 2017)

	IRAQ WAR ONLY	IRAQ AND AFGHANISTAN
Scenario (Troop Strength)	Gradual drawdown from 2007 level of 180,000 troops to 55,000 troops by 2013. Troop strength constant from 2013-17.	Drawdown from 2007 level of 210,000 troops to 75,000 troops by 2013. Troop strength constant from 2013-17.
Direct Appropriations*	$1.3 Trillion	$1.7 Trillion
Total Federal Spending Including Interest**	$1.9 Trillion	$2.4 Trillion
Total Economic Cost***	$2.8 Trillion	$3.5 Trillion
Costs per Family of Four	$36,900	$46,400

Budget costs in nominal dollars, flow of economic costs discounted to the relevant budget year. See Appendix B for discussion of methodology.
*Based on Administration funding request for FY 2008, CRS and CBO cost estimates of direct appropriations.
**CBO estimate from 10/24/2007 testimony to House Budget Committee (CBO 2007b).
***Based on total sum of present value costs accrued in each budgetary year over 2002-2017 period.

In recent testimony, the nonpartisan CBO detailed Federal direct appropriations and interest costs for this scenario (CBO 2007b).

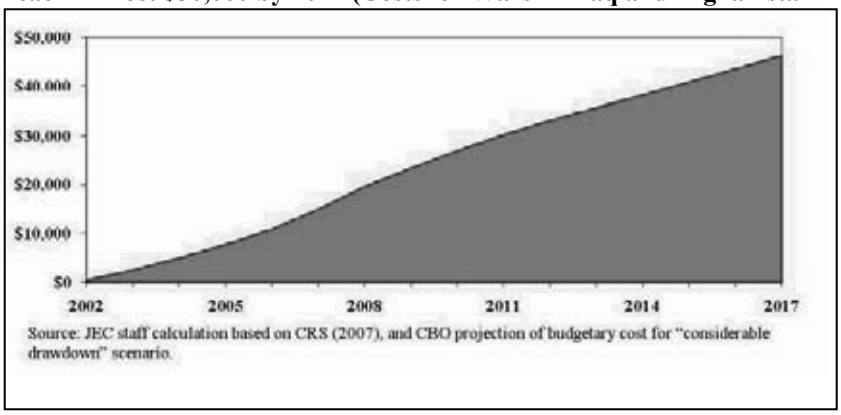
These CBO estimates are used as a base for the analysis in this report. Once the full economic costs of the war are added to the approximately $2.4 trillion in Federal spending forecast under the CBO scenario, the total economic cost of the wars in Iraq and Afghanistan rise by over $1 trillion to $3.5 trillion.

Costs could far exceed these projections if the significant drawdown assumed in this scenario does not materialize. This CBO budgetary scenario projects that appropriations for the Iraq war will begin to drop significantly in 2009. But historically appropriations for the Iraq war have increased every year since the invasion, by between 12 and 40 percent annually (CRS 2007).

This report also presents costs for several alternative budgetary scenarios (Appendix A). These include costs for a rapid withdrawal from Iraq while maintaining troops in Afghanistan, and the costs to maintain current (post-surge) troop levels in Iraq for the next decade. These scenarios generate very different economic costs over the next decade. For example, maintaining post-surge troop levels in Iraq over the next ten years would result in costs of $4.5 trillion.

Each state is assumed to bear a share of the total war costs proportional to its share of the total national economy. On this basis, the report presents total state costs accrued through FY 2008, as well as potential future costs through 2017.

Figure 2: With No Change in Course, Total Costs Incurred per Family Reach Almost $50,000 by 2017 (Costs for Wars in Iraq and Afghanistan



TAXPAYER COSTS OF THE WAR

This section estimates current and future taxpayer expenditures for the war, based on budgetary information from the Congressional Research Service (CRS) and Congressional Budget Office (CBO).[2] The taxpayer costs can be divided into direct appropriations for the war and interest costs for Iraq-related debt. (These interest costs are a subset of the wider economic costs calculated in this report).

Direct Appropriations for the War

Prior to the start of the Iraq war in 2003, the Bush administration estimated the total cost of the war at between $50 to $60 billion (Bumiller 2003).

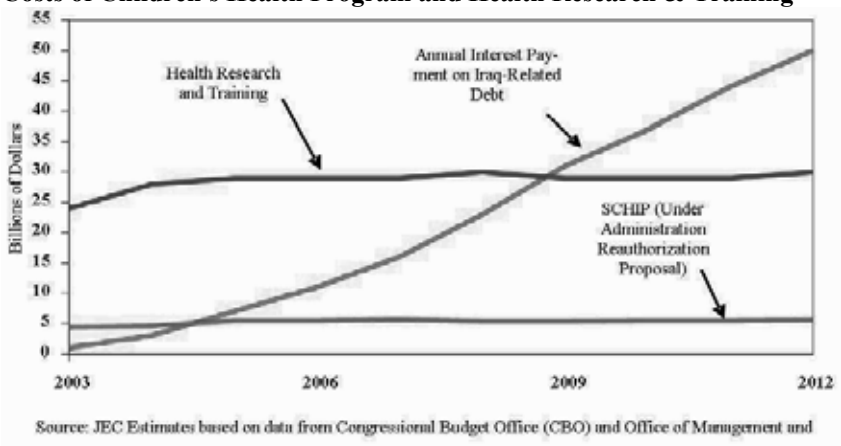
The President has now requested over ten times this initial estimate just in direct appropriations for the war between FY 2003 and 2008. If the President's latest request for supplemental funding is approved, the direct expenditures authorized specifically for the Iraq war from FY 2003 to FY 2008 will total some $607 billion (CRS 2007; JEC estimates). This includes $450 billion already authorized by Congress between FY 2003 and FY 2007, plus an estimated $158 billion for Iraq from the supplemental request that the administration has made for FY 2008.[3]

Estimates of budgetary costs after 2008 depend on assumptions about the future course of the war. Appendix A of this report outlines costs for a variety of alternative scenarios, ranging from a rapid drawdown of troops to a continuation of post-surge funding and troop levels through the foreseeable future.

In the main body of this report, we focus on the CBO "considerable drawdown" scenario, which corresponds to the "Korea-like presence" recently predicted by Secretary of Defense Robert Gates. Following the war in Korea, force levels dropped to a level of between 50,000 and 60,000 troops throughout the 1960s and 1970s (Kane 2004). This scenario assumes that force levels in Iraq drop from their current level of 180,000 troops down to 55,000 by 2013, and are maintained at this level through 2017.

This level of drawdown implies that beginning in FY 2009 funding levels for Iraq will begin to drop for the first time in the history of the war. The scenario predicts direct appropriations for the war drop from $135 billion in FY 2007 to less than $60 billion in FY 2013. For these reasons, the scenario should be seen as a conservative one. This CBO scenario implies an additional $690 billion in Iraq war spending through 2017 (CBO 2007a).

Chart 3: Projected Interest Costs of Iraq War Alone are Higher than Costs of Children's Health Program and Health Research & Training



Source: JEC Estimates based on data from Congressional Budget Office (CBO) and Office of Management and

Iraq Related Debt and Interest Costs to Taxpayers

Since war costs have been borrowed, taxpayers must also pay interest costs on the war until Iraq-related debt is retired. If the president's FY 2008 budget request is fully approved, this debt will total almost $660 billion by the close of FY 2008. It will reach almost $1.7 trillion by the close of 2017.

This debt has many economic implications, but the immediate impact on taxpayers will be the annual interest payments required. If the President's FY 2008 supplemental request for Iraq funding is passed, almost 10 percent of total Federal government interest payments in 2008 will consist of payments on the Iraq debt accumulated so far.

Interest costs on Iraq-related debt will be over $23 billion in FY 2008, and are projected to far exceed spending on programs that address key national priorities such as education and health. Chart 3 shows the current and projected future time path of interest spending through 2012. The chart shows that the annual interest costs on accumulated war debt already far exceed spending for such national priorities as health insurance for children (under the proposed Democratic SCHIP expansion recently vetoed by the President) and health research.

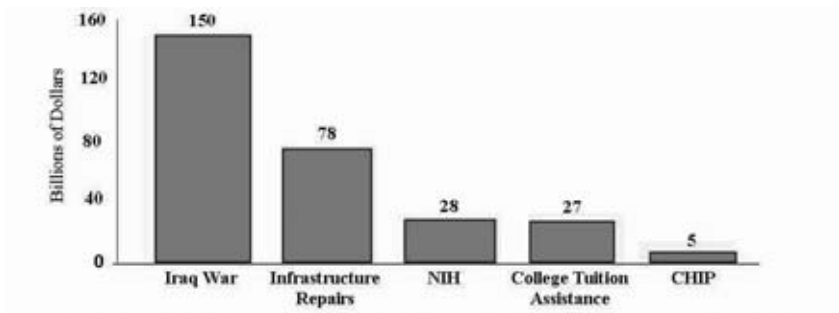
Under the "considerable drawdown" scenario, by the year 2017 projected interest costs on Iraq-related debt will rise to $80 billion annually. The sum of interest paid on Iraq-related debt from 2003-2017 will total over $550 billion.

These interest costs are based on the assumption that interest rates will remain constant at a rate of 4.5%. Interest payments could grow significantly compared to this forecast if interest rates rise in the future.

Interest costs will continue to accrue beyond 2017 so long as the debt is not paid down. Paying down the debt will require cuts in government spending and/or increases in taxes. Alternatively, interest payments can simply be continued after 2017. Because

this report projects costs accrued only through 2017, economic effects of the choices made about handling the debt after 2017 are not reflected in these estimates. It is assumed that the debt remains outstanding through the end of the forecast period.

Figure 4: Taxpayer Spending on the Iraq War vs. Federal Spending on Other Priorities (FY2007)



Source: Budget of the United States Government Fiscal Year 2008, JEC staff estimates based on CRS budgetary figures; Estimated interest costs for Iraq debt

Total Taxpayer Costs

Total taxpayer spending is the sum of direct budget costs and interest costs. The total increase in taxpayer spending over 2003-2017 due to the Iraq war is a projected $1.9 trillion under the "considerable drawdown" scenario. If declines in future spending projected by CBO do not materialize, war spending could be substantially higher than forecast here (this issue is discussed further in Appendix A).

To put annual spending on the war in perspective, it is useful to consider the spending on other national priorities that could be funded by just one year of Iraq spending. Chart 4 shows how Iraq funding just in the recently completed 2007 fiscal year compared to spending on various other public investment priorities. The FY 2007 total of $150 billion is greater than the combined sum of Federal spending on such priorities as the nation's transportation infrastructure, health research, customs and border protection, higher education aid, environmental protection, Head Start, and the CHIP program.

Should the President's recent supplemental request be fully approved, total taxpayer spending for Iraq would be even higher in FY 2008, approximately $180 billion or $500 million per day.

BOX A: How is the War in Iraq Being Funded?
War funding has been borrowed from the public. Since 2001, Federal government revenues as a share of Gross Domestic Product have decreased by one percent, while outlays have grown significantly and debt held by the public has increased by approximately $1.5 trillion (CBO 2007a). In this environment of growing public debt, it seems evident that the marginal dollar spent by the Federal government has been borrowed. The characterization of the Iraq war as a "war of choice" and the funding of the war through a series of off-budget emergency supplemental bills makes this even clearer.

Given the already steep fiscal demands on the Federal government, and the Administration's unwillingness to offer a proposal to pay for the war, it is fair to assume that the future costs of the war through 2017 will also be paid for by borrowing from the public.

The assumption that Iraq war spending is borrowed drives a number of findings in this report. These include the level of government interest costs incurred, and also the assumption that some of the borrowed funding would have remained available for additional U.S. capital investment.

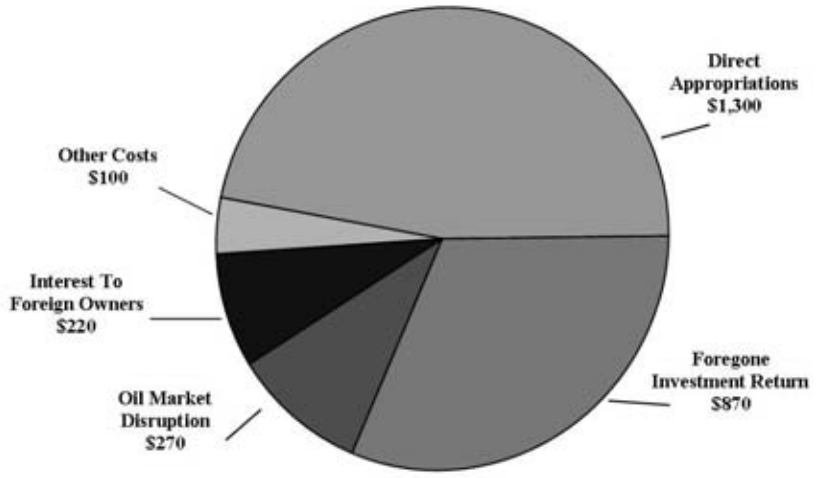
ADDITIONAL ECONOMIC COSTS

The budgetary costs alone of the war are high. But there are many additional economic costs of the war that go beyond the direct budgetary costs. In terms of magnitude, the most significant economic costs are:

- Displacement of productive investment by U.S. companies due to increases in government borrowing.
- Interest payments to foreign capital owners for Iraq-related debt.
- Impact of the war on oil markets.

In addition, there are a number of other, smaller, costs that we discuss below. Chart 5 shows the estimated division of all economic costs from the Iraq war alone.

Figure 5: Breaking Down the Costs of the War in Iraq, FY2003-2017 (In Billions of Dollars)



Source: JEC calculations, Congressional Research Service, Congressional Budget Office, and Energy Information Administration.

THE EFFECT OF GOVERNMENT BORROWING

As discussed above, the Iraq war has likely resulted in major increases in government borrowing. There is widespread consensus among economists that such borrowing has two effects (Friedman, 2005):

- First, it reduces the growth in productive private investment in the economy. Funds are diverted from private investment to purchase government securities. This depresses the future stock of productive capital below what it otherwise would have been without the borrowing.
- Second, part of the debt is funded through borrowing from foreign capital owners. Interest payments on this debt flow out of the country and constitute an economic cost.

Both of these effects have costs to the U.S. economy. For government borrowing that fully displaces productive investment, all the future returns on this capital investment are lost. The future growth rate of the economy is reduced.

For government borrowing that is funded from world capital markets, investment is not displaced, but interest payments on this debt flow out of the economy to foreigners. (Interest payments to U.S. bond purchasers are a subset of the economic costs from displaced private investment in the U.S.).

Although there is little dispute that both of these impacts occur to some extent, the exact balance between the two effects and the proper way to evaluate them is a subject of some controversy among economists. Appendix B describes the assumptions used in this report to estimate the economic costs of Iraq-related deficit spending.

Because of these two economic impacts, the JEC estimates that Iraq-related borrowing between 2003 and 2017 will create an additional income loss of almost $1.1 trillion in present value to U.S. citizens.[4]

This loss of investment returns is the single largest cost of the Iraq war to the U.S. economy beyond the direct budgetary cost of the war itself.

IMPACT ON WORLD OIL MARKETS

Iraq is a significant oil producer, and is also located in a strategically vital region which is the center of world oil production. Since the start of the Iraq war in 2003, the price of oil has increased, from $37 per barrel (in the week prior to the war) to a recent peak of well over $90 per barrel in November 2007 (EIAa). This price increase has likely affected U.S. economic growth, and has transferred many hundreds of billions of dollars from U.S. consumers to foreign oil producers.

The war in Iraq is certainly not responsible for all of this increase. Many other factors are also affecting oil prices,

including large growth in oil demand from China and India. But the consistent disruptions resulting from the war have affected oil prices.

The Iraq War and Oil Prices

The war in Iraq has two potential effects on world oil markets. The first is a direct effect, stemming from disruption in Iraqi oil exports to the world market. The second is an indirect psychological effect.

The direct effect can be examined by considering Iraqi oil exports compared to capacity. The Energy Information Administration has stated that current Iraq production of roughly 2 million barrels per day (BPD) is "down from around 2.6 million BPD of production and a nameplate capacity of 2.8 to 3 million BPD in pre-invasion January, 2003." (EIA 2007c).

Taking the EIA estimate of 2.6 million BPD of actual pre-war production, the reduction in direct Iraqi oil production has ranged from roughly 1.3 million BPD (in the invasion year of 2003) to about 600,000 BPD today. These shortfalls likely impact world oil prices. As a CBO report discussing oil market developments from 2003-2006 stated:

"Today, however, worldwide production is close to its short-term limits. As a result, oil markets appear much more vulnerable than before to an interruption in supply or a rapid increase in demand. Even the threat of a reduction in supply of a few hundred thousand barrels a day causes sharp fluctuations in prices" (CBO 2006).

As a rule of thumb, the Department of Energy estimates that a 1 percent decline in world oil supply generally leads to about a 10 percent rise in prices (EIA 2004, GAO 2006). Using this rule leads to the prediction that shortfalls of the levels discussed above might be expected to increase oil prices by around 15% in 2003, and 7-9% in 2004-2007. Because of rising prices, this percentage increase creates a consistent rise in the price of oil of roughly $5.00 per barrel.

The Iraq war could have a second, indirect effect on oil prices if events in Iraq have led to concerns about wider regional conflict, or increases in terrorism in the region that could affect oil fields. These kinds of fears would cause investors to bid up the price of oil on futures markets, and increase the stockpiles of oil they hold against an emergency.

It seems likely that indirect psychological factors related to the Iraq war did contribute to increases in oil prices in 2003, and been one of several factors contributing to oil price volatility since then.

It is hard to quantify the size of this effect on prices. But it seems clear that the Iraq war has been one factor contributing to a generally unsettled state of oil markets over the past several years. This is due to the combination of the timing of the war during a period when world oil markets have been under unusual stress from increased demand, and the psychological effects of the increased geopolitical uncertainty due to the war. The combination of direct and psychological effects helps to support the price effect discussed above.

The Economic Impact of Higher Oil Prices

What impact does this increase in oil prices have on the U.S. economy? There are two separable effects. The first impact is a direct transfer to wealth from U.S. consumers to foreign oil producers driven by the rise in oil prices. This estimated effect can be counteracted somewhat by reductions in oil consumption by consumers or if foreign oil profits are spent in the U.S. JEC estimates find that from 2003-2008 this effect will transfer approximately $124 billion from U.S. oil consumers to foreign producers.[5]

Most economists agree that there is likely a further impact of oil price increases on the economy. Beyond any direct transfer effect, oil price shocks reduce economic growth, due to reductions in consumer demand and various adjustment costs by industries that use oil. However, there is substantial controversy

over the exact size of the effect. It is generally agreed that these economic impacts of oil price increases have declined in today's economy as compared to the 1970s (Nordhaus 2007). Estimates using macroeconomic simulation models often find small costs (CBO 2006). However, estimates based on examining the actual past responses of the U.S. economy to oil price changes often find much larger impacts, ranging from five to fifteen times those found in model-based estimates.

It seems likely that the impact varies substantially depending on the exact type of oil price shock and how it is sustained, with sharp, surprising increases in oil prices having the largest negative effects on growth, and slow and expected increases having smaller or potentially no effect (Li, Ni, and Ratti 1995; Huntington 2005). But the Iraq war has produced a consistent series of surprises as the insurgency has grown, unforeseen interference with oil fields has continued, and new political disruptions have occurred (such as tensions with Iran and conflict between Kurdistan and Turkey). As discussed above, this has taken place in an environment of limited spare production capacity, and new peaks in world oil prices almost every year.

For this reason, the analysis assumes that Iraq-related oil price increases have had a wider economic effect. In particular, the analysis assumes a consistent effect throughout the 2003-2008 period that is proportional to the roughly $5 per barrel price increase described above. However, no further economic impacts from rising oil prices are assumed for 2009 or after.[6] The magnitude of the GDP impact is assumed to be moderate to low. It is consistent with a wide range of recent studies.[7]

Under these assumptions, oil price increases from 2003-2008 due to the Iraq war reduced total U.S. income GDP by a total of approximately $274 billion, a direct transfer of about $124 billion and a further GDP effect of $150 billion.

BOX B: MARKET PSYCHOLOGY
A recent CRS report on world oil prices singled out the Iraq war as having an important impact on market psychology:

"The war in Iraq has contributed to high oil prices in different ways as events have progressed. The predominant effect of the conflict on oil prices has been an increase in uncertainty. During the early stages of the conflict, concerns about a possible disruption of oil supply out of the Persian Gulf and disruption of Iraqi production due to military operations were prominent….Later, market uncertainty revolved around the ability of Iraq to export oil in the midst of political transition in which pipeline and other oil facilities were attacked by hostile groups within the country. Uncertainty with respect to terrorist attacks, both in Iraq, and spilling over to other Gulf nations, including Saudi Arabia, continue to unsettle the oil market and contribute to a "fear factor" being built into the price of oil." (CRS, 2005)

OTHER ECONOMIC IMPACTS

There are numerous other costs of the wars in Iraq and Afghanistan that are not reflected in budget estimates. However, these impacts are even more difficult to estimate than the costs discussed above. They are also generally somewhat smaller than the impacts discussed above. The JEC estimates that a fuller accounting of these impacts would add at least $110 billion to the total future costs of the two wars.

The Impact of Wounds and Disabilities

One such economic impact is the costs of care for wounded and disabled veterans. Some 28,000 troops have been wounded in Iraq through October 2007 and almost half could not be returned to duty within 72 hours (DoD 2007). Should the war continue through 2017, it is reasonable to expect additional casualties.

Estimates of the costs of disability compensation and medical care for these injured veterans vary significantly. CBO has estimated the direct Federal cost of disability payments and medical care for Iraq War veterans over the 2003-2017 period (CBO 2007b). This estimate of approximately $10 billion is included in the budgetary estimates given above. The cost rises to $13 billion when Afghanistan veterans are included.

Other estimates of the entire eventual economic costs of disability among all Iraq war veterans are far higher than CBO, running as high as several hundred billion dollars (Bilmes 2007). But these estimates may not fully separate out the incremental impact of the Iraq war. Some veterans would likely have incurred disabilities during their army service even if they served during peacetime. Further study is needed to determine the full increment in injury and disability to veterans serving in wartime as opposed to peacetime.

But it is still likely that the CBO estimate underestimates the total economic cost experienced due to injuries or disabilities created by the war. Since the CBO cost estimate runs only through 2017, it does not include the full lifetime cost of care for these injured veterans. In addition, CBO may have underestimated the number of veterans not wounded in action who will eventually seek disability benefits or medical care due to war-related health issues. Finally, there is evidence that veterans disability benefits do not always fully compensate for earnings losses due to certain conditions.

The types of injuries and disabilities sustained in the war add to the uncertainty about future medical costs. As battlefield medical care has advanced, the number of seriously injured soldiers who survive their wounds has increased. Iraq therefore has a higher ratio of wounded to fatalities than previous wars, and the severity of wounds has correspondingly increased (CBO 2007d). For example, about 800 wounded soldiers have been injured severely enough to require amputations.

In addition, the widespread use of improvised explosive devices by insurgents has led to a high incidence of traumatic brain injury (TBI) among both wounded troops and those soldiers who survive explosions without other injuries. A recent estimate is that 10 to 20 percent of returning soldiers who believed themselves to be healthy had in fact experienced mild to moderate TBI (PCCWW 2007). The future potential health

impacts and costs of TBI (especially in its mild to moderate form) are not yet well understood.

Post-traumatic stress disorder (PTSD) is another important health issue related to the Iraq conflict. This psychological reaction to traumatic stress appears to affect a substantial number of returning soldiers. Estimates indicate that between 10 and 20 percent of returning soldiers show at least some symptoms of the disorder (Hoge et. al 2007; PCCWW 2007). Some 40,000 returning soldiers have already received an official diagnosis (CBO 2007d). Research on the economic effects of PTSD indicates that it can lead to substantial reductions in earnings and employment capacity (Veterans Commission 2007; Savoca and Rosenheck 2000). Advances in treatment have been made, but there is still a great deal of uncertainty about the future economic impacts of this disorder and the number of veterans who will eventually be affected.

The JEC estimates that these factors are likely to add $25 billion to the total economic costs of injury in the Iraq war, beyond the 2003-2017 costs projected by CBO:

- A projection of the present value of the lifetime disability and medical care costs for injured veterans beyond 2017 gives a result of approximately $11 to $15 billion in additional expenses for the Iraq war.[8] When the cost of the Afghanistan war is included, this rises to about $13 to $17 billion.
- There are additional economic costs of injury that are not reflected in VA disability benefits or medical expenses. One of these is earnings losses that are not fully compensated for by disability benefits. As estimate of earnings losses related to PTSD alone finds an additional $10 billion in lost earnings to Iraq veterans that are not reflected in VA benefits.[9]
- The families of injured veterans expend considerable time and effort to provide care for their loved ones. This can have significant economic costs. A survey by the Dole-Shalala commission found that almost 20% of injured

veterans stated a family member had to quit a job to provide care for them. This implies additional economic costs potentially as high as $1 billion.

- Future disabilities resulting from past wars have typically been underestimated early in the conflict (Veterans Commission 2007). However, at this time it is very difficult to project what level of additional disabilities beyond CBO forecasts may result from the Iraq war.

These costs do not represent the total cost of injuries and disabilities to veterans. Instead they represent only the additional economic costs not already included in estimated Federal spending on injured veterans and should be understood as highly conservative.

Additional Military Costs

Between 2003 and 2006 alone, the cost of retention bonuses and re-enlistment incentives for the Army, Marines, Reserve, and National Guard have skyrocketed, rising by $800 million annually (Associated Press 2007). If these increased costs stayed constant over the 2003-17 period, they would add $13 billion to military budgets over the period. These costs are not reflected in the budgetary costs previously mentioned.

The military and other sources have also estimated a variety of potential repair and reset costs for replacing and repairing equipment damaged in the Iraq conflict. Iraq-related reset costs in the FY 2007 military budget alone totaled some $27 billion (DoD 2007). This figure is included in the budgetary costs already totaled previously.

However, the Department of Defense estimates that approximately $40 billion in reset costs will be required after withdrawal from Iraq (DoD 2007). These future costs are not included in the budget estimates described previously, and therefore they are added under "additional costs".[10]

Finally, the Administration has requested a significant long-term increase in the number of enlisted personnel in the Army and

Marine Corps (CBO 2007e). This increase will eventually total 65,000 additional troops for the Army and 27,000 additional for the Marine Corps. The CBO calculated costs of approximately $17 billion annually for this expansion between 2008 and 2012. But these costs were not included in CBO tallies of the costs of the Iraq or Afghanistan wars, since the Administration has not justified this proposed increase in the size of the military solely with reference to these wars (CBO 2007e).

However, it seems clear that the wars in Iraq and Afghanistan have contributed to the need for an expansion in the size of the military. For this reason, the JEC analysis adds one-quarter of the estimated cost of this increase in military forces (or $4.25 billion annually) as an additional cost of the war beginning in 2009. This is a conservative estimate of the level of increase in military forces that could be required by these wars.

These additional military costs add approximately $85 to $90 billion to total war costs for Iraq and Afghanistan combined. Based on the split in force levels between Afghanistan and Iraq going forward, the report assigns 80 percent of this total, or about $70 billion, to the Iraq war.

Costs of National Guard and Reserve Deployments

Some half a million of the National Guard and Reserve have so far been deployed in Iraq. Some of the costs of this mobilization are reflected in government budgetary costs. But some are not, including the disruption for employers created by the loss of staff.

Additional (Unquantified) Impacts of the Iraq War

This report does not attempt to quantify any demand-side macroeconomic effects of war spending on the economy. Because the war began in the wake of the 2001 recession, some of the war spending could have worked to close a small part of the recessionary gap between potential and realized production. However, the bulk of the war spending took place well after the recession and any additional demand-side macroeconomic effects

(difficult to estimate in any case) are not likely to be large with respect to the ongoing effects of war spending on the economy.

The over 3,800 American fatalities that have resulted from the war so far are a tragedy that is difficult to quantify in economic terms. These losses can be seen as creating a direct economic effect of many billions of dollars in lost productivity and creativity for the nation. To this must be added the psychological costs of the loss to loved ones, families, and communities. The national security and foreign policy impacts of the war are beyond the scope of this study. Finally, the impact of the war on the nation of Iraq is also beyond the scope of the report.

PART III: STATE-BY-STATE COST ESTIMATES OF THE WAR

War costs can also be expressed in terms of the costs to each U.S. state. Table 3 shows the budgetary costs and total economic costs divided between all fifty states, in proportion to each state's share of the Federal tax burden. Each state's share of total economic costs is also shown, divided in proportion to their share of national GDP. (States will incur the full economic costs of the war in proportion to their share of the economy). State shares of total costs vary from $358 billion in California to $5.5 billion in Wyoming.

Table 3: State-by-State Breakdown of Total Iraq War Economic Costs

State	Costs 2003-2008 (Billions)			Costs 2003-2017 (Billions)		
	Budgetary	Economic	Total	Budgetary	Economic	Total
United States	$600	$700	**$1,300**	$1,300	$1,470	$2,770
Alaska	$1.0	$2.2	**$3.2**	$2.2	$4.6	**$6.8**
Alabama	$5.5	$8.5	**$14.1**	$12.0	$18.0	$29.9
Arkansas	$5.7	$4.9	**$10.5**	$12.3	$10.3	**$22.5**
Arizona	$8.3	$12.4	**$20.7**	$18.0	$26.0	**$43.9**
California	$76.0	$92.0	**$168.0**	$164.7	$193.1	**$357.8**
Colorado	$9.2	$12.3	**$21.4**	$19.9	$25.8	**$45.6**
Connecticut	$14.7	$10.9	**$25.5**	$31.7	$22.8	**$54.6**
District of Columbia	$2.6	$4.7	**$7.3**	$5.7	$9.8	**$15.5**
Delaware	$3.8	$3.2	**$7.0**	$8.3	$6.7	**$15.0**
Florida	$32.9	$38.0	**$70.9**	$71.3	$79.8	**$151.1**
Georgia	$17.3	$20.2	**$37.5**	$37.5	$42.4	**$79.9**
Hawaii	$1.9	$3.1	**$5.0**	$4.2	$6.5	**$10.7**
Iowa	$4.6	$6.6	**$11.2**	$10.0	$13.9	**$23.8**
Idaho	$1.6	$2.7	**$4.2**	$3.4	$5.6	**$9.0**
Illinois	$32.5	$31.4	**$63.9**	$70.4	$65.9	**$136.3**
Indiana	$9.1	$13.3	**$22.3**	$19.7	$27.8	**$47.5**
Kansas	$4.7	$5.9	**$10.7**	$10.3	$12.5	**$22.7**
Kentucky	$4.6	$7.8	**$12.4**	$10.0	$16.3	**$26.3**
Louisiana	$4.6	$10.3	**$14.8**	$9.9	$21.6	**$31.5**
Massachusetts	$17.0	$18.0	**$34.9**	$36.8	$37.7	**$74.5**
Maryland	$11.6	$13.7	**$25.4**	$25.2	$28.8	**$54.0**
Maine	$1.6	$2.5	**$4.1**	$3.4	$5.3	**$8.7**
Michigan	$15.9	$20.3	**$36.2**	$34.5	$42.6	**$77.1**
Minnesota	$14.4	$13.0	**$27.4**	$31.2	$27.3	**$58.6**
Missouri	$9.2	$12.0	**$21.2**	$20.0	$25.3	**$45.2**
Mississippi	$2.4	$4.5	**$6.9**	$5.1	$9.4	**$14.5**
Montana	$0.9	$1.7	**$2.6**	$2.0	$3.6	**$5.6**
North Carolina	$16.2	$19.9	**$36.1**	$35.1	$41.9	**$76.9**
North Dakota	$0.7	$1.4	**$2.1**	$1.6	$2.9	**$4.5**
Nebraska	$4.3	$4.0	**$8.4**	$9.4	$8.5	**$17.9**
New Hampshire	$2.5	$3.0	**$5.5**	$5.4	$6.3	**$11.7**
New Jersey	$27.4	$24.1	**$51.5**	$59.3	$50.7	**$110.0**
New Mexico	$1.8	$4.0	**$5.9**	$4.0	$8.5	**$12.5**
Nevada	$5.4	$6.3	**$11.7**	$11.7	$13.2	**$24.9**
New York	$53.8	$54.4	**$108.2**	$116.6	$114.2	**$230.8**
Ohio	$21.0	$24.6	**$45.6**	$45.6	$51.6	**$97.2**
Oklahoma	$9.1	$7.2	**$16.3**	$19.7	$15.1	**$34.8**
Oregon	$4.8	$8.1	**$12.9**	$10.5	$16.9	**$27.4**
Pennsylvania	$22.9	$27.2	**$50.0**	$49.6	$57.0	**$106.6**
Rhode Island	$2.4	$2.4	**$4.8**	$5.2	$5.1	**$10.3**
South Carolina	$4.4	$7.9	**$12.3**	$9.5	$16.7	**$26.2**
South Dakota	$0.9	$1.7	**$2.6**	$2.0	$3.6	**$5.6**
Tennessee	$9.3	$12.7	**$21.9**	$20.0	$26.6	**$46.7**
Texas	$49.1	$56.7	**$105.8**	$106.3	$119.2	**$225.5**
Utah	$3.2	$5.2	**$8.4**	$7.0	$10.9	**$17.9**
Virginia	$16.3	$19.7	**$36.0**	$35.4	$41.3	**$76.6**
Vermont	$0.9	$1.3	**$2.2**	$1.9	$2.7	**$4.6**
Washington	$13.6	$15.6	**$29.3**	$29.5	$32.8	**$62.3**
Wisconsin	$9.6	$12.1	**$21.7**	$20.8	$25.4	**$46.2**
West Virginia	$1.6	$3.0	**$4.5**	$3.4	$6.2	**$9.6**
Wyoming	$1.0	$1.6	**$2.6**	$2.2	$3.3	**$5.5**

Sources: Budgetary and Economic Costs derived from JEC calculations based on data from the U.S. Census Bureau, Congressional Budget Office and Office of Management and Budget.

CONCLUSION

The direct appropriations alone devoted to the Iraq war are staggering. President Bush has already requested Iraq war appropriations over ten times his original pre-war cost estimate. The President's appropriations request for FY 2008 for Iraq alone exceeds total U.S. state, local, and Federal spending on our

entire surface transportation system. Yet this report has demonstrated that the indirect costs to the American economy are roughly twice these direct appropriations.

If the President's supplemental funding request for FY 2008 is approved, the accrued costs to the economy accrued through 2008 for the wars in Iraq and Afghanistan through FY 2008 will exceed $1.6 trillion. This is over $20,000 per family of four.

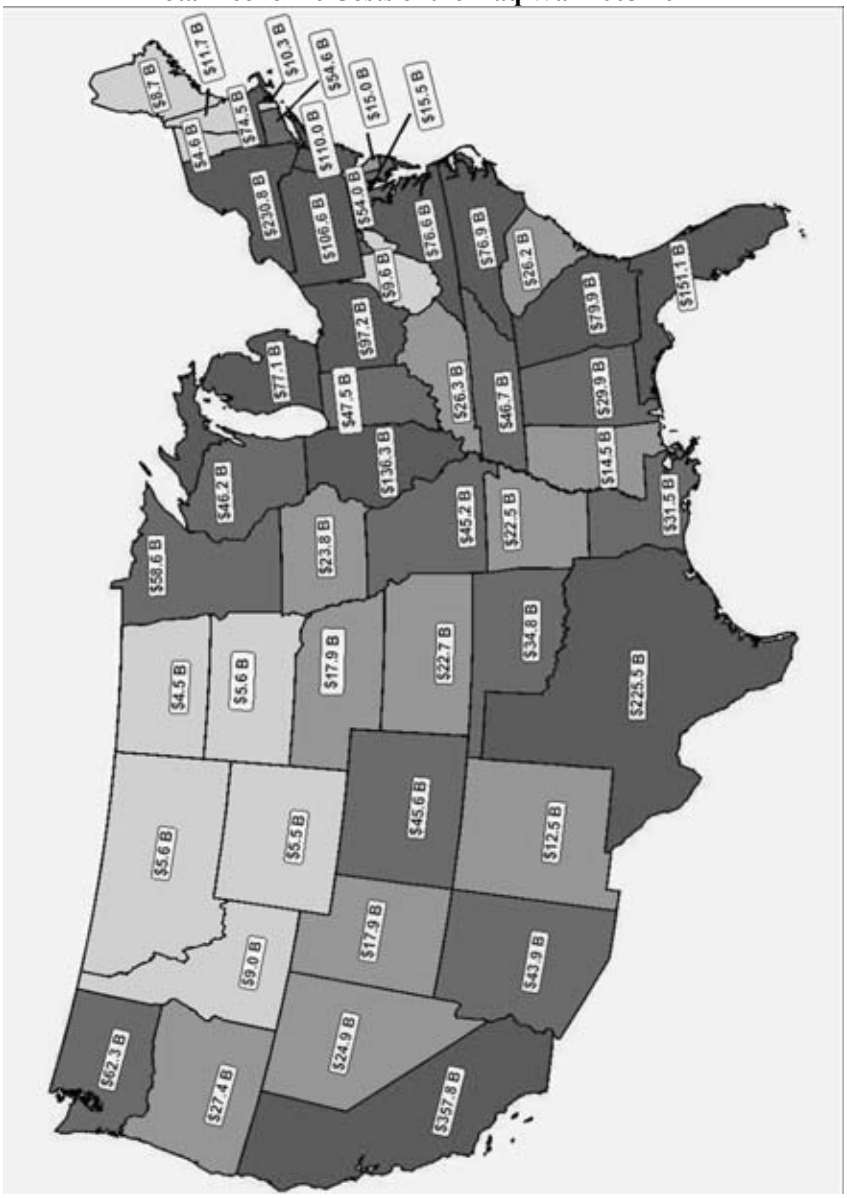
Yet the costs that we will incur if the war continues are far greater. Even assuming the optimistic scenario of a significant drawdown in troop strength and no further impacts on oil markets, a continuation of the war through 2017 will lead to total economic costs for Iraq and Afghanistan of some $3.5 trillion over the 2003-17 period under the considerable drawdown scenario.

We have already experienced massive economic costs due to our failed strategy in Iraq. The nation will experience even more significant costs if we do not change course.

The Economic Burden of The Iraq War

The economic costs calculated in this report are a conservative estimate of the potential costs to the U.S. economy if we do not change course in Iraq. This study does not include such unquantifiable impacts as the cost of thousands of U.S. fatalities in these wars or the effect of the Iraq war on U.S. international prestige and security. The report assumes no oil market impacts of a continued Iraq occupation beyond 2008. The report uses conservative economic assumptions throughout, especially for the economic burden of injuries and disabilities resulting from the war. Finally, the report focuses on costs for a future scenario that assumes a substantial reduction in troop levels and budgetary costs of the war.

Map: States Bear Billions in Iraq War Costs
Total Economic Costs of the Iraq War 2003-2017



Despite these conservative assumptions, the economic cost of the war so far is already well over a trillion dollars. The combined costs of the wars in Iraq and Afghanistan is forecast to climb to some $3.5 trillion over the next decade if the occupation of Iraq

is maintained. This will be true even if a considerable drawdown takes place and annual direct appropriations for the Iraq war decline by more than half over the next five years. By any measure, the economic costs of continuing our current course in Iraq would be enormous.

APPENDIX A: COSTS OF ALTERNATIVE SCENARIOS

War costs through 2007 can be directly calculated. In this study, war costs for FY 2008 were estimated by taking the figures in the President's supplemental spending request, as allocated by the Congressional Research Service.

Cost projections for FY 2009-17 require forecasting the future course of the war. The main body of the report focused on the CBO's "moderate drawdown" scenario to project future costs. This "moderate drawdown" scenario assumes a 64% drop in the number of troops in Iraq by 2013, and constant force levels from 2013-17. The scenario implies a sharp decline in war costs beginning in 2009.

This appendix supplements this scenario with two others. The first is a "sharp drawdown" scenario under which forces in Iraq are rapidly reduced to 10,000 by 2010, and withdrawn altogether by 2011. This scenario corresponds roughly to withdrawal scenarios advanced by House Democrats. The underlying budgetary figures are based on CBO fiscal estimates for a sharp drawdown scenario, with costs in later years assumed to occur entirely in Afghanistan and not in Iraq. FY 2008 funding is assumed to be somewhat lower than the President's request. The future costs for disabilities, as well as additional military costs such as recruitment, force expansion, and repair, are also assumed to be a total of $35 billion lower under this scenario.

The second is a "no drawdown" or "status quo" scenario which assumes post-surge cost levels for the war continue throughout the budget window until 2017. This scenario corresponds to an indefinite continuation of the war. To perform this estimate, JEC staff adopted a CBO estimate of FY 2009 costs. At $121 billion per year, this estimated spending would still be over $10 billion

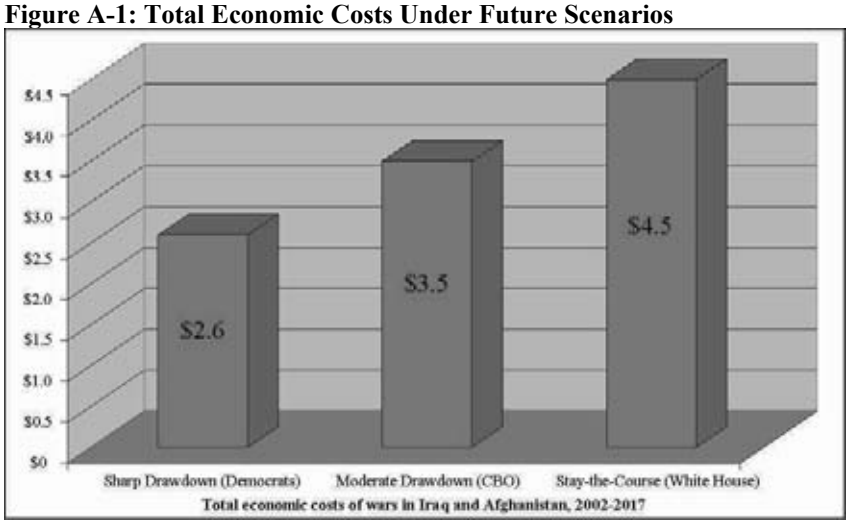
lower than Iraq war spending in FY 2007, and over $30 billion lower than FY 2008 spending will be if the President's supplemental is approved. (It would thus represent the first annual decline in Iraq spending since the start of the war). The "no drawdown" scenario then assumes this spending stays constant in real terms (adjusted for a 2% inflation level) through 2017. This reflects a continued commitment of 155,000 troops to the occupation of Iraq. The costs for disabilities, as well as additional military costs such as recruitment, force expansion, and repair, are also assumed to be a total of $35 billion higher under this scenario.

Table A-1: Descriptions and Costs of Alternative Future Scenarios

Scenario	Troop Levels in Iraq and Afghanistan		Estimated Total Economic Costs (2003-2017)	
	2007	2008-2017	Iraq and Afghanistan	Iraq Only
No Drawdown (Status Quo)	210,000 (180,000 in Iraq)	Reduction to 180,000 troops total (155,000 in Iraq) by FY 2009. No further reduction.	$4.5 Trillion	$3.5 Trillion
Considerable Drawdown (Korea-like Presence)	210,000 (180,000 in Iraq)	Gradual reduction to 75,000 troops total (55,000 in Iraq) by 2013. This force strength maintained through 2017.	$3.5 Trillion	$2.8 Trillion
Sharp Drawdown (House Democratic Plan)	210,000 (180,000 in Iraq)	Rapid reduction to 30,000 troops total (10,000 in Iraq) by 2010. Full withdrawal from Iraq after 2010; 20,000 troops maintained in Afghanistan	$2.6 Trillion	$1.7 Trillion

Table A-1 and Chart A-1 show force levels and total costs in Iraq and Afghanistan for all three scenarios. Because such a large amount of war costs have already been incurred, all of the scenarios show large total expenses for the war. (For example, all three scenarios require continued interest payments on war-related debt accumulated so far). However, the difference between the "sharp drawdown" and "no drawdown" scenarios amounts to a savings of approximately $2 trillion in total economic costs incurred between 2003 and 2017.

Figure A-1: Total Economic Costs Under Future Scenarios



APPENDIX B: METHODOLOGY

THE ECONOMIC COST CONCEPT

Conceptually, economic costs in this paper are the sum of all costs to taxpayers, plus additional costs to Americans that are not reflected in government budgets. To be a valid measure of total costs, this method requires the assumption that costs to taxpayers exactly reflect the true resource cost of the goods or services being purchased by government.

Of course, this assumption may not be completely true. Some government costs may include, for example, profits in excess of normal rates of return for government contractors. In many analyses of overall economic costs these profits would be scored as transfers and not costs at all (they would act as offsetting benefits to government costs). But in this case the results of adopting such a technique would be misleading and counterintuitive. For example, if profits were scored as transfers, this would imply that cases of contractor fraud in which Americans earned large profits by cheating the government would reduce the overall costs of the Iraq war to the taxpayer.

Because of the assumption that government costs reflect true resource costs, those resource costs that appear in government budgets are not counted twice. To take one example, when disability payments to injured veterans make up for part or all of their lost earnings, these lost earnings are not counted again in economic costs.

CALCULATIONS OF BUDGETARY SPENDING

Figures from the Congressional Research Service (CRS) were used to determine the total amounts expended on the Iraq and Afghanistan wars through the close of 2007, and also in the President's 2008 supplemental request (CRS 2007).[11]

Budgetary figures for 2009 and after were drawn from testimony by the Congressional Budget Office (CBO). These figures are drawn from Tables 5 through 7 of Robert Sunshine's testimony to the House Budget Committee in July, 2007. They are increased by 10% to reflect higher levels of spending than expected at that time. (This increase is explained in CBO director Peter Orszag's testimony before the House Budget Committee in October 2007). The scenario used in the main body of the report corresponds to Scenario 2 in this CBO testimony, with the 12-month sustained surge option assumed. Based on discussions with CBO staff, 80% of these budgetary costs are assumed to be incurred in the Iraq war.

The two other scenarios described in Appendix A also draw on these CBO budgetary figures, but are modified as described in Appendix A.

ACCRUED COSTS OF FOREGONE INVESTMENT

The accrued costs of foregone investment related to borrowed funds are estimated using a shadow cost of capital approach. This approach converts lost investment into the present value of a stream of future consumption. There is substantial agreement that this approach is theoretically correct (Cline 1992). However, there are a variety of methods to calculate the shadow cost. Some methods can have results that depend heavily on assumptions (Lyon 1990).

This report uses a comparatively stable and conservative means for calculating the shadow cost of capital, that is less fragile to assumptions than other methods. The description and justification for the technique is outlined in Cline (1992). This method involves summing the real present value of total returns to capital over a 15 year time horizon. Capital investment returns are calculated using the marginal pre-tax return to private investment, and discounted by the social rate of time preference. All of the capital return is assumed to be consumed, except for whatever share is necessary to compensate for depreciation.

The key assumptions involved are:

1. The amount of borrowed money that represents displaced capital investment. This study assumes 60% of Iraq-related government borrowing represents displaced investment. The other 40% is assumed to be replaced by foreign investors. This figure is directly drawn from an estimate of the economic impact of deficits by the Bush Administration Council of Economic Advisors in 2003 (CEA 2003).
2. The pre-tax real marginal rate of return to capital. This report assumes a 7% real rate of return on capital, net of depreciation. This is the standard assumption that the Office of Management requests that agencies use as the alternative return to capital used in government expenditures (OMB 1992).[12]
3. The social rate of time preference, or discount rate. This report assumes a 3% discount rate. The inflation-adjusted cost of Treasury borrowing in recent years has been between 2 and 3% (OMB). The use of this Treasury borrowing rate is also recommended by OMB when using the shadow price of capital approach. The rate is higher than the standard 2% rate used by CBO. (OMB 1992; Kohyama 2006).

The economic costs of foregone investment are then summed in the following manner:

1. The increase in Federal borrowing each year is calculated using assumptions about the fraction of appropriations that are spent in each year.
2. Sixty percent of increased borrowing is assumed to displace capital.
3. The discounted real present value of the displaced capital is summed over a 15 year time horizon.
4. The present value of costs are counted as accrued in the year in which the Iraq-related borrowing took place.

The stream of foregone investment earnings is discounted to the year in which the borrowing took place. This is done to match economic costs with the reported budget figures from CBO reports and testimony (CBO 2007b, c). The costs in the body of the report can therefore be

understood as describing future losses to the economy over the entire 2003-2017 period.

INTEREST PAYMENTS TO FOREIGN CREDITORS

The 40% of borrowing that does not represent displaced capital is assumed to be borrowed from foreign purchasers of debt. Outflows of interest to these foreign creditors represent an economic loss. Therefore, each year 40% of payments on Iraq-related debt are counted as an economic loss. Based on discussions with CBO staff, interest payments are calculated at a 4.5% interest rate.

OTHER COSTS: MEDICAL COSTS

As discussed in the main body of the report, CBO has attempted to forecast Federal medical and disability costs for war-related injuries up to the year 2017. This report adds on the present value cost of a continuation of these medical and disability costs for a 30-year period, discounted at a 3% rate. Medical costs are assumed to decline at a rate of roughly 10% per year due to the healing of injuries and illnesses. Disability costs remain constant.

The report also adds on a cost of lost earnings for one sample war-related disability, post-traumatic stress disorder (PTSD). The majority of lost earnings costs due to war injuries are assumed to already be counted in VA disability payments, which compensate for such earnings losses and are included in budgetary costs. However, a recent study commissioned by the Veterans Commission on the adequacy of disability benefits found that such benefits only compensate about 80 percent of the earnings losses due to mental disabilities such as PTSD (Christensen et. al 2007).

The report assumes that 15 percent of serving veterans over the 2002-17 period will eventually experience PTSD (Hoge et. al 2007; PCCWW, 2007). The report also assumes that they will experience earnings losses of roughly 20 percent (Savoca and Rosenheck 2000). Finally, the assumption is made that the average present value of lifetime earnings for a veteran absent PTSD is $2 million. (This estimate is based on inflation-adjusted results from civilians from Day and Newburger 2002). The $10 billion figure in the text was calculated based on these assumptions combined with the average under compensation from VA benefits discussed above.

DISCOUNTING COSTS OVER THE BUDGET WINDOW

This report discounts war costs to each specific budget year. For example, the lost future consumption due to debt-related displaced investment is discounted to the year the money was borrowed. Likewise, the future costs of disabilities and injuries for veterans are discounted to approximately the estimated year of the injury. However, costs are not discounted across budget years. This was done to maintain comparability with actual budget figures and future CBO budgetary estimates, which are not discounted.

An alternative method would be to discount all war costs to some specific budget year, such as FY 2008. Discounting and deflating total costs to real FY 2008 dollars does reduce the overall cost of the Iraq war between 2003 and 2017. However, the effect is not large. This is partly because discounting to 2008 increases costs incurred in FY 2003-2007. It is also because under the "moderate drawdown" scenario the bulk of total costs are incurred in years close to 2008.

As an example of the effect of discounting, discounting all costs to real FY 2008 dollars at a 3% discount rate and an assumed 2% inflation rate reduces the total costs of the Iraq war under the "moderate drawdown" scenario from $2.77 trillion to $2.58 trillion. The combined costs of the wars in Iraq and Afghanistan are reduced from $3.48 trillion to $3.25 trillion. Costs of the war between 2002 and 2008 alone would of course be increased by this exercise.

ENDNOTES

[1] As of November 2007, the Congress had already appropriated $449 billion of spending on Iraq, and $609 billion for both Iraq and Afghanistan combined.

[2] CRS 2007; CBO 2007a and 2007b. See Appendix B for full explanation of budgetary estimates.

[3] These direct budgetary costs include estimates of all of the additional spending so far for the Iraq war by the Defense Department, State Department, and the Veterans Administration, as well as reconstruction payments to Iraq.

[4] This is the present value of the lost returns to investments that did no take place due to the diversion of capital into Iraq war spending, as well as the present value of post-tax returns to investments that were funded with foreign capital. The assumptions used to generate this estimate are further described in Appendix B.

[5] This is based on the assumption of a $-.1$ elasticity for oil consumption by U.S. energy consumers and a recycling of 10% of foreign oil revenues into the U.S. economy.

[6] Such additional impacts in 2009 and following years are in quite possible, but since they cannot be reasonably predicted they have not been included in the analysis.
[7] Specifically, the assumption is that a 10 percent rise in oil prices reduces GDP by two-tenths of one percentage point. This produces GDP impacts consistent with the recent Global Insight simulation of a $10 rise in oil prices (Huntington, 2005). It is smaller than the effect found in a recent literature survey by Jones, Leiby and Paik (2004) and the most recent study by Hamilton (2004), who both estimate an impact of between five and sixth tenths of a percentage point of GDP per ten percent rise in oil prices. However, this GDP impact is somewhat larger than that estimated by the Congressional Budget Office (2006).
[8] Based on projecting the present value of CBO disability and medical care costs for the year 2017 over an additional 30 years, with an adjustment for the proportion estimated to come from Iraq. The exact figure depends on what the starting year of discounting is; discounting to 2008 dollars produces the $9 billion figure, while discounting to 2017 dollars yields a $12 billion cost.
[9] See Appendix B. The cost rises to $12 billion when Afghanistan veterans are included.
[10] CBO has raised some question over how much of the repair, reset, and reconditioning costs related to Iraq are in fact purchases of new equipment that was not made necessary by the Iraq war (CBO 2007f). However, in this report we accept the DOD estimate.
[11] These figures differ slightly from CBO figures, as CBO is willing to leave some costs unallocated to either Iraq or Afghanistan while CRS analysts allocate the entire amount to a specific war.
[12] Other estimates are higher; for example, Gomme, Ravikumar, and Rupert (2006) estimate 7.7% as the average of the real marginal return over the 1950-2001 period. This would result in a larger amount of lost investment.

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Energy Efficiency is a Bright Idea: Shedding Light on the Benefits of Increasing Energy and Fuel Efficiency to American Families and Our Environment

INTRODUCTION

Each time a family decides to change a light bulb, upgrade a heating or cooling system, or buy a new appliance or a new car, that family is making a decision that impacts both its pocketbook and the environment. High energy prices and rising awareness of the consequences of global warming have led more consumers to factor energy and environmental costs into their decisions to invest in new homes, appliances and vehicles. Even so, many Americans remain unaware of the private and social benefits of energy-efficient technologies and practices. Energy efficiency translates into lower household energy costs, less pollution and fewer greenhouse gas emissions for all of us. Additionally, increasing household energy efficiency can work to reduce U.S. reliance on foreign fuel sources.

ENERGY EFFICIENCY MEANS A LIFETIME OF LOWER ENERGY BILLS

Residential spending on energy is one of the largest sectors of energy spending in the United States. According to the U.S. Department of Energy, residential spending on energy in 2005 (the last year for which data are available) was approximately $215 billion, or about 21 percent of total U.S. energy expenditure. (See Chart A, Page 5.)[2] The average household now spends an estimated $1,900 in electric and gas utility bills each year.[3]

The American Council for an Energy-Efficient Economy (ACEEE), a leading provider of energy efficiency data and analysis, estimates that the average energy-efficient household spends approximately 40 percent less on the energy it uses than the average household that is not energy efficient.[4] In some states, governments and utilities add to the savings by offering rebates on energy efficient appliances and products.[5] Moreover, there is some evidence that energy-efficient appliances and practices can add to the market value of a home.[6]

Although important gains have been made in energy-efficient technologies and practices, too many American families remain unaware of the potential energy savings that they can gain through energy-efficient living. In 2006, only 31 percent of the 2,251 households surveyed by the Consortium for Energy Efficiency (CEE) knowingly purchased an ENERGY STAR-labeled product.[7]

The following discussion uses data provided by ACEEE to illustrate the potential for cost savings that can result from energy-efficient purchases and practices in the home.

ECONOMIC COMMENTARY: Investing in Energy Efficiency

When consumers decide whether to purchase an energy-efficient appliance or product, they weigh the potential benefits of the product (the savings in energy costs over the life of the product) against its purchase price. The purchase price of the product is the first (and most tangible) cost they will incur, and since the prices of energy-efficient products are often higher than the prices of less efficient, comparable alternatives, the purchase price alone could dissuade some consumers from investing in the more energy-efficient product. But other cost differentials, such as operating and maintenance costs over the service life of the appliance, should be factored in. The timing of the costs and benefits also matters; because appliances provide services over many years, the future costs and benefits relevant to consumer's decision are the "discounted" dollar costs and benefits.[1]

Much of the discussion in this report highlights the potential savings to consumers stemming from the lower energy costs of operating efficient appliances, and it is important to recognize that consumers can enjoy a high rate of return on their investment in many types of energy-efficient products. In other words, even though consumers may have to pay more up front to buy an energy-efficient appliance, they are likely in many cases to recoup the extra upfront costs fairly early in the product's service life because the future energy savings tend to be substantial. (See Box A, Page 3.)

Heating and Cooling

According to the ACEEE, reducing heating energy use is the single most effective way for families to save money on their energy expenditures.[8] Home heating currently accounts for

approximately 30 percent, or about $610, of the average household's energy costs. In the Northeast and Midwest, where the winter months tend to be colder than elsewhere, heating accounted for about 40 percent of the average household's energy costs, or about $830.[9] Cooling a home can also be very costly, particularly for families in warmer parts of the country. On average, households across the nation spend an estimated $270 a year on cooling, while households in warmer states in the West spend approximately $320 a year on average.[10]

Households that heat and cool their homes efficiently pay about 30 percent less a year in utility bills than less-efficient households.[11] Efficient heating and cooling alternatives include energy-efficient boilers, furnaces, or air conditioners, as well as ENERGY STAR-qualified windows. The alternatives also include efficient R-38 ceiling insulation and better-sealed windows and heating/cooling air ducts.[12]

Appliances

Households with energy-efficient appliances will also enjoy energy savings. Appliances account for about 30 percent of total household energy use, which amounts to approximately $550 per year.[13] The energy cost of appliances can vary substantially based upon the age and model of the appliance. For example, according to the Natural Resources Defense Council (NRDC), refrigerators purchased today consume 75 percent less energy than those used in the 1970s.[14] Today, households with ENERGY STAR refrigerators and washing machines are spending approximately $100 less annually, on average, than households with less-efficient refrigerators and washing machines.[15]

Water Heating

The average household spends an estimated $220 on water heating each year. According to NRDC, a water heater that is more than 10 years old is likely to be half as efficient as when it was new.[16] The ACEEE estimates that a household with an energy-efficient water heater is spending nearly $100 a year less to heat water than its less-efficient counterpart.[17]

Lighting

Lighting currently accounts for about 5 to 10 percent of total energy use in the average American household. The typical household using 20-watt ENERGY STAR compact fluorescent light bulbs (CFLs), which use less energy and last up to seven times longer, is spending nearly $13 a year less per bulb (assuming 8 hours of use) than a similar household using 75-watt incandescent light bulbs.[18] Replacing five 60-watt incandescent light bulbs with 13-watt ENERGY STAR CFLs can save households about $30 a year in lighting expenses, assuming the lights are in use for four hours a day. The total savings only increase as usage increases. (See Appendix A.)

Illustrative Household Energy Scenarios

The following table is prepared from data provided by ACEEE and illustrates the potential for in-use savings from energy efficiency. Household A (the "Martin" family) spends approximately $1,820 on utilities annually and represents typical household energy use. Household B (the "Bailey" family) has already made several upgrades to its house that have improved its overall energy-efficiency. The Baileys spend 40 percent, or approximately $730, less per year on in-home energy use than the Martins. These updates include improvements in heating and cooling, and updating to ENERGY STAR-qualified refrigerators, washing machines, light bulbs and windows. (See Table A.) (The Bailey's energy efficiency upgrades are itemized in Appendix B.)

BOX A: Return on Investment in Selected Energy-Efficient Appliances Over the Life Cycle of the Product

ENERGY STAR Unites Versus Comparable Conventional Units (Dollars)

	ENERGY STAR Qualified Unit	Comparable Conventional Unit	Savings with ENERGY STAR
	OIL BOILER		
Annual Operating Costs[1]			
Energy Cost	$3,827	$4,114	$287
Life Cycle Costs[2]			
Energy Operating Costs	$52,016	$55,917	$3,901
Cost of Purchase	**$4,000**	**$2,700**	**-$1,300**
Total	**$56,016**	**$58,617**	**$2,601**
	Simple Payback of Initial Additional Cost (Years)[3]		**4.5**
	PROGRAMMABLE THERMOSTAT		
Annual Operating Costs[1]			
Energy Cost	$1,130	$1,378	$248
Life Cycle Costs[2]			
Energy Operating Costs	$12,562	$15,319	$2,757
Cost of Purchase	**$100**	**$40**	**-$60**
Total	**$12,662**	**$15,359**	**$2,697**
	Simple Payback of Initial Additional Cost (Years)[3]		**0.2**
	AIR CONDITIONER		
Annual Operating Costs[1]			
Energy Cost	$139	$153	$14
Life Cycle Costs[2]			
Energy Operating Costs	$1,123	$1,238	$115
Cost of Purchase	**$300**	**$270**	**-$30**
Total	**$1,423**	**$1,508**	**$85**
	Simple Payback of Initial Additional Cost (Years)[3]		**2.1**
	REFRIGERATOR		
Annual Operating Costs[1]			
Energy Cost	$46	$54	$8
Life Cycle Costs[2]			
Energy Operating Costs	$455	$536	$81
Cost of Purchase	**$1,100**	**$1,070**	**-$30**
Total	**$1,555**	**$1,606**	**$51**
	Simple Payback of Initial Additional Cost (Years)[3]		**3.7**

Source: ENERGY STAR, U.S. Environmental Protection Agency and U.S. Department of Government, Life Cycle Cost Estimates, available at http://www.energystar.gov/index.cfm?fuseaction=find_a_product.

[1] Annual costs exclude the initial purchase price and assume that annual costs of maintaining both units are equal. Annual operating costs for the oil boiler and programmable thermostat assume use in Detroit, Michigan; annual operating costs for the air conditioner assume use in Atlanta, Georgia.

[2] Life cycle costs are discounted over the products' average lifetime using a real (inflation-adjusted) discount rate of 4 percent.

[3] A simple payback period of zero years means that the payback is immediate.

FUEL EFFICIENT VEHICLES MEAN PAYING LESS AT THE PUMP

Transportation is the single largest sector of consumer spending on energy, representing $475 billion, or 46 percent of total spending in 2005 (the latest year for which data are available).[19] (See Chart A, Page 5.) Transportation accounts for 68 percent of our nation's oil usage.[20] In 2005, U.S. cars and trucks consumed 174 billion gallons of gasoline, accounting for more than two-

thirds of U.S. consumption of petroleum-related products and contributing significantly to our dependence on foreign-produced oil.[21] If gasoline prices remain at current levels, the typical American household with two vehicles will spend nearly $3,700 on gasoline this year, according to the American Automobile Association (AAA).[22]

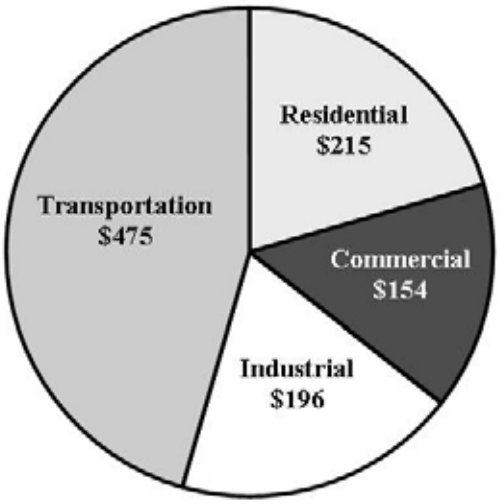
To illustrate the potential for gasoline savings from fuel efficiency, the following table compares the energy costs of two households that already own two cars of comparable size and age. Each household drives their cars about 14,600 miles apiece each year. However, household A (the "Martin" family) gets poorer gas mileage on each of its cars than household B (the "Bailey" family). The Martin family gets an average of 25.4 miles per gallon (mpg) out of its cars (the average efficiency for the U.S. fleet in 2006), while the Baileys get 35.0 mpg.[23] As a result, the Martins will spend about $3,200 on gasoline to fuel their cars this year, while the Baileys will spend only about $2,320 on gasoline. That is, the Martins spend approximately $880 more than the fuel-efficient Baileys.[24] In short, a household that operates vehicles with an average fuel efficiency of 35.0 miles per gallon (mpg) can expect to spend 27 percent less on fuel than a household that operates vehicles with an average fuel efficiency of the national fleet average of 25.4 mpg. (See Table B.)

Table A: An Illustration of Potential Energy Savings From Use of Efficient Appliances and Practices
The Martins vs. The Baileys

	Average Annual Household Spending		Annual Energy Savings
	Martins	Baileys	Difference
Household Energy Expense			
Heating	$613	$279	$334
Cooling	$271	$93	$178
Water heating	$218	$122	$96
Lighting	$165	$138	$27
Appliances	$553	$453	$100
Total	$1,820	$1,086	$734
Total Savings		**40%**	**$734**

Source: Based on data provided by the American Council for an Energy-Efficient Economy.

Figure 6: U.S. Energy Expenditures by Sector, Billions of Dollars



Source: Energy Information Administration, U.S. Department of Energy, *Annual Energy Outlook 2007*

Table B: An Illustration of Potential Gasoline Savings From Use of Fuel Efficient Vehicles (The Martins vs. The Baileys)

	Martins	Baileys	Difference in Gasoline Spending Per Year
Average Fuel Efficiency (mpg)	25.4	35.0	
Annual Fuel Costs	**$3,196**	**$2,319**	**$877**

Source: JEC calculations based on data from the Department of Transportation and the Department of Energy.

Note: Calculations assume an annual average gasoline price of $2.78 per gallon, the Energy Information Administration's 2007 projection for the retail price of a gallon of regular grade gasoline.

Consumers often underestimate the economic benefits of purchasing more fuel-efficient vehicles available on the market today, such as hybrids. In addition to the savings from gasoline consumption, consumers that purchase certain types of hybrid

vehicles may be eligible for significant tax credits from the federal government. For example, a consumer who purchases a hybrid sports utility vehicle instead of a standard-engine sports utility vehicle (from the same model year) can receive a tax credit of as much as $3,000 to help offset the difference in the initial purchase price of the hybrid.[25] The tax credit, coupled with fuel savings, may allow the consumer to recoup the increased price paid for the hybrid in just over two years.[26]

IV. ENERGY EFFICIENCY ALSO HAS IMPORTANT SOCIAL BENEFITS

The benefits of energy efficiency also extend far beyond the direct savings for individual households. The operation of energy-efficient homes, appliances and vehicles might also reduce the nation's need for new power facilities, reduce the level of pollutants in the air we breathe, and provide a healthier indoor environment for families.

According to the EPA, the average single-family home adds more than twice as much greenhouse gas emissions to the atmosphere as the average passenger vehicle.[27] The process of heating and cooling homes in the U.S. emits 150 million tons of carbon dioxide into the atmosphere each year. Such emissions also generate about 12 percent of the nation's sulfur dioxide emissions and 4 percent of the nation's emissions of nitrogen oxides —the main components of acid rain.[28] Energy-efficient households can emit approximately 8,900 fewer pounds of CO_2 into the air each year, according to ACEEE.[29] The use of an ENERGY STAR refrigerator and washing machine alone could lessen household carbon emissions by 1,200 pounds of CO_2 each year.[30] And if every American home replaced just one light bulb with a more efficient (ENERGY STAR-qualified) bulb, we would save enough energy to light more than 3 million homes for a year and prevent greenhouse gases equivalent to the emissions of more than 800,000 cars according to the EPA and the U.S. Energy Department.[31]

According to the U.S. Department of Energy, energy-efficient homes can also provide a healthier indoor environment. The

health risks associated with contaminants such as combustion by-products and radon, mold, pollen and dust mites can be reduced by upgrading to energy-efficient products and technologies.[32] Further benefits include reduced noise, greater fire safety, and improved building stability.[33]

Greater fuel efficiency in vehicles would also help curb greenhouse gases. The EPA reports that the transportation sector–which is dominated by automobile usage–has significantly increased its contribution of carbon emissions over the past forty years, ballooning from one-quarter of all emissions to one-third (33 percent).[34]

V. CONCLUSION

There can be substantial private and social benefits for households to invest in greater energy efficiency–from both a private savings and a social benefits perspective. To increase awareness of these advantages, policymakers can promote measures to make it easier for consumers to factor in both the energy savings and the reduced carbon emissions over the life of the appliances and vehicles they may buy to assist them in their purchase decisions. Energy efficient technologies are available today, and thus the decision to be more energy efficient can have an immediate positive impact on our environment and energy security. Helping more American families to realize the potential benefits of energy-efficient technologies and practices can go a long way toward achieving our national goals for energy policy.

APPENDIX A: Potential Savings from Replacing a 60-Watt Incandescent with a 13-Watt Compact Fluorescent Light Bulb

	1st year	2nd year	3rd year	5th year	10th year
Light on 2 hrs/day	$1.76	$5.52	$9.28	$16.31	$32.59
Light on 4 hrs/day	$5.52	$12.53	$20.06	$32.59	$66.69
Light on 8 hrs/day	$12.53	$27.08	$39.61	$66.69	$135.38
Light on12 hrs/day	$20.06	$39.61	$59.67	$100.78	$201.57

Source: Data provided by American Council for an Energy Efficient Economy; Calculations take into account initial purchase price of the lightbulbs.

Note: Savings calculations based on comparing an incandescent light bulb costing $.50 providing 850 lumens of light, for 1000 hours at an electricity cost of $.095 per kilowatt hour, versus a fluorescent bulb costing $2.00, providing 850 lumens of light for 6,000 hours at the same cost of electricity.

APPENDIX B: Annual Household Spending on Energy

Annual Household Spending on Energy

	US Average		Region							
			Northeast		Midwest		South		West	
	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy	Dollars	Energy
Heating (therms unless noted)	$613	595	$827	517	$712	730	$585	450	$468	520
Cooling (kWh)	$271	2,796	$174	1,420	$152	1,772	$292	3,467	$323	3,392
Water heating (therms)	$218	197	$225	180	$201	206	$270	208	$168	187
Lighting (kWh)	$93	946	$68	710	$86	896	$103	1,027	$98	994
Appliances, etc (kWh)	$553	5,908	$591	4,979	$518	6,251	$517	6,142	$555	5,839
TOTAL	$1,820		$1,999		$1,741		$1,831		$1,666	

Potential Energy Cost Savings

	Dollars	CO2(lb)	Dollars	CO2(lb)	Dollars	CO2(lb)	Dollars	CO2(lb)	Dollars	CO2(lb)
Install Energy Star Windows	$110	1,335	$125	1,378	$108	1,365	$110	1,317	$99	1,305
Install R-38 ceiling insulation	$97	1,175	$110	1,212	$95	1,201	$96	1,159	$87	1,149
Seal major air leaks	$44	534	$50	551	$43	546	$44	527	$40	522
Seal heating/cooling air ducts	$133	1,602	$150	1,653	$130	1,638	$132	1,581	$119	1,566
Energy Star thermostat	$44	534	$50	551	$43	546	$44	527	$40	522
Energy Star bulbs (5)	$27	321	$33	363	$39	493	$46	553	$36	476
Low-flow showerheads (2)	$63	761	$64	708	$50	634	$67	804	$46	612
Energy Star refrigerator	$43	513	$54	594	$48	603	$41	498	$41	537
Energy Star Washer	$58	697	$73	803	$65	816	$56	674	$55	726
Efficient Water Heater	$33	395	$34	371	$29	369	$44	529	$20	269
Efficient boiler/furnace	$80	966	$146	1,606	$93	1,173	$76	917	$61	806
Efficient air conditioner	$95	1,147	$61	671	$53	673	$102	1,228	$113	1,491
Subtotal--Heating	$334	4,038	$470	5,173	$388	4,903	$319	3,833	$255	3,370
Subtotal--Cooling	$178	2,147	$114	1,256	$100	1,260	$191	2,298	$211	2,791
Water Heating	$96	1,156	$98	1,079	$79	1,003	$111	1,333	$67	881
Lighting	$27	321	$34	370	$24	297	$23	277	$26	344
Appliances, other	$100	1,212	$127	1,396	$112	1,420	$98	1,172	$96	1,263
TOTAL SAVINGS	**$734**	**8,874**	**$843**	**9,274**	**$703**	**8,883**	**$742**	**8,913**	**$655**	**8,649**
Savings as a percent of spending	**40%**		**42%**		**40%**		**41%**		**39%**	

Note 1: Individual measure savings do not add up directly to end-use subtotals or whole-house totals because implementation of some measures reduces savings impact of others, e.g. replacing windows reduces savings impact of replacing furnace.

Note 2: Savings are based on an average-sized single family detached home, approx. 2000 square feet, two stories. Savings for smaller, larger, or multifamily homes will vary.

Note 3: Savings are not calculated on a life-cycle cost or net present value basis and therefore do not consider initial purchase prices.

Note 4: Underlying energy use and price data are based on the Department of Energy's 2001 Residential Energy Consumption Survey and 2004 regional price data.

ENDNOTES

[1] Discounting future costs and benefits is required because a dollar to be received in the future is worth less today than a dollar actually received today.

[2] U.S. Department of Energy, Annual Energy Outlook 2007, at p. 141, available at http://www.eia.doe.gov/oiaf/aeo/index.html.

[3] Environmental Protection Agency, *Energy Efficiency: Reduce Bills, Protect the Environment,* last updated April 2007, available at http://www.epa.gov/solar/pdf/napee_consumer.pdf.
[4] Unpublished data from the American Council for an Energy-Efficient Economy, "Home Energy and Carbon Calculations 2007."
[5] ENERGY STAR, U.S. Environmental Protection Agency/U.S. Department of Energy, "Special Offers and Rebates from Energy Star Partners," available at http://www.energystar.gov/index.cfm?fuseaction=rebate.rebate_locator.
[6] U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2007, at p. 42; *Building Design+Construction*, "Green Buildings and the Bottom Line," November 2006. According to the trade journal, *Building Design+Construction*, builders can add to the value of homes by upgrading insulation, HVAC systems, windows, and doors in their projects (and also specify energy-efficient, Energy Star appliances). The study cites McStain Neighborhoods of Denver, a property group that follows guidelines established by the Built Green Colorado program, which includes among many things the stipulation that "House(s) meets the EPA Energy Star Program criteria." The company CEO says these homes have a resale value about 4-10% higher than traditional homes.
[7] EPA Office of Air and Radiation, Climate Protection Partnerships Division, *National Awareness of ENERGY STAR for 2006: Analysis of 2006 CEE Household Survey, U.S.* Environmental Protection Agency, 2007.
[8] American Council for an Energy-Efficient Economy, *Consumer Guide to Home Energy Savings*, 8th Edition, 2003 available at http://www.aceee.org/consumerguide/topfurn.htm.
[9] Unpublished data from the American Council for an Energy-Efficient Economy, "Home Energy and Carbon Calculations 2007." ACEEE estimates based on data from the Department of Energy's Energy Information Administration's 2001 Residential Energy Consumption Survey and 2004 regional price data.
[10] *Ibid.*
[11] *Ibid.*
[12] R-38 is a commonly recommended ceiling insulation in many parts of the United States.
[13] See Endnote 9.
[14] Natural Resources Defense Council, *Efficient Appliances Save Energy – and Money,* available at http://www.nrdc.org/air/energy/fappl.asp.
[15] See Endnote 9.
[16] National Resource Defense Council, "Efficient Appliances Save Energy—and Money," available at http://www.nrdc.org/air/energy/fappl.asp.
[17] See Endnote 9.
[18] Unpublished data from the American Council for an Energy-Efficient Economy (See Appendix B.)
[19] U.S. Department of Energy, Annual Energy Outlook 2007, at p. 141, available at http://www.eia.doe.gov/oiaf/aeo/index.html.

[20] Government Accountability Office, "Passenger Vehicle Fuel Economy: Preliminary Observations on Corporate Average Fuel Economy Standards," March 6, 2007, at p. 1.
[21] *Ibid.*
[22] Geoff Sunderstrom, "Testimony Before the Senate Committee on Energy and Natural Resources," May 15, 2007. Estimates based on a gas price of $3.073 per gallon and assumes household uses 1,200 gallons of gasoline per year.
[23] The average fuel efficiency for the entire fleet of U.S. passenger vehicles was 25.4 miles per gallon in 2006. (U.S. Department of Transportation, *Summary of Fuel Economy Performance,* NHTSA, NVS-220, October 2006, at p. 4, available at http://dmses.dot.gov/docimages/pdf99/426721_web.pdf.
[24] Calculations assume an annual average gasoline price of $2.78 per gallon, the Energy Information Administration's 2007 projection for the retail price of regular grade gasoline.
[25] Internal Revenue Service, "Hybrid Cars and Alternative Motor Vehicles," March 19, 2007, available at http://www.irs.gov/newsroom/article/0,,id=157632,00.html.
[26]Joint Economic Committee calculation of simple payback period assuming purchase of a 2008 hybrid SUV (four-door, front-wheel drive) versus comparable, conventional model, $3,000 federal tax credit, and gas prices based on EIA's 2007 Annual Energy Outlook. Present value calculation assumes annual discount rate of 12 percent over 13 years, the estimated life of the vehicle, and no difference in maintenance costs.
[27]Unit Conversions, Emissions Factors, and Other Reference Data, United States Environmental Protection Agency, November 2004, available at http://www.epa.gov/cppd/pdf/brochure.pdf.
[28]U.S. Department of Energy, Energy Efficiency and Renewable Energy, "Energy Savers: Tips on Saving Energy & Money at Home," available at http://www1.eere.energy.gov/consumer/tips/heating_cooling.html.
[29] See Endnote 9.
[30] *Ibid.*
[31] ENERGY STAR, U.S. Environmental Protection Agency/U.S. Department of Energy, Compact Fluorescent Light Bulbs, available at: http://www.energystar.gov/index.cfm?c=cfls.pr_cfls.
[32] Office of Building Technology, U.S. Department of Energy, "Technology Fact Sheet: Energy Efficiency Pays," March 1999.
[33] *Ibid.*
[34] Environmental Protection Agency, "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005," April 2007. Se also Government Accountability Office, "Automobile Fuel Economy: Potential Effects of Increasing the Corporate Average Fuel Economy Standards," August 2000.

Billions in Offshore Royalty Relief for Oil and Gas Companies Buys Little For Taxpayers

The federal government's ill-conceived royalty relief pro-gram for offshore oil and gas drilling could cost taxpayers up to $80 billion—with precious little to show for it. There is scant evidence that royalty relief materially affects the domestic supply of oil and natural gas or our dependence on foreign energy sources. Moreover, money spent on tax incentives for oil and gas companies to encourage deepwater drilling is very likely to have a greater impact on energy security if used to encourage conservation or the development of renewable energy alternatives. As an economic policy, royalty relief appears to have no net effect on jobs at the national level or any effect on energy prices paid by consumers.

Royalty Relief Could Cost up to $80 Billion in Lost Revenue
The federal government manages the energy resources on federal lands, including underwater sites on the Outer Continental Shelf (OCS), and leases production rights to private companies. For OCS oil and gas, companies bid to acquire the rights to produce from federal leases and the government collects royalties (a percentage of the revenue) once production begins. Royalty relief was enacted in 1995 with the promise to taxpayers that it would provide incentives to producers that would lead them to increase domestic production. However, oil and gas companies have successfully exploited inconsistencies in the law and stand to receive tens of billions of dollars of unintended royalty giveaways.

The royalty relief program was supposed to include price thresholds that would limit the cost of the program, but as detailed in the Appendix, the cost of lost leasing royalties could be much higher than expected for the following three reasons:

- A successful legal challenge to the way the Department of the Interior defined the volume of oil subject to royalty relief adds an estimated $10 billion in costs.

- An apparent administrative oversight that failed to include price thresholds on royalty relief for leases issued in 1998 and 1999 adds an estimated $10 billion more.
- A lawsuit challenging the authority to apply price thresholds to any leases issued between 1996 and 2000, if successful, would add an estimated $60 billion more.
- The economic case for any royalty relief is weak. With these additional costs, the program would have to deliver huge benefits to satisfy any reasonable cost-benefit test.

Economic Benefits From Royalty Relief Are Hard to Find
It is difficult to find evidence of economic benefits from the royalty relief program. The justification for this and other special subsidies for oil and gas companies usually rests on the arguments that increasing domestic oil and gas production will lessen our dependence on foreign sources of sup-ply, promote employment and economic growth, and hold down energy prices for consumers. Yet, as discussed be-low, it does not appear that royalty relief is a cost effective way of achieving any of these ends.

Royalty relief is one part of a package of government sub-sides for oil and gas companies. In addition to royalty relief, these subsidies include special tax provisions for exploration and production of oil and gas, and direct spending on research and development for oil and gas production technology. Oil and gas companies also benefit from general tax subsidies such as the manufacturing tax deduction and favorable inventory accounting rules that apply to other industries as well. It is questionable whether these targeted subsidies are an important incentive to new production, especially at a time when oil and gas companies are recording record profits.

Royalty Relief Does Little to Increase Domestic Supply
According to the General Accounting Office, the Minerals Management Service of the Department of the Interior (MMS)

has not conducted a cost/benefit analysis of the impact of deepwater royalty relief. An MMS-commissioned study did look at the effects of the royalty relief incentives on leasing, bidding, and competition, but did not look at actual exploration and production. The study, however, did simulate the effects of royalty relief on production and revenues going forward from 2003 under various assumptions about the continuation of the royalty relief program. The study found that compared with the base case of no royalty relief, royalty relief similar to that enacted in the Deepwater Royalty Relief Act of 1995 (DWRRA) would be expected to increase new production by only 2.8 percent over the next forty years while reducing the present value of royalty revenue by about 32 percent.[1]

The study also noted that changes in the assumptions about the expected price of oil and natural gas had a much greater influence on future exploration and production than royalty relief. It is not surprising that royalty relief would have a much smaller impact. Oil prices are subject to consider-able volatility and at their peak in 2006 were almost four times their 1999 level (Chart 1). Price changes dwarf the dollar value of the subsidy from royalty relief.

Royalty Relief Is the Wrong Policy for Achieving Energy Security

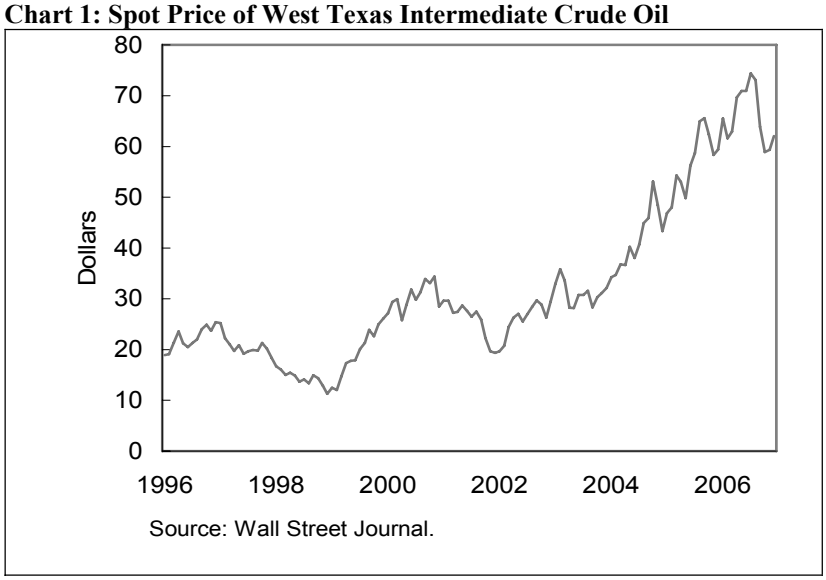
U.S. dependence on foreign oil stems from the 10 million barrel per day gap between domestic demand for oil and the supply forthcoming from domestic sources of production (Chart 2). Production from the Gulf of Mexico ac-counts for a little less than 10 percent of total U.S. oil sup-ply (domestic production plus imports). The United States imports about 65 percent of its total supply, with about half of that coming from OPEC countries.

Dependence on foreign sources of oil is particularly problematic when those sources are dominated by countries in unstable parts of the world such as the Middle East and governments unfriendly to the United States such as Venezuela. Thus, the key to energy security is to reduce the gap between U.S. oil consumption and

U.S. oil production in order to reduce our dependence on foreign sources of supply.

From the standpoint of energy security, it is immaterial whether we reduce our dependence on insecure sources of oil by reducing our overall demand or by increasing our domestic supply. The key to judging the effectiveness of a particular energy security policy is whether we are getting the best "bang-for-the-buck" in terms of reducing our dependence on insecure sources of supply. If some or all of the money being spent on one policy could achieve a larger reduction if it were diverted to a different policy, we could achieve better energy security for the same amount of money.

Chart 1: Spot Price of West Texas Intermediate Crude Oil

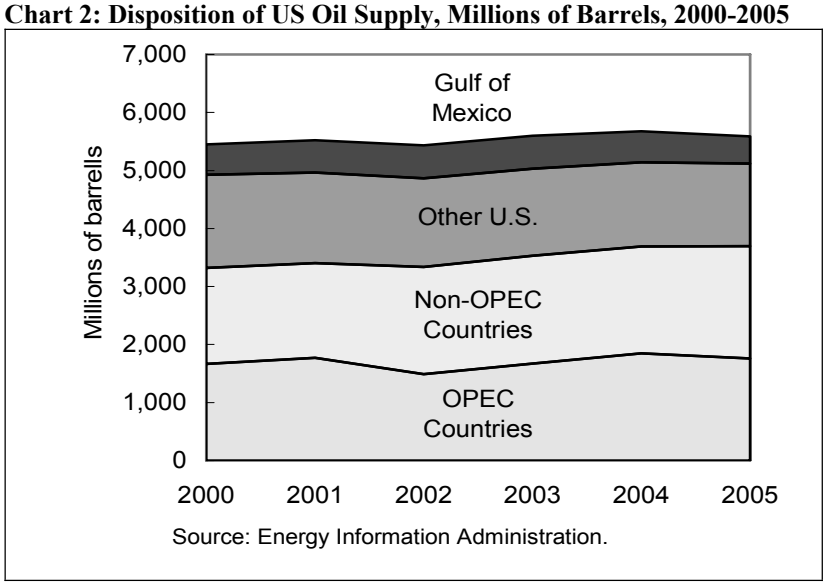


A broader criterion for an optimal energy security policy is whether the benefits of devoting additional resources to energy security would justify the additional costs, both economic and environmental. Based on the available evidence, royalty relief for oil and gas production fails both the cost- effectiveness ("bang-for-the-buck") criterion and this broader "optimality" criterion. The subsidy currently going to royalty relief would almost surely be better spent on more cost-effective, demand-side strategies to

conserve on energy use or the development of alternative fuels to substitute for oil. Scaling back or eliminating government subsidies would appear to sacrifice little in terms of energy security relative to the cost of the subsidies.

A preliminary study by the RAND Corporation finds, for example, that the current pace of renewable energy development could reduce projected oil consumption by 10 percent by 2025. The study says that raising the use of renewables to 25 percent of all U.S. energy consumed would reduce U.S. reliance on oil by double that or roughly the equivalent of imports from Saudi Arabia and Venezuela. Such prospects illustrate the potential for public policies that encourage such demand-side solutions.[2]

Chart 2: Disposition of US Oil Supply, Millions of Barrels, 2000-2005



Royalty Relief Has No Effect on Jobs and Prices

Oil and gas royalty relief, like other subsidies to encourage domestic energy production, are sometimes alleged to have benefits in terms of job creation or keeping energy prices more affordable for consumers. In general, however, production subsidies aimed at a particular industry or sector are unlikely to increase jobs at the national level, and small increases in domestic oil production will not affect prices.

Increases in domestic production can increase the demand for workers in the oil and gas industry. However, the industry is relatively capital-intensive, and the small increases in production likely to stem from royalty relief are not likely to have a large employment effect. The number of workers employed in oil and natural gas extraction was just over 143,000 at the end of last year, compared with a total of over 114 million jobs in the non-farm private sector. More important, over time and at the national level, jobs created in the oil and gas industry are more likely to represent jobs diverted from other industries than they are net new job creation.

With respect to prices, oil prices are set in a world oil market. Relatively small increases in domestic supply are un-likely to move world oil prices at all. That is not to say, however, that a meaningful reduction in U.S. dependence on foreign oil achieved through a well-conceived energy security policy that includes significant conservation and alternative fuel development cannot have a large enough impact to affect prices.

Conclusion

The federal government has not performed a systematic analysis of the costs and benefits of the oil and gas royalty relief program. It seems clear, however, that the program would fail such an analysis. The economics of the program were questionable when it was instituted and oil prices were low. In today's economy, there is no reasonable economic justification for continuing the program.

Royalty relief has not led to meaningful increases in the domestic supply of energy, nor has it led to the creation of new jobs or the lowering of energy prices. What royalty relief has done is cost taxpayers tens of billions of dollars without reducing our dependence on insecure sources of foreign oil. Our failed experiment with royalty relief invites further examination of the effectiveness of the dozens of other tax incentives designed to increase oil and gas production in the current tax code. To the extent that demand-side policies such as conservation and the

development of alternative fuels are likely to be more effective at increasing our energy security, shifting energy tax incentives into those policies would give taxpayers more energy security "bang" for their tax "bucks."

Endnotes

[1] Ashton, P.K., L.O Upton II, and Michael H. Rothkopf, 2005. *Effects of Royalty Incentives for Gulf of Mexico Oil and Gas Leases.* Volume I: Summary, U.S. Department of the Interior, Minerals Management Service, Economics Division, Herndon, VA. OCS Study MMS 2004-077, Table 5-10, page 56. Results are for the $46/bbl price scenario.

[2] Rand has temporarily pulled the report from its website to make technical corrections to the models used. The estimates reported in the text are based on news reports at the time the study was first released. See 25x'25, "25 Percent Renewables by 2025 Is Achievable and Affordable," http://www.25x25.org/storage/25x25/documents/RANDandUT/RANDFactSheet.pdf,
and Fialka, John J., "Renewable Fuels May Provide 25% of U.S. Energy by 2025," Wall Street Journal, November 13, 2006; page A10, http://online.wsj.com/public/article/SB116337967603521181-XoaCh_oy6v0JyhW2wd4yQ31pahQ_20061213.html?mod=tff_main_tff_top.

The Proposed Modification of Internal Revenue Code Section 199 Will Not Increase Consumer Energy Prices

The following analysis by the majority staff of the Joint Economic Committee (JEC) at the request of Senators Jeff Bingaman, Chairman of the Senate Energy and Natural Resources Committee, and Max Baucus, Chairman of the Senate Finance Committee examines the impact of denying the Internal Revenue Code (IRC) Section 199 manufacturing deduction to major integrated oil and gas producers on consumer prices of oil and natural gas. The report finds that the removal of this deduction would have a negligible effect, if any, on consumer energy prices. This tax provision will likely be included in a larger Senate energy bill as a way to finance renewable and energy conservation efforts.[1]

Key Points

- Because the removal of the tax deduction does not affect production decisions in the near term, removing or modifying the tax deduction will have no effect on consumer prices for gasoline and natural gas in the immediate future.

- In the long run, the removal of the tax deduction is unlikely to have any effect on consumer prices for oil and gas. Oil prices are more than three times higher than they were when the tax deduction was implemented in 2004 – and those high prices are an incentive for investors to continue to invest in oil and gas companies. Although natural gas prices are not significantly different from their 2005 levels, natural gas prices rose significantly over the last decade and those higher prices also provide good incentives for investors.

What is the current tax deduction and what is the proposed removal?

IRC Section 199 was modified in 2004, as part of the American Jobs Creation Act, to allow manufacturers to deduct, as a business expense, up to a specified percentage of qualified domestic production activity income in a given year. Initially, manufacturers were allowed to deduct up to 3 percent of qualified income. The specified percentage rose to 6 percent in 2007 and will increase to 9 percent in 2010. For the domestic oil and gas industry, the deduction applies to oil or gas that was "manufactured, produced, or extracted in whole or in significant part in the United States."[2] Currently, the marginal corporate income tax rate is 35 percent and this credit will reduce the marginal tax to 31.85 percent when the deduction is fully implemented.[3]

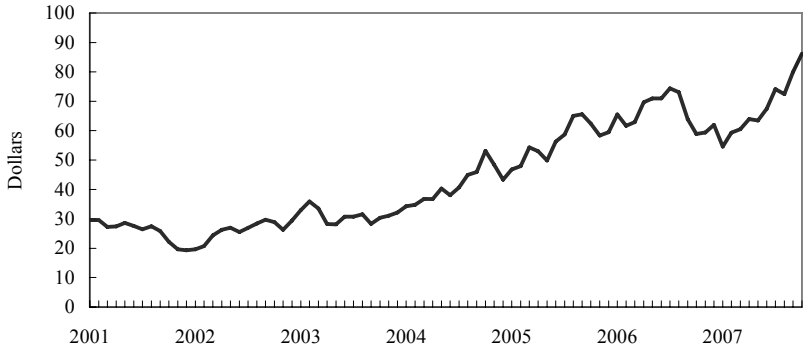
The proposal excludes gross receipts of major integrated oil companies derived from the sale, exchange or other disposition of oil, natural gas, or any primary product thereof from the domestic production deduction for purposes of Section 199. The Joint Committee on Taxation estimates that removal of the credit for major integrated oil and gas producers would bring in $9.433 billion in federal revenue over the next eleven years.[4]

Why the removal of this income tax deduction won't cause a consumer price hike:

1. In the short run, an effective increase in the marginal corporate income tax rate for oil and gas producers would not affect output or price of either domestic crude oil or natural gas. In the short run, these producers will continue to produce where the marginal cost of extracting (or refining or transporting) the next unit of crude oil (or natural gas) is equal to the price of crude oil (or natural gas). While an increase in the marginal income tax will raise average costs of engaging in the activity, it will not affect the short-run marginal cost. In the short run, firms make production decisions based only on marginal costs.

2. In the long run, it is likely that the high prices of crude oil will send adequate signals to investors in the domestic oil and natural gas industries. Indeed, an oil executive testified recently that removing the recent tax breaks (including Section 199) given to his company would not affect his company.[5] The effect of eliminating this deduction for the domestic oil and gas industry will raise long-run average costs and generally decrease rates of return to investments in the oil and natural gas industry, all other things being equal. However, the price of crude oil has more than doubled since 2005, when this deduction took effect. See Figure 1 below for the West Texas Intermediate spot price of crude oil from January, 2001 to the present. In January, 2005, when this deduction took effect, the spot price in West Texas was $46.84/barrel. Currently, the posted price of West Texas Intermediate oil is $94.62.[6]

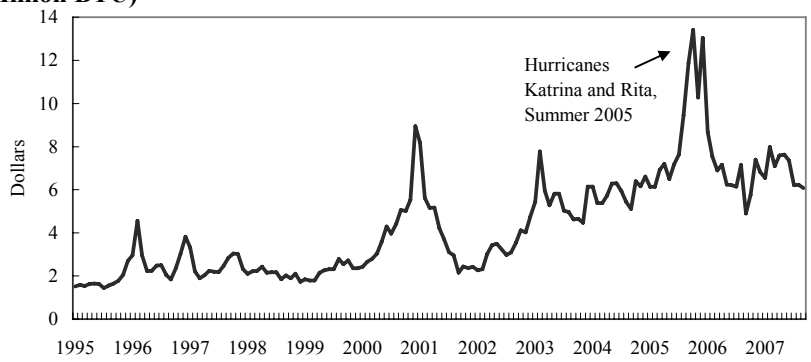
Figure 1: Spot Crude Oil Price: West Texas Intermediate
Dollars per Barrel



Source: Wall Street Journal
Note: Prices are in nominal (not inflation adjusted) dollars

3. While the price of natural gas has not risen as dramatically as crude oil in the last 3 years, the price of natural gas has increased substantially in the last decade from its low of $1.85 per million BTU in August, 1999 to its present level of $7.14 per million BTU in November, 2007. See Figure 2 below.

Figure 2: Spot Natural Gas Prices: Henry Hub, Louisiana (Dollars per Million BTU)



Source: Wall Street Journal
Note: Prices are in nominal (not price adjusted) dollars

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[1] See the Senate Finance Committee's summary of the tax provisions in the Clean Renewable Energy and Conservation Tax Act of 2007.

[2] See American Jobs Creation Act of 2004, Public Law 108-357 § 199 (c)(4)(A)(i)(I), available online at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_public_laws&docid=f:publ357.108.pdf. This deduction allows manufacturers, including oil and gas producers, to deduct, as a business expense, the specified percentage of domestic income subject to a limit of 50 percent of wages that are allocable to the domestic production during the taxable year.

[3] Congressional Budget Office, "Corporate Income Tax Rates: International Comparisons," November 2005, available online at http://www.cbo.gov/ftpdocs/69xx/doc6902/11-28-CorporateTax.pdf. Currently, the 6 percent credit reduces the corporate marginal tax rates to 32.9 percent.

[4] This tax provision is identical to the S199 tax provision in an earlier Senate Finance bill, The Energy Advancement and Investment Act of 2007. See Joint Committee on Taxation, "Estimated Revenue Effects of the Energy Advancement and Investment Act of 2007," June 18, 2007, available online at http://finance.senate.gov/sitepages/leg/LEG%202007/Leg%20110%20061907%20chart.pdf.

[5] See transcript of the Joint Hearing before the Committee on Commerce, Science, and Transportation and the Committee on Energy and Natural Resources, 109th Congress, November 9, 2005, available online at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_senate_hearings&docid=f:26108.pdf. In that hearing, the chairman and CEO of Exxon-Mobil testified that if Congress took back the billions of dollars in brand-new tax breaks, it would not affect Exxon-Mobil.

[6] In real terms, this reflects more than an 85 percent increase in less than 3 years.

Meeting the Challenge of Household Earnings Instability

The U.S. labor market is a constantly churning sea of job creation and destruction. On average, 18 million new jobs appear each year, while 15 million jobs are lost.[1] The vitality of the labor market creates great opportunities for those who can navigate it successfully, but it also creates great risk and uncertainty for working families.

One result of a constantly changing labor market is that many American families experience substantial year-to-year instability in their earnings. While there is an ongoing debate whether that volatility has increased significantly in recent years, there is no question that it exists. About one in five workers experiences a decline in earnings of at least 25 percent from one year to the next, while one in nine workers sees a decline of 50 percent of more.[2]

Some of the volatility in earnings reflects family decisions to change jobs or to take time off from work to devote more time to family responsibilities. It also reflects involuntary loss of earnings as a consequence of illness or injury. Some of the volatility, however, is the outcome of the shifting job market as workers are displaced by slack demand, technological change, or competition from foreign producers.

Elements of the social safety net can help cushion the impact of a temporary decline in earnings because of a job loss, but there are few government programs to help those who suffer a permanent reduction in earnings. Unemployment Insurance (UI) is the main bulwark against temporary job loss, but the UI program has many gaps and is not designed to help with long-term job displacement or reduced earnings once a worker is reemployed. Programs explicitly designed to help displaced workers such as Trade Adjustment Assistance (TAA) are limited in scope and reach very few workers.

The federal income tax provides some assistance to families who experience a decline in earnings through the Earned Income Tax

Credit (EITC), but that help is limited to those families whose earnings are low enough to qualify for the credit. Moreover, the EITC itself and other features of the tax system can exacerbate the consequences of earnings fluctuations by imposing higher taxes on families whose income fluctuates from year-to-year than on families with the same average earnings but whose earnings remain steady. This paper explores the extent of earnings and employment instability faced by American families and possible ways to improve the social safety net and the federal tax code to help cushion the blow of job displacement and the complete or partial loss of earnings that too-often occur in today's economy.

DIMENSIONS OF THE PROBLEM

According to recent testimony by Congressional Budget Office (CBO) Director Peter Orszag, there is significant earnings volatility among American workers. CBO found that among those who were not in school, one in five workers ages 25 to 55 saw a one-year decrease in inflation-adjusted earnings of at least 25 percent, while one in nine saw a decrease of at least fifty percent. Other workers saw substantial increases in earnings. One in four workers saw a oneyear increase in inflation-adjusted earnings of 25 percent while about one in seven saw an increase of at least 50 percent. While these results were for changes from 2001 to 2002, years in which job growth was slow, CBO found similar changes between 1997 and 1998 when employment was growing more rapidly.[3]

Workers without a high school degree tend to experience more earnings instability than workers with more schooling but there is little difference in earnings instability for workers in different age groups. There is some evidence that income instability is greater for lower-income families.[4]

Job Displacement

A key reason for family income instability is job turnover. Over the course of 2006, 4.9 million workers were hired each month on average, while another 4.5 million lost or quit their jobs.[5] Total job separations (quits, layoffs, and other separations) were about 3.4 percent of the total number of workers each month.

Some workers who quit or are displaced find new jobs right away, but others may take weeks or months to find new employment. The median duration of unemployment was about 8 weeks for those unemployed in January 2007 (half had been unemployed for less than 8 weeks, half for more). The average duration of unemployment, however, was over 16 weeks, meaning that workers unemployed for more than 8 weeks tended to have lengthy spells of unemployment. About 2.1 million unemployed workers (30 percent of the unemployed) were without a job for more than 14 weeks, while 1.1 million workers (16 percent of unemployed workers) were unemployed for more than 26 weeks.[6]

Some displaced workers are unable to find work and drop out of the labor force entirely. While the official number of unemployed workers was 7 million in January 2007, another 4.6 million workers wanted a job but had stopped looking for work and were therefore no longer counted as part of the labor force.[7]

Earnings Loss

A sizeable fraction of displaced workers who lose a fulltime job return to work at less than full-time. About 10 percent of displaced full-time workers end up working part time, with the percentage higher during slack labor market periods such as the early 1980s and 1990s.[8] Even among those workers who are able to find new full-time employment, many who lose full-time jobs often earn considerably less at their next job. Among reemployed full-time workers, average earnings were 17 percent less than what they could have expected to earn had they remained on their previous job in 2001-2003, more than twice the average earnings loss for displaced workers in the late 1990s.[9]

HELPING FAMILIES MANAGE EARNINGS INSTABILITY

Whether because of technological change, plant closings, or foreign competition, job separation and earnings instability is a fact of life for many American workers. The troubling news is that more and more workers could be subject to this job churning

as global competition increases. While it may prove impossible to turn back this tide of international competition, it is possible to improve support for displaced workers both as they search for new employment and after they become reemployed.

Some amount of job turnover is an inevitable part of a dynamic and flexible labor market that adjusts quickly to new economic opportunities and in turn contributes to strong economic growth and a rising standard of living. However, excessive job turnover and income instability can create worker anxieties and insecurities that impede those adjustments and ultimately slow economic growth. Reducing the harshest impacts of job dislocation and income instability is one critical step to reducing growth-inhibiting worker insecurity. In addition, policies that mitigate income losses and make it attractive for workers to pursue new training and job opportunities can facilitate adjustments to change and reduce the economic losses associated with job dislocations.

Unemployment Insurance

Unemployment Insurance (UI) is currently the main program to provide support to displaced workers. UI is designed to provide temporary assistance to workers who lose their jobs while they look for new employment. UI is a joint federal-state program. While the federal government administers the program and sets general guidelines, the states determine key features such as which workers are eligible for UI payments, and the amount and duration of benefits.

About 7.3 million workers received UI benefits at some time during 2006.[10] While many workers benefit from the program, there are issues regarding coverage, benefit amounts, and the duration of payments that undermine the effectiveness of the UI program as a cushion against family income shocks.

Coverage

UI is intended to cover workers who involuntarily lose their jobs. Workers entering or reentering the labor force or those who voluntarily leave their jobs without good cause are not eligible.

The definition of good cause for voluntary separation varies from state to state, but may include reasons such as sexual harassment (in all states but six), anticipation of a plant closing, and, in a few states, certain personal reasons such as increased family care-giving responsibilities. [11]

Though nearly one in five workers is employed part time (35 or fewer hours of work per week), part-time workers are not covered in most states. Workers with low-wages or intermittent work histories also may not qualify. States require that workers meet minimum eligibility requirements with respect to earnings and hours of work in a base period. Most states continue to use a base period that includes the first four of the most recent five completed calendar quarters. This can deny benefits to workers who would meet the work history requirement if the base period included the most recently completed quarter. Finally, workers must be able to work and actively looking for full-time work while they are unemployed.

Many workers do not qualify for benefits as a consequence of those restrictions. In recent years only about 40 percent of unemployed workers receive UI payments, although about 80 percent of the unemployed who lost their last job did qualify for benefits.[12]

There are various proposals to improve UI coverage. These include standardizing the base period for determining eligibility to the past four quarters prior to a job loss, which would particularly help those with intermittent work histories; using hours of work rather than earnings to determine eligibility; allowing those who had been working part time before unemployment to remain eligible for benefits when looking for part-time work; broadening the definition of voluntary separation for good cause; and enabling reentrants who were eligible for UI at the time of job separation to receive benefits when they return to the labor force.[13]

Benefit Levels

Benefits in most states are set at half of a UI recipient's average weekly earnings up to a maximum amount. In January 2007, the maximum weekly amount ranged from a low of $210 in Mississippi to a high of $575 in Massachusetts.[14] Because of the cap, few state programs replace, on average, half of lost wages. While the percentage varies among states, on average UI benefits replace only about 36 percent of previous weekly earnings.[15]

Duration of Benefits

Most states limit the duration of benefits to 26 weeks, although extended benefits are automatically triggered when the state insured unemployment rate exceeds certain levels. Congress enacted the Temporary Extended Unemployment Compensation Act in 2002, which provided up to 13 weeks of benefits to workers who exhausted their regular UI benefits, but that program was not renewed when it expired in December 2003. Because benefits are only available for a fixed duration, many UI recipients exhaust their benefits— on average about one-third. The percent of recipients who exhausted benefits reached 44 percent in 2003.[16]

Trade Adjustment Assistance

Trade Adjustment Assistance (TAA) provides extended unemployment insurance benefits and job training to workers dislocated by trade. Under TAA, displaced workers can receive a trade readjustment allowance benefit once they exhaust regular or extended UI benefits, extending the total duration of benefits to 52 weeks. Workers in an approved training program can receive benefits for an additional 52 weeks after the basic TAA benefit expires.

Eligibility requirements to participate in TAA are strict. TAA is limited to workers who lose their jobs because of import competition. It is further limited to only manufacturing workers, excluding the large number of workers in technology and other services who are displaced by offshoring of jobs. In addition, workers who are laid off because their employers shifted production overseas may not qualify for TAA if the destination

country has not entered into a free trade agreement with the United States.[17]

Because of restrictions on eligibility and lack of adequate funding TAA has helped only a limited number of workers. There were fewer than 55,000 new recipients of TAA trade readjustment benefits in 2006.[18]

Wage Insurance

Wage insurance would supplement the earnings of displaced workers who are forced to take new jobs at lower wages. Wage insurance would pay a worker who has been displaced and then hired at a new lower-paying job some portion of the difference between wages on the old and new job. Typically, payments would continue for a limited period of time and would be subject to an annual cap. Some proposals also include an earnings ceiling for eligibility based either on earnings at the old or new job. For example, a wage insurance proposal suggested by a number of analysts would pay 50 percent of lost earnings, cap total payments at $10,000 per year, and limit payments to two years.[19]

Wage insurance offers a number of potential benefits. First it can soften the blow of lost earnings for displaced workers. Wage insurance would take over where unemployment insurance ends once a displaced worker begins a new job. Second, the wage insurance supplement would enable some workers to take jobs that they might have otherwise forgone. Getting reemployed sooner can reduce the earnings loss a family faces after job displacement. Finally and perhaps most importantly, wage insurance would subsidize the hiring and training of workers who transition into new jobs or sectors. On-the-job training is often the most effective way workers can learn new skills, which in turn can lead to long-term wage gains.

Concerns about Wage Insurance

While wage insurance has advantages in encouraging workers to move more quickly to a new job, some have expressed concerns that such a program could hurt workers. First, critics of wage insurance argue that knowing that workers could get wage

insurance could lead some employers to offer lower wages than they otherwise would have. Second, they argue that workers might take a poor quality job at a lower wage during the eligibility period even if waiting a little longer would lead to a better job at a higher wage. They are also concerned that workers may fail to take advantage of available job training opportunities in order to claim the subsidy as soon as possible. Third, opponents believe that, in an environment where there are limited resources available to benefit unemployed workers, some traditional protections could be undermined if wage insurance were seen as a replacement for unemployment insurance or job training programs. With appropriate administrative rules, however, potential adverse effects of a wage insurance program can be minimized. In conjunction with well-funded UI and job training programs, wage insurance offers potential additional protections for workers against the income instability caused by job loss.

Lessons from existing wage insurance programs or demonstrations

There are a few demonstration projects of wage insurance (and similar) programs from which to draw some lessons. During the late 1990s, Canada instituted a wage insurance demonstration project to test the effectiveness of a wage supplement for reemployed displaced workers. Workers were randomly assigned to either the supplement group, in which they received an earnings supplement in addition to standard UI benefits and services, or to the control group in which they only received standard UI benefits and services. The supplement was payable to those who were reemployed full time within a 26-week period, covered 75 percent of the earning difference for up to 2 years, and was capped at $250 a week.[20]

The demonstration project showed a moderate increase in employment among those in the supplement group but no impact on unemployment benefits taken. Reemployment rates were higher in the two months just before eligibility was to end. The authors who evaluated the project concluded that the wage

insurance offered had little impact on worker's search behavior but did broaden the scope of the jobs they considered.[21]

In 2002, when Trade Adjustment Assistance was reauthorized, a small, temporary wage insurance program was added for older workers. Alternative Trade Adjustment Assistance (ATAA) is available to displaced workers 50 years or older, whose job losses are certified as having been caused by trade, and who are reemployed full-time within 26 weeks at a job with a lower wage. The benefit is 50 percent of the difference in earnings up to a total of $10,000 for two years, provided the new job pays less than $50,000 per year. In general, relatively few displaced workers have been declared eligible for TAA, and take-up rates for the older worker supplement have been even lower due to a variety of factors including poor dissemination of information about the program to eligible workers and the possibility that because the workers were over 50, very few employers were willing to hire them.[22]

In the mid to late 1980s three states experimented with programs in which unemployed workers were given one-time cash bonuses if they became reemployed within a certain period. While researchers found modest increases in employment rates among those eligible for the bonus, these experiments took place in tight labor markets.

CHANGING THE TAX SYSTEM

Families whose income fluctuates from year to year can pay more federal income tax than families with the same average income but whose income is steady. This is a result of the progressive structure of the federal income tax in which higher income is taxed at a higher marginal tax rate. For example, suppose a couple had taxable income of $60,000 in both 2006 and 2007, putting them near the top of the 15 percent tax bracket. (Taxable income excludes exemptions and deductions so the couple's total income would be much higher). The couple would pay combined total federal income taxes of $16,463 for the two years. By comparison, another couple with income of $40,000 in 2006 and $80,000 in 2007 would pay combined taxes of $18,093

– over $1,600 more. This would occur because most of the second couple's income in excess of $60,000 in 2007 would be taxed in the 25 percent bracket.

The effect of fluctuating income on federal taxes is modest for most families. The average tax change for an increase or decrease in income of 25 percent is only about 0.4 percent of after-tax income.[23] However, the effects are more pronounced for families with modest income who qualify for the earned income tax credit (EITC). Because of the high implicit tax rates in the way the credit phases in and phases out as income rises, families who qualify for the EITC are more likely to move between tax brackets if their income fluctuates from year to year.

Lower-income families can suffer another tax penalty from fluctuating incomes. All families can claim personal exemptions and a standard deduction (or itemized deductions if higher) when calculating the amount of tax they owe. As result, in 2007 a married couple with two children would not pay any tax on the first $24,300 of income. If a family's income drops below that exempt amount, any unused exemption is lost. Thus a lower-income family whose income fluctuates from year-to-year could pay more income tax than a family with the same average income who is able to use the entire exemption each year. There is no provision in the tax code for families to carry back or carry forward unused exemptions to years when its income is higher. Businesses, on the other hand, can carry back unused net operating expenses for up to two years or carry them forward for up to 20 years.

Income Averaging and Carry Back of Unused Deductions and Credits

A possible solution to the effect of fluctuating incomes on the taxes paid is to allow some type of income averaging. Income averaging was part of the federal tax system from 1964 through 1986 when it was eliminated. There were a number of reasons for eliminating income averaging including the overwhelming complexity of the way in which income averaging was implemented, and the thought that it was no longer needed

because the 1986 tax reform eliminated many tax brackets and thus reduced the chances that fluctuating income would move families into different tax brackets.

For example, one proposal recommends targeted income averaging limited to the EITC. Families would be able to average income over two years when calculating the EITC, and would also be able to carry back unused exemptions for one year.[24]

In addition, income averaging also could benefit independent contractors, free-lancers, and others, including writers and artists, who are paid on a per-project basis, and whose earnings therefore often fluctuate from year to year.

CONCLUSION

Economic instability is a fact of life for many American families. With increasing globalization, rapidly changing technology, and shifting demand for goods and services, more workers may experience job displacement that can be temporary or more long-lasting. While the economy benefits from a dynamic and flexible labor market, excessive job turnover can increase family economic insecurity and ultimately impede economic growth.

Strengthening the social safety net to reduce the economic pressures from job churning and earnings instability is critical, but should be done in a way that not only provides the needed support but also allows workers to embrace new training and job opportunities. Wage insurance can be a welcome new thread in the safety net, but it is just as important that we strengthen existing programs such as unemployment insurance and trade adjustment assistance.

Ultimately, the American economy will thrive in the changing global environment as long as businesses provide jobs that offer workers real opportunities, and workers obtain the skills and training needed to fill those jobs.

ENDNOTES

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[5] U.S. Department of Labor, Bureau of Labor Statistics, "Job Openings and Labor Turnover: December 2006," USDAL 07-0197, (February 6, 2007). http://www.bls.gov/jlt/.
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[12] Congressional Budget Office, "Family Income of Unemployment Insurance Recipients," (March 2004).
[13] Lori G. Kletzer and Howard F. Rosen, "Reforming Unemployment Insurance for the Twenty-First Century Workforce," Discussion paper 2006-06, The Hamilton Project, The Brookings Institution, (September 2006).
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[15] Kletzer and Rosen, op. cit.
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[19] Lael Brainard, Robert E. Litan, and Nicholas Warren, "Insuring America's Workers in a New Era of Offshoring," Policy Brief #143, The Brookings Institution, (July 2005), and Lori G. Kletzer and Robert E. Litan, "A Prescription to Relieve Worker Anxiety," Institute for International Economics, Policy Brief PB01-2 (2001).
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[21] Howard Bloom, Saul Schwartz, Susanna Lui-Gurr, and Suk-Won Lee, "Testing a Re-employment Incentive for Displaced Workers," (SRDC, 1999). p. 48.
[22] U.S. Government Accountability Office, "Trade Adjustment Assistance: Most workers in Five Layoffs Received Services, but Better Outreach Needed on New Benefits," GAO-06-43. (January 2006).
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[24] Batchelder, op. cit.

LINKS TO MAJORITY STAFF REPORTS

January 2007: Billions in Offshore Royalty Relief for Oil and Gas Companies Buys little for Tax Payers
The federal government's ill-conceived royalty relief pro-gram for offshore oil and gas drilling could cost taxpayers up to $80 billion - with precious little to show for it. As an economic policy, royalty relief appears to have no net effect on jobs at the national level or any effect on energy prices paid by consumers.

February 2007: JEC Fact Sheets on Middle Class Opportunity Tax Credits
"Investing in a College Education"
"Investing in Families Taking Care of Elderly Parents"
"Investing in Raising Children"
The systematic squeeze on the Middle Class is making it difficult for working families to raise their children, provide them with a college education, and take care of their aging parents. The rising costs of childcare, healthcare, and education and erosion of retirement savings from traditional pensions – coupled with stagnating wages – have made raising a child and caring for an aging parent a financial high wire act for many American families. Targeted tax relief to middle-class families will help them to mange the crunch of balancing work and family, achieve their aspirations, and contribute to America's economic growth.

March 2007: Meeting the Challenge of Household Earnings Instability
Many middle class families are experiencing ups and downs in their year to-year earnings and income, and their economic instability may be greater than in the past due to the consequences of globalization and technology. Elements of the social safety net can help cushion the impact of a temporary decline in earnings because of a job loss, but there are few government programs to help those who suffer a permanent reduction in earnings.

April 11, 2007: Sheltering Neighborhoods from the Subprime Foreclosure Storm
Increases in payment delinquencies and foreclosures in the subprime mortgage market have raised widespread concerns about the possibility of increasing, concentrated foreclosures throughout the country. While lenders and banks try to insure themselves from the consequences of increased mortgage defaults, communities are also struggling to stem the tide of foreclosures. This comprehensive report argues that foreclosure prevention is cost-effective and presents policy suggestions for curbing future subprime foreclosures.

April 16, 2007: Tax Day Reports
Families Missing Out on Billions of Unclaimed Tax Credits
Free E-Filing Makes Sense for Both Taxpayers and the IRS
Benefits such as the dependent care tax credit, the earned income tax credit (EITC), education tax credits, and the saver's credit are among the federal government's most effective tools to help American families afford to raise

their children, pay for higher education, and save for retirement. Yet each year millions of these taxpayers do not claim the credits for which they are eligible, leaving billions of tax credit dollars on the table.

May 13, 2007: Mother's Day Report: Helping Military Moms Balance Work and Longer Deployments
Like all mothers, military moms face challenges in meeting monthly expenses, getting good child care and health care for their families and themselves. But military moms face the added burden of longer deployments and frequent separation from their children and spouses. While the military has taken steps to address the needs of mothers, the report finds that more still needs to be done.

May 24, 2007: Memorial Day Report: Money in the Bank, Not the Tank: Report on the Economics of CAFÉ standards
Compiled as Memorial Day weekend approached and the average gas prices hit record highs of $3.22 a gallon, this report revealed that the average American family will spend approximately $3,180 on gas this year alone. The report entitled "Money in the Bank, Not in the Tank," shows that the average American family could save about 22 percent of their current expenditures on fuel by increasing their average fuel efficiency to 35 miles per gallon.

May 17, 2007: Most Baby Boomers are Saving Enough, But Many are at Risk of Significant Shortfalls
As the first wave of baby boomers reaches the traditional retirement age next year, the question of whether workers are preparing adequately for retirement has become more important than ever. Despite numerous media reports on boomers' dire retirement prospects, by various measures the average baby boomer household is on track to retire comfortably. Nevertheless, a significant minority of boomers—particularly those at the bottom of the income and wealth distributions—is at risk of a substantial decline in living standards during retirement.

May 22, 2007: Assistance Available Through the Tax Code for Families with Children
As the costs of raising a child continue to increase, working families need assistance to make ends meet and manage the difficulties of balancing work and family. Several provisions in the federal tax code are available to help families with children: the Child Tax Credit, the Child and Dependent Care Tax Credit, the Earned Income Tax Credit, and Dependent Care Assistance Programs.

May 22, 2007: Economic Benefits of Investing in High-Quality Preschool Education
Future fiscal challenges, global economic competition, and shifting demographic trends all highlight the need for policies to improve the skills and productivity of American workers and thereby increase future living

standards. A promising strategy for achieving these aims is expanding government investment in high-quality preschool education.

June 14, 2007: Energy Efficiency is a Bright Idea
Families that take advantage of energy efficient practices, appliances and vehicles could save an estimated $1,600 each year in energy costs, while reducing greenhouse gas emissions, pollution, and our nation's dependence on foreign sources of energy. As the energy bill is debated on the Senate floor, Schumer, who chairs the JEC, initiated the report to shed light on the benefits of increasing energy and fuel efficiency to American families and the environment.

June 22, 2007: Report Update: Sheltering Neighborhoods from the Subprime Foreclosure Storm
In an update to the Joint Economic Committee's March report, "Sheltering Neighborhoods from the Subprime Foreclosure Storm," the report finds that foreclosures continue to rise across the nation as more and more subprime borrowers' loans reset to higher rates in a weak housing environment.

July 18, 2007: CHIP Makes Economic Sense
As the Senate prepares to reauthorize the Children's Health Insurance Program (CHIP), a fact sheet highlights the benefits of reauthorizing and expanding CHIP. According to the fact sheet, CHIP has dramatically reduced the number of uninsured children since its creation in 1997. Over one million children currently covered by the program stand to lose coverage under the President's reauthorization proposal, as states would face a total federal funding shortfall of as much as $7.6 billion

August 29, 2007: Annual Income, Poverty and Health Insurance Reports
The Number of Americans without Health Insurance Rose Again in 2006
Household Income up Slightly in 2006 but Down Since 2000
Nearly One in Eight Americans Living in Poverty
The U.S. Census Bureau released its 2006 report on income, poverty and health insurance coverage in the United States. Although median household income rose slightly in 2006, after adjusting for inflation, the report showed that all but the richest of American households have seen their incomes decline since 2000. The reports compile highlights of the Census Bureau's report and analysis of economic conditions under the Bush administration in three fact sheets focusing on poverty, income, and health insurance.

September 12, 2007: Fiscal Responsibility: Which Party has a Better Record?
The great majority of our national debt has been incurred by the past three Republican administrations. Over the past thirty years, those administrations have borrowed an average of $233 billion each year from the public. In contrast, under Democratic administrations the Federal government has borrowed an average of $26 billion each year, just one-ninth as much. The JEC analysis highlights a proven track record of fiscal responsibility under

Democratic administrations, and conversely a sharp increase in debt under Republican administrations.

October 25, 2007: The Subprime Lending Crisis: The Economic Impact on Wealth, Property Values, and How We Got Here
The report is the first of its kind to project economic costs on a state-by-state basis from the third quarter of 2007 through 2009. The report reveals that families, neighborhood property values, and state and local governments will lose billions of dollars as two million subprime mortgage homes are foreclosed. The subprime fallout report argues in favor of foreclosure prevention, which can save the economy billions in housing wealth and ease falling housing prices.

November 13, 2007: War at Any Cost?: The Total Economic Costs of the War, Beyond the Federal Budget
The long wars in Iraq and Afghanistan have cost the U.S. in many ways: in lost lives, in international standing, and in economic growth. The full economic costs of the war to the American taxpayers and the overall U.S. economy go well beyond even the immense federal budget costs already reported. These "hidden costs" of the Iraq war include the ongoing drain on U.S. economic growth created by Iraq-related borrowing, the disruptive effects of the conflict on world oil markets, the future care of our injured veterans, repair costs for the military, and other undisclosed costs. The report finds the total economic costs of the wars in Iraq and Afghanistan so far have been approximately double the total amounts directly requested by the Administration to fight these wars.

December 3, 2007: Analysis of the Energy Bill Tax Provision 199
At the request of Senators Jeff Bingaman, Chairman of the Senate Energy and Natural Resources Committee, and Max Baucus, Chairman of the Senate Finance Committee, the report examines the impact of denying the Internal Revenue Code (IRC) Section 199 manufacturing deduction to major integrated oil and gas producers (while simultaneously freezing the deduction for other oil and gas producers) on consumer prices of oil and natural gas. The report finds that the proposed modification of this deduction would have a negligible effect, if any, on consumer energy prices. This tax provision will likely be included in a larger Senate energy bill as a way to finance renewable and energy conservation efforts.

MINORITY VIEWS

MINORITY VIEWS OF REPRESENTATIVE JIM SAXTON AND SENATOR SAM BROWNBACK

OVERVIEW OF CURRENT AND RECENT MACROECONOMIC CONDITIONS

The economic expansion continues, despite the ongoing correction in housing markets and the financial market turbulence experienced in the latter part of this year. Unemployment, inflation, and long-term interest rates remain low by historical standards. Employment growth and healthy growth in the inflation-adjusted (real) gross domestic product (GDP) continued throughout the past year. The economy began 2007 with a low annualized growth rate of 0.6%. Growth has been remarkably robust over the past two quarters ending in the third quarter of 2007, averaging a rapid, above-trend, 4.4% annualized pace. Most analysts expect slower, below-trend, growth through the end of next year, partly a reflection of significant adjustments in the housing sector and financial markets. But growth is expected to remain positive and to revert back toward more trend-like rates by the end of next year.

Even after accounting for effects of the correction in the housing market and financial turbulence stemming from losses associated with subprime mortgage lending, many economic indicators show that economic conditions of the past few years display striking contrasts to conditions prevailing prior to enactment of pro-growth tax relief under the Jobs and Growth Tax Relief Reconciliation Act enacted in May of 2003. Highlights of the contrasts include:

- GDP growth averaging a very healthy 3.2% following the enactment of tax relief, in contrast to the tepid average of 1.3% from the first quarter of 2001 through the second quarter of 2003.
- Growth in real business (non-residential) fixed investment averaging 6.3% following the enactment of tax relief, in contrast to an average 5.6% rate of *decline* from the first quarter of 2001 through the second quarter of 2003.
- A decline in the unemployment rate from a recent peak of 6.3% in June of 2003 to 4.7% in November of 2007.
- Healthy average monthly gains in payroll employment of 155,000 jobs per month from June of 2003 through November of 2007, in contrast to an average monthly *loss* of 92,000 from January of 2001 through May of 2003.

- Strong gains in equity markets following the enactment of tax relief, in contrast to losses prior to relief: the Dow Jones Industrial Average has risen by 54% between the end of May of 2003 and December 7 of 2007, in contrast to a 17% *decline* between the beginning of 2001 and the end of May of 2003; the NASDAQ has risen by over 70% between the end of May of 2003 and December 7 of 2007, in contrast to a 31% *decline* between the beginning of 2001 and the end of May of 2003.
- The Institute for Supply Management (ISM) indexes of manufacturing and non-manufacturing (service sector) activities, which signal expansion when above 50 and contraction when below 50, displayed robust expansions following tax relief, in contrast to displays of contraction or tepid growth prior to tax relief; the ISM manufacturing index has averaged a healthy 56 since June of 2003, in contrast to a contraction-signaling average of 48 from the beginning of 2001 through May of 2003; the ISM index of non-manufacturing activity has averaged a robust 60 since June of 2003, in contrast to a much more moderate expansion-signaling average of 52 from the beginning of 2001 through May of 2003.

While correlations do not imply causality, there has been a clear and striking turnaround in a wide array of economic indicators from signals of contraction or tepid growth prior to enactment of the pro-growth tax relief in 2003 to signals of strong expansion and robust growth following tax relief.

Despite the recent correction in the nation's housing and mortgage markets and turbulence in financial markets, we are encouraged by the direction the economy is heading in terms of growth and opportunity. This does not mean that the economy will be without significant challenges in the months and years ahead, but it does mean that economic policy decisions that have lowered taxes on American households and allowed American families to keep more of their hard-earned incomes have paid dividends for the nation's citizens.

Economic Growth Accelerated Recently

Following the low 0.6% annualized growth in real GDP in the first quarter of 2007, growth accelerated to an above-trend rate of 3.8% in the second quarter and an even more rapid rate of over 4.9% in the third quarter. Slowing of the housing market has led to seven consecutive quarters, through the third quarter of 2007, in which declines in residential investment have shaved an average of 0.8 percentage point from overall GDP growth. Despite that drag from

housing, GDP has continued to grow. Adding substantially to overall GDP growth in recent years, exports have grown at a rapid annualized rate of close to 9.0% over the past four years, through the third quarter of 2007. On average, over the past seven quarters in which residential investment has shaved an average of 0.8 percentage point from GDP growth, exports have added a full 1.0 percent to GDP growth, more than offsetting the drag from housing.

Prior to the recent housing market correction, as new and existing home sales repeatedly set record levels and double digit rates of home price appreciation were recorded, rapid increases in housing valuations likely helped support consumer spending. As households perceived large wealth gains in housing, they were, perhaps more easily than in the past due to financial innovations, able to tap into home equity to help support consumption spending. A risk of significant slowing of consumer spending exists if the wealth effect works in the other direction because of substantial home value declines.

Thus far, however, consumer spending, which accounts for roughly 70% of GDP, has remained healthy throughout the expansion. Annualized growth in consumer expenditures has averaged 3.0% during the current expansion and 2.9% over the past year ending with the third quarter of 2007.

Consumer Spending has Remained Resilient

Annualized growth in consumer spending has remained resilient, averaging 2.9% since the beginning of 2001, despite a sequence of adverse shocks to the economy including the tragedy of September 11, 2001, the aftermath of corporate accounting scandals, two wars, devastating hurricanes, a prolonged period of significant increases in energy costs, fallout from losses and risks associated with subprime mortgage lending, and the correction in the housing market. Support for consumer spending has come from, among other factors, expanding employment and growth in *disposable* (after-tax) income.

- Payroll employment has increased by over 8.3 million new jobs since June of 2003, following enactment of tax relief, in contrast to job losses of 2.7 million between the beginning of 2001 and May of 2003 when the job market was recovering from the recession of 2001 and the downturn in GDP that began in the third quarter of 2000.
- Real (i.e., inflation-adjusted) disposable income has risen by over 15.2% since the third quarter of 2003, following enactment of tax relief, in contrast to the more modest increase

of 5.5% between the beginning of 2001 through the second quarter of 2003.

Growth in consumer spending averaged a 2.5% annualized rate between the beginning of 2001 and the enactment of pro-growth tax relief in 2003; it has averaged a healthy 3.2% following the enactment of tax relief which helped Americans keep more of their hard-earned incomes for use in private consumption, investment, and saving.

Inflation Remains Moderate Despite Run-Ups in Energy Costs

Energy prices remain elevated and oil prices have flirted with the psychological nominal (i.e., dollar-value unadjusted through time for effects of overall inflation on the general purchasing power of a dollar) threshold of $100 a barrel. The acceleration of crude oil prices from below $20 a barrel at the beginning of 2002 to nearly $100 a barrel in recent months reflects tight supply and continued growth and strength in global demand. Rises in crude oil prices eventually are reflected in gasoline and heating oil prices and, of course, in the overall rate of inflation of consumer prices.

Consumer price inflation, measured by the year-over-year percent change in the overall consumer price index (CPI), has remained low by historical standards throughout most of the ongoing economic expansion. Accelerating energy prices caused acceleration of overall CPI inflation, pushing inflation above 4.0% during some months of 2005 and 2006 and in November of this year. Easing of energy prices in the second half of 2006 and early in 2007 helped pull overall CPI inflation from a recent peak of 4.3% in June of 2006 to 1.3% in October of 2006. Re-escalation of energy prices since that time, especially in recent months, has contributed to an acceleration of the rate of overall CPI inflation.

Over the past year through November 2007, inflation in the overall CPI averaged around 2.7% on a year-over-year basis—moderate by historical standards. Inflation in the "core" CPI, which excludes volatile energy and food prices and is used partly to gauge the extent to which energy price increases are feeding into more general inflation in prices of other goods and services, has also been moderate. Core CPI inflation has averaged 2.3% on a year-over-year basis over the past year through November of 2007. Inflation in the core personal consumption expenditures (PCE) price index, one of the Federal Reserve's preferred measures of consumer prices, has fallen from rates that neared 2.5% at the beginning of 2007 to rates around 1.9% during the past two months through October, below what many regard to be

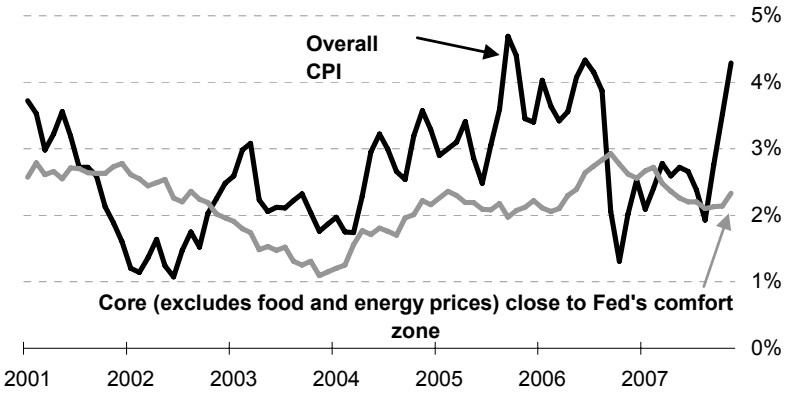
the ceiling on the Federal Reserve's comfort zone for core PCE inflation of around 2.0%.

Many analysts view November's core CPI inflation of around 2.3% to be just above the upper region of the Federal Reserve (Fed) monetary policymakers' comfort zone for consumer price growth. Core CPI inflation and core PCE inflation began in 2007 at year-over-year rates of 2.7% and 2.4%, respectively. Those rates have since moderated: core CPI inflation was 2.3% on a year-over-year basis in November of this year and core PCE inflation was 1.9% in October.

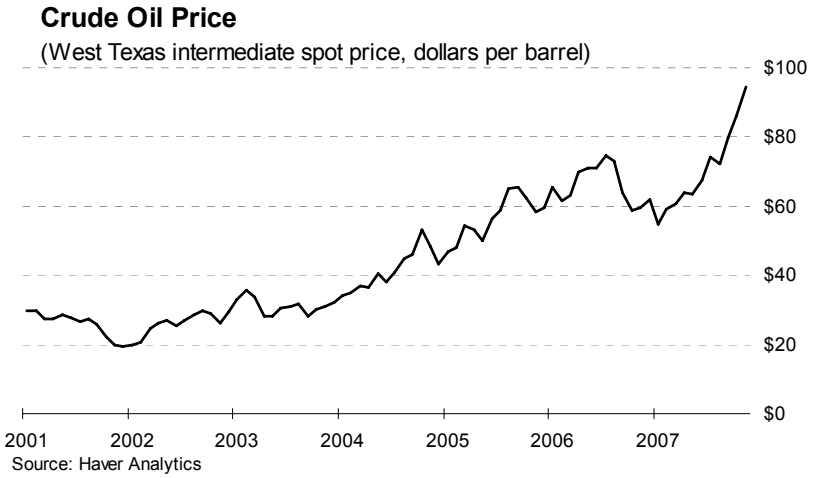
The Fed acknowledges moderation in core inflation rates but remains alert to upside risks for future acceleration of inflation, especially in light of recent run-ups of energy prices.

Consumer Price Inflation

(Year-over-year percent change in consumer price index [CPI])

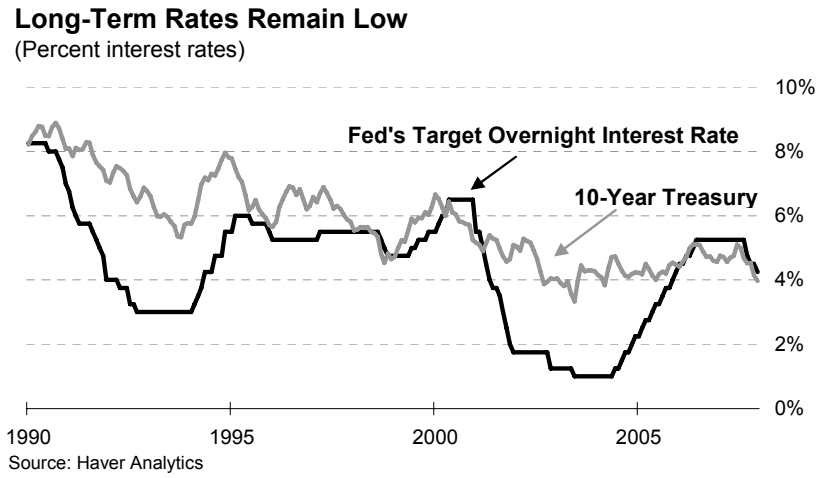


Source: Haver Analytics



Long-Term Interest Rates Remain Low

While the Fed has raised, on balance, its target for overnight interest rates from 1.00% at the end of June 2004 to the current 4.25%, most long-term interest rates have edged down, on balance. The nominal yield on a 10-year constant maturity Treasury note, for example, averaged 4.73% in June of 2004 and averaged 4.15% in November of 2007. The persistence of relatively low long-term interest rates is an ongoing area of economic research to establish the important contributing factors.



To some extent, the low long-term rates could reflect reductions in term and inflation-risk premiums demanded by investors, perhaps a partial reflection of gains in Federal Reserve credibility for keeping inflation low and less volatile than in the past. To some extent, the low long-term rates could reflect what Federal Reserve Chairman Ben Bernanke has called a global "savings glut," with investors in some economies, such as in Asia and oil-exporting countries, having an excess of savings relative to investment. Those investors then, perhaps, decide that the best opportunities for the excess savings lie in the strong, liquid, and relatively low-risk financial markets of the United States. The relatively strong demand for U.S. assets exerts upward pressure on the prices of those assets and, correspondingly, downward pressure on their rates of return.

Whatever the reason for the relatively low long-term interest rates, they have been carefully analyzed by economic analysts because longer-term interest rates have been below short-term interest rates in some recent times, a phenomenon known as an "inverted yield curve." Analysts are alert in the presence of an inverted yield curve because, in the past, such a condition has presaged recession. To the extent that Fed Chairman Bernanke's "global savings glut" hypothesis holds true, recent conditions do not carry the signal of a possible recession ahead as like conditions have in the past. Some support for Bernanke's position comes from observing that recent inversions of the yield curve have not been unique to financial markets in the United States. Similar conditions have held in a number of industrialized economies.

Inflation in consumer prices remains moderate, despite the relatively high level of energy prices. It is important to keep in mind that if energy prices remain elevated but do not grow further, there would not be persistent effects on overall consumer price inflation. Rather, further and persistent effects on consumer price *inflation* from energy would require further and persistent *growth* in energy prices.

Many analysts have noted that oil shocks, in the form of rapid increases in the price of energy—primarily oil—in 1973, 1979, and 1990, were each followed by a recession. But we have seen the price of oil rise from around $20 a barrel in 2002 to nearly $100 a barrel recently, and there has not been a significant downturn in economic activity. The question of why the U.S. economy may be less vulnerable to oil price shocks today than in the past has been the focus of numerous recent studies. One factor that most studies agree on is that oil represents a smaller share in the U.S. economy's production of goods and services.

Energy Prices Have Been Volatile and Elevated

A notable feature of recent economic developments is the increase, on balance, in energy prices since the beginning of 2007 following reductions seen in the second half or 2006. Energy prices rose significantly from the beginning of 2002 through the summer of 2006; the spot price of a barrel of West Texas Intermediate crude oil, for example, rose by 278% from the beginning of 2002, when the price was around $20 a barrel, to over $74 a barrel by July of 2006. Between August of 2006 and the beginning of 2007, the spot price of West Texas intermediate crude had retreated to below $55 a barrel. Since the beginning of this year, however, energy prices have re-escalated as continued robust global demands for energy have met tight supplies; the spot price of a barrel of West Texas Intermediate crude oil, for example, has accelerated from just below $55 a barrel on average in January of this year to an average of close to $95 a barrel in November of this year—a 73% rise. Rising energy costs add to the Federal Reserve's concerns about acceleration in inflation in general consumer prices.

The Fed Eased Recently in Light of Financial Market Turbulence

Beginning in October of 2006, the Federal Reserve ended its tightening policy that consisted of increases in its target for overnight interest rates (i.e., its target "Federal Funds rate," a rate that commercial banks charge on overnight lending). The Fed had raised its overnight interest rate target from a 45-year low of 1.00% in 17 quarter-point increments beginning in late June of 2004 and ending in early June of 2006. The Fed kept its target for overnight interest rates at 5.25% through the summer of this year. However, as discussed in greater length below, following events in financial markets associated with risks and uncertainties stemming from subprime mortgage markets and mortgage-backed securities, the Fed has since been easing policy by cutting rates and injecting funds into the banking system.

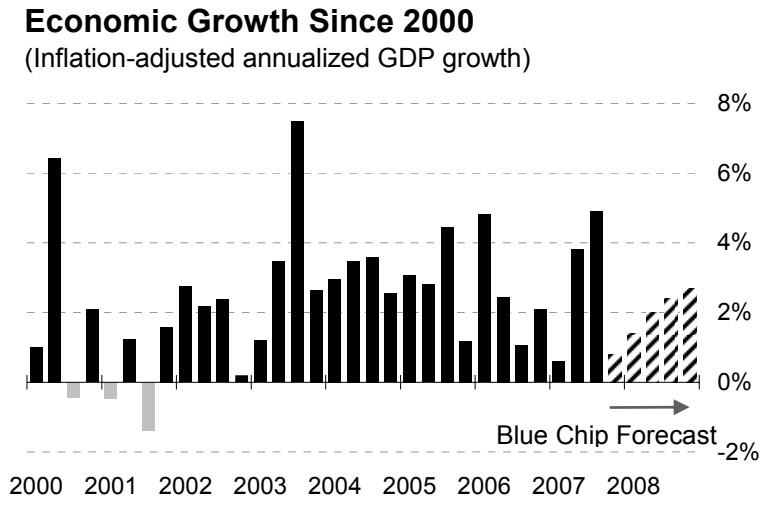
In the last three scheduled meetings of the Federal Open Market Committee, the Federal Reserve's monetary policymaking committee, the Fed decided to cut its overnight interest rate target by 100 basis points in total (one basis point equals one hundredth of a percent) to its current 4.25%. Despite rising short-term interest rates, long-term nominal interest rates have not increased significantly and remain low by historical standards.

Economic Growth Since 2001

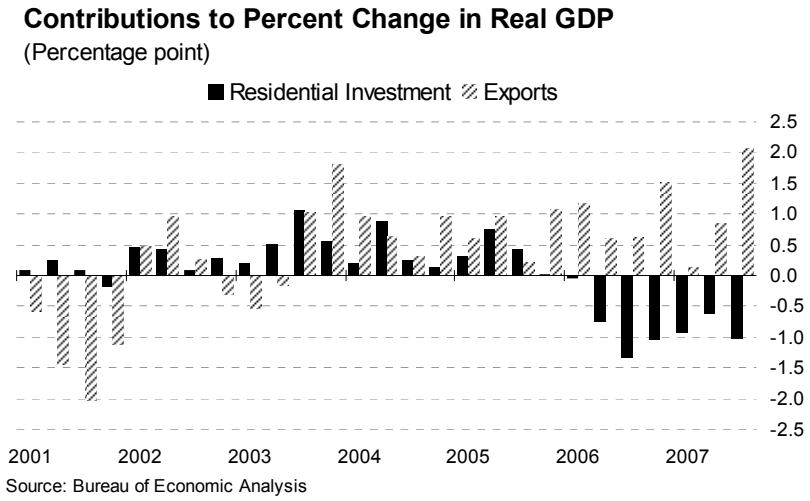
Growth in real GDP has averaged a healthy 2.5% annualized rate since the beginning of 2001 and has averaged a robust 3.2% since the enactment of pro-growth tax relief in 2003. There have been 24 consecutive quarters of growth in real GDP through the third quarter of 2007.

The economy began 2007 with a low annualized growth rate of 0.6%, but economic activity picked up considerably in the second and third quarters of the year. GDP growth was remarkably rapid over the past two quarters ending in the third quarter of 2007, averaging a rapid, above-trend, 4.4% annualized pace. Most analysts expect slower, below-trend, growth through the end of next year, partly a reflection of significant adjustments in the housing sector and financial markets. But private forecasters expect growth to remain positive and to revert back toward more trend-like rates, reaching annualized growth of around 2.7% by the end of next year.

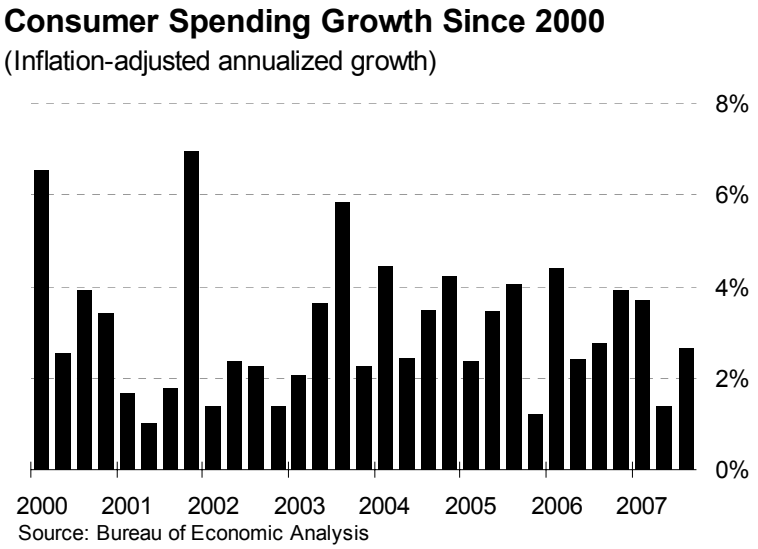
Slowing in the housing sector of the economy has served as a drag on overall GDP growth. Residential investment declined by an average annualized rate of 14% over the past seven consecutive quarters with declines in residential investment. Over that period, those declines have shaved an average of 0.8 percentage point from overall GDP growth. Fortuitously, export growth over that same period has averaged 9.3%, adding an average of a full percentage point to overall GDP growth.



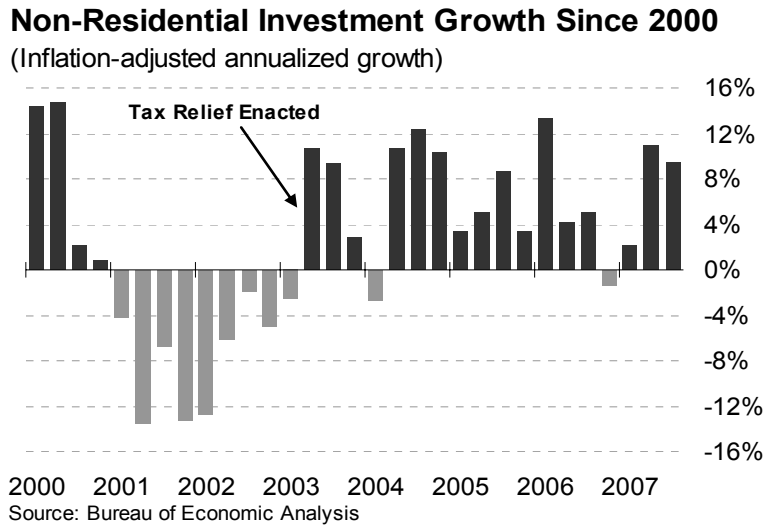
Source: Bureau of Economic Analysis



Consumer spending, which accounts for around 70% of economic activity, has remained resilient since the beginning of 2001, despite numerous negative shocks to the economy. Growth in inflation-adjusted consumer spending has averaged 2.9% since the beginning of 2001, and an even more impressive average of 3.2% since the enactment of pro-growth tax relief in 2003.



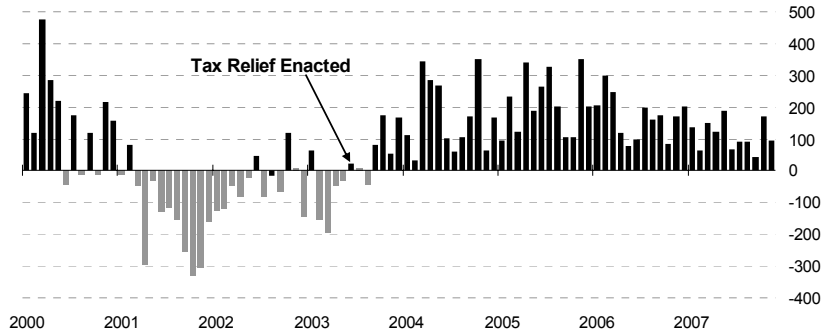
Growth in business investment has also contributed substantially to overall GDP growth since the enactment of pro-growth tax relief in 2003. Annualized growth in inflation-adjusted private fixed non-residential investment spending has averaged a healthy 6.3% from the third quarter of 2003 through the third quarter of 2007. This stands in marked contrast to an average annualized rate of *decline* of 5.6% from the beginning of 2001 through the second quarter of 2003.



Job Creation and Low Unemployment Continue

A record of 51 consecutive months of payroll job gains have added over 8.3 million new jobs to business payrolls. In the year ending in November of 2007, over 1.4 million new payroll jobs were created in the nation's labor markets. Payroll job gains have averaged 155,000 per month since the enactment of tax relief in 2003, above the threshold that many believe must be crossed for job creation to exceed growth in the population. In marked contrast, from the beginning of 2001 through May of 2003, prior to the pro-growth tax relief enacted in 2003, there was an average *loss* of 92,000 payroll jobs per month.

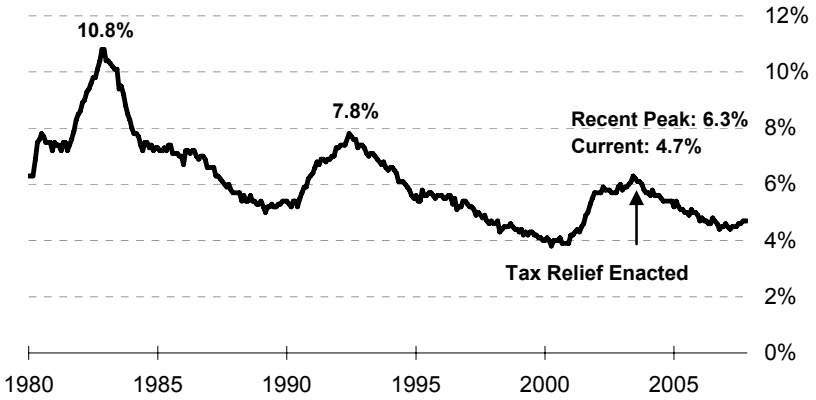
Over 8.3 Million Jobs in Past 51 Months
(Change in employment, in thousands)



Source: Bureau of Labor Statistics; data include preliminary estimate of next benchmark revision to payroll employment data.

The unemployment rate in November of 2007 was 4.7%, below the recent peak of 6.3% in June of 2003. The 4.7% unemployment rate is also below the averages of each of the 1960s (4.8%), 1970s (6.2%), 1980s (7.3%), and 1990s (5.8%).

Unemployment Rate Below Previous Peaks
(Civilian unemployment rate)



Source: Bureau of Labor Statistics

American Workers see Real Gains in Wages, Salaries, and Benefits

Escalating energy costs witnessed over the past few years have served to erode the purchasing power of wages and salaries. Consider, for example, average hourly earnings. There were, for several quarters beginning in 2004 through the first half of 2006, declines in the inflation-adjusted (real) value of those earnings caused largely by escalations in energy costs. Reductions in energy costs that followed helped restore positive growth in real earnings and, despite recent re-

acceleration in energy prices, real average hourly earnings have been growing at healthy pace.

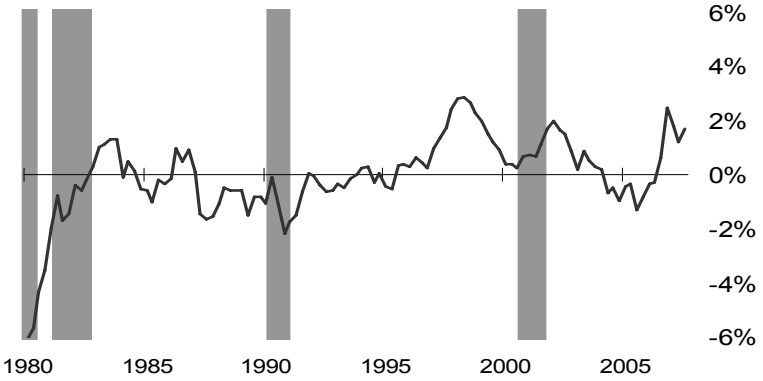
On average, over the past year through the third quarter of 2007, real average hourly earnings have been growing at a year-over-year rate of 1.8%. Whenever real hourly earnings grow, workers are able to buy more goods and services from their earnings.

It is useful to keep in mind that average hourly earnings is a very incomplete measure of worker compensation that ignores around 20% of the workforce by measuring only earnings of non-supervisory workers and ignores around 30% of overall worker compensation by measuring only wages and salaries and not including benefits.

More comprehensive measures of compensation accruing to American workers, that include benefits as well as wages and salaries, show that workers have made healthy real gains since the beginning of 2001. For example, in inflation-adjusted terms, compensation measured in the National Income and Product Accounts has grown on a year-over-year basis at an average 1.9% pace since the beginning of 2001. Growth in the real wage and salary component of overall compensation has averaged 1.4%, while growth in the benefits component (supplements to wages and salaries) has grown at a very robust average 4.0% pace since the beginning of 2001. In spite of a period in which we observed significant escalation of energy and select other prices, workers' overall compensation in *real,* purchasing power, terms has grown at an average year-over-year pace of close to 2.0% since the beginning of 2001.

Growth in Real Hourly Earnings

(Year-over-year % change, 1982 dollars per hour)

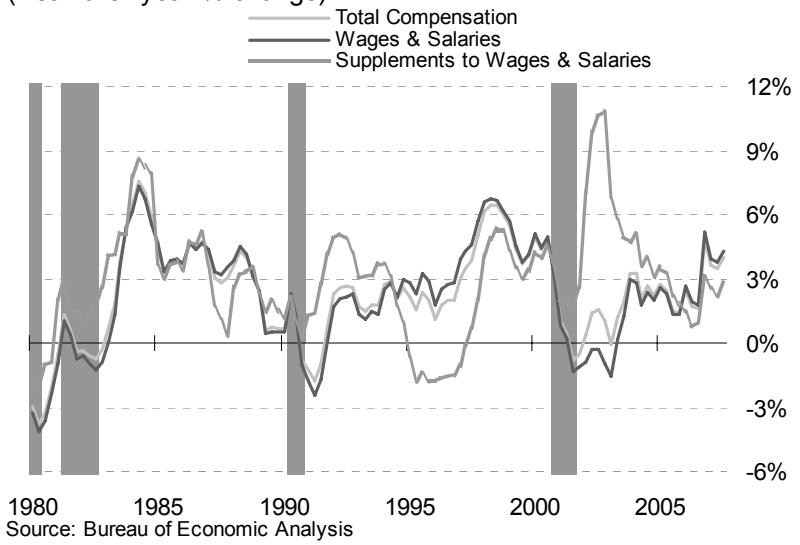


Source: Bureau of Labor Statistics

A key to increases in living standards is growth in productivity, as the next chart clearly illustrates. Pro-growth tax relief, such as that enacted in 2003, lays a solid foundation to facilitate continued strong growth in the productivity of American workers. That growth ultimately boosts workers' wages, salaries, benefits, and living standards.

NIPA Real Employee Compensation and Components

(Year-over-year % change)



Source: Bureau of Economic Analysis

Healthy Productivity Growth Continues

From the beginning of 2001 through the third quarter of 2007, annualized growth in labor productivity—output per hour in the non-farm business sector—has averaged 2.6%. This is well above the 2.1% average of the 1990s and above the long-term average of 2.3% from the beginning of 1948 through the third quarter of 2007.

Business Activity Continues to Expand

Economic activity in both the manufacturing and the service sectors of the economy remains healthy, according to surveys by the Institute for Supply Management (ISM). The ISM index of manufacturing activity has been above a value of 50, indicating expansion in the manufacturing sector, for 54 months beginning in June of 2003, immediately after tax relief was enacted, with only two exceptions: in January of this year the index edged down to 49.3 and in November of 2006 it was 49.9 indicating two months of slight contraction in manufacturing.

Capacity utilization in the industrial sector (manufacturing, mining, and utilities), after hitting a near-term low of just below 74% in December of 2001, has trended upward to average close to 82% over the past year through October of 2007, moving into line with long-run historical norms.

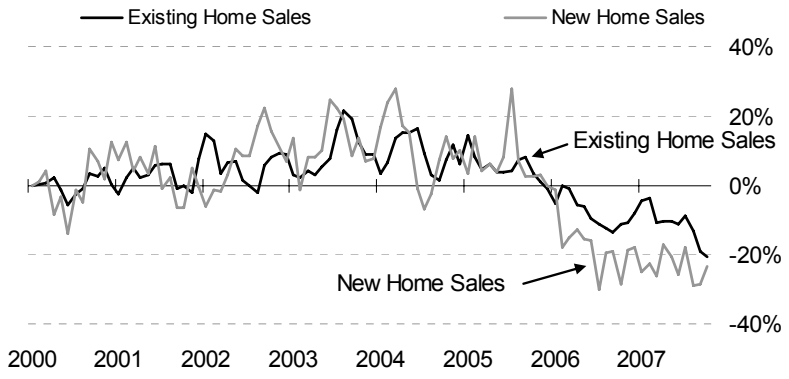
The ISM index of non-manufacturing (service sector) activity has remained above 50 for 56 consecutive months beginning in April of 2003. The service sector, which accounts for the majority of output in the U.S. economy, continues to expand at a healthy pace.

The Housing Market Correction Continues

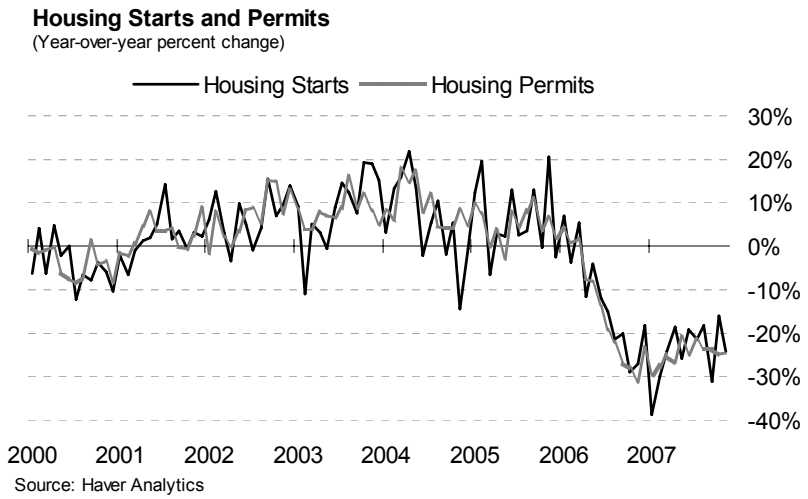
New home sales and existing home sales have fallen or remained unchanged on a year-over-year basis for 23 consecutive months through October of 2007, with some months showing significant double-digit rates of decline. Housing starts and building permits have each declined for 20 consecutive months through November of 2007 as builders cut back on construction activity to work off recent growth in inventories of unsold homes. The inventory of unsold new homes at current sales rates rose from an average of just over four months between the beginning of 2001 and the end of 2005 to over nine months as recently as August of this year.

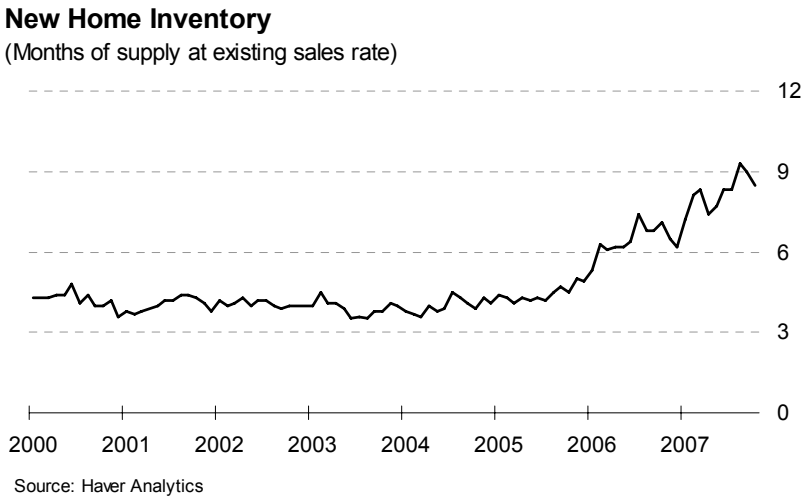
Existing and New Home Sales; Growth since 2000

(Year-over-year percent change)

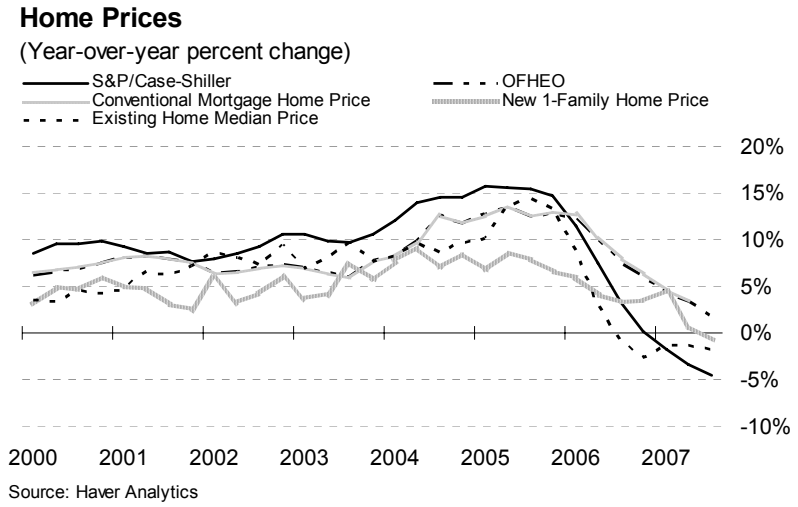


Source: Haver Analytics



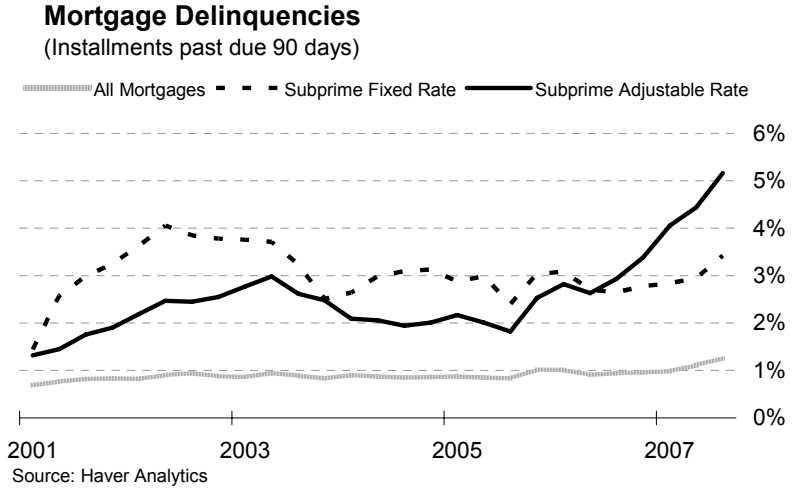


According to the house price index compiled by the Office of Federal Housing Enterprise Oversight, year-over-year home price appreciation declined from the double digit rates observed between the third quarter of 2004 and the first quarter of 2006 to 1.8% in the third quarter of 2007. Other measures of house prices show declines in recent quarters. By all measures, the rapid rates of home price appreciation shown between 2004 and the beginning of 2006 have ended.

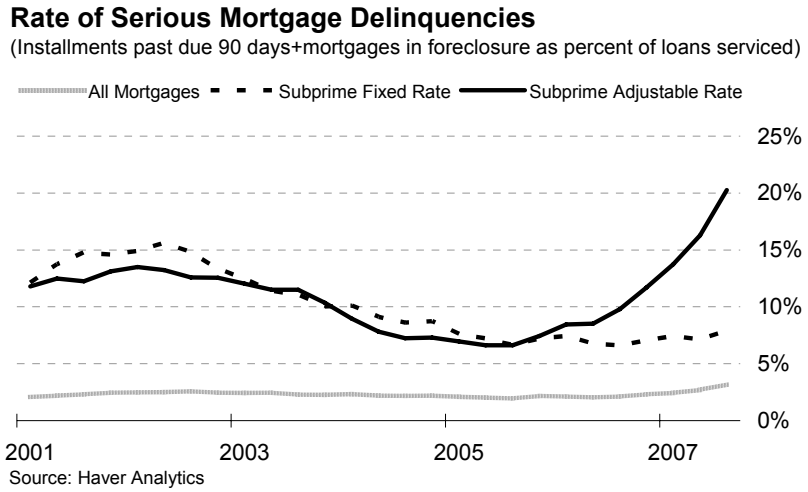


Mortgage Delinquencies and Foreclosures Have Risen

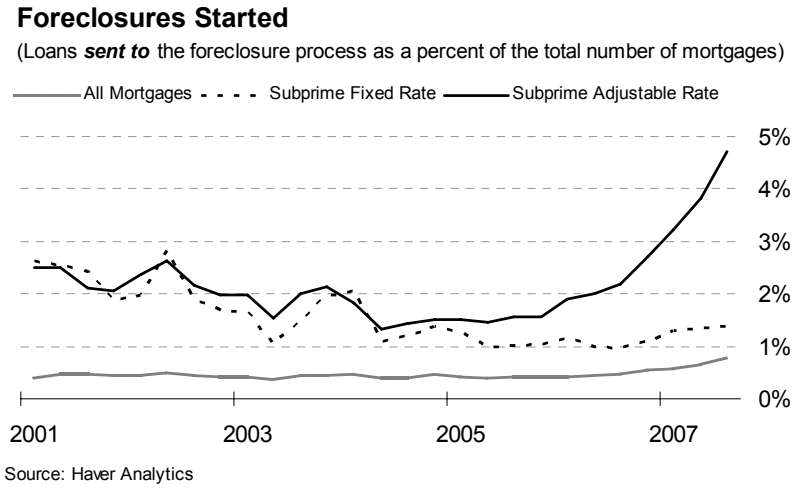
Moderation in home price appreciation has contributed to increases in mortgage delinquencies, especially for subprime mortgages with adjustable interest rates (which recently have accounted for as much as 70% of subprime first-lien mortgages and about 9% of all first-lien mortgages).[65]

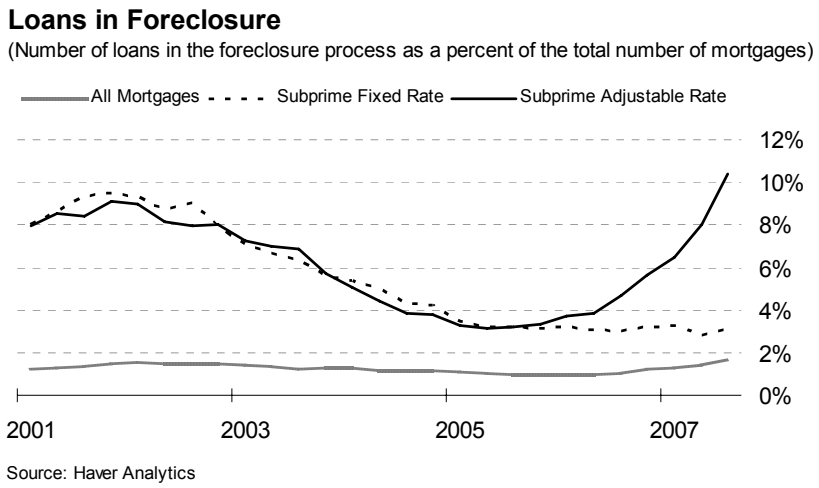


[65] A first-lien mortgage represents a claim on a property that secures the mortgage loan and is a claim that takes priority over all other encumbrances over the same property.



The rise in delinquencies has begun to show through to foreclosures.





In addition, roughly 2 million adjustable rate mortgages originated in recent years will reset in the remainder of this year or in 2008. At a time when builder inventories of homes for sale are relatively high, housing markets may continue to be sluggish through next year as foreclosed properties are put on the already sluggish new-sale and re-sale housing markets.

Recent Problems in Mortgage Markets

With rising mortgage delinquencies and defaults, especially associated with subprime mortgages and significantly so for subprime mortgages with adjustable interest rates, many mortgage originators have gone out of business and many have suffered financial losses. Holders of securities that are backed by mortgages ("mortgage-backed" securities) have also suffered losses.

There has been vast development over the past decade or so of secondary markets for mortgages. In those markets, loan originators sell mortgages to investors who then package them according to risk into other derivative securities (backed by the mortgages and, hence, by the properties on which those mortgages are claims). Those securities are then sold to other investors with various appetites for risk in the form of mortgage-backed securities.

Mortgage-backed securities bundle a large number of mortgages together into a pool, and shares of that pooled bundle are then sold. The buyers of these mortgage-backed securities receive a share of the payments made by the homeowners who borrowed the funds. The pooling creates a form of insurance for investors. Pooling of

mortgages gives investors a greater degree of precision in predicting the quantity of defaults and the repayment rates (i.e., in assessing risk—in much the same way that auto insurers bundle together drivers to get a greater degree of precision in predicting what fraction of the insured will have collisions, but not exactly which individuals).

Depending on the terms of the sale, when an originator sells a loan and its servicing rights, the risks (including risks associated with poor underwriting) are largely passed on to the investor rather than being borne by the originator. Perhaps because of increases in perceived risk among investors, upon seeing the significant increases in defaults on subprime mortgages, supply of credit to subprime lenders, to mortgage-backed security issuers, and to funds with possible exposure to subprime mortgages, has fallen. Some subprime originators have gone out of business as their lenders have cancelled credit lines and some have received infusions of funds from large financial institutions and remain in operation.

Recently, problems in the subprime mortgage market, which is a relatively small part of the financial system, became systemic and adversely affected the entire financial system. This occurred on or about Thursday, August 9.

It is difficult to identify a particular fundamental reason for the systemic difficulties that began in financial markets in early August, such as release of data indicating significant deterioration in economic conditions. Many believe that continued declines in the value of certain mortgage-backed securities and observations of fund losses rather suddenly led to a sharp increase in investors' risk intolerance. Two events occurred closely prior to August 9, though it cannot be said that those events were the proximate cause of difficulties in global financial markets that would follow. On August 2 and August 8, two banks in Europe reported difficulties associated with investments in U.S. subprime loans.

Whatever the reason, investors and banks seemed to have suddenly become concerned about the quality of assets on balance sheets of financial institutions and other borrowers and, sensing an inability to accurately assess the risks inherent in those assets, became unwilling to risk lending to those institutions.

When investors and banks feel that they have underestimated risks in one place, like the subprime sector and exposure of possible trade counterparties to that sector, they may begin to question the accuracy of their risk assessments elsewhere. This could lead to heightened risk aversion generally among lenders and investors.

This heightened risk aversion, in turn, can lead to an aversion of lenders to lend to anyone with less than the highest possible level of creditworthiness. Such circumstances can lead to a **"flight to quality"** or **"flight to safety"** in which lenders cut off lending to most counterparties and seek safe havens for their funds in the form of very safe assets such as U.S. Treasury securities.

In response to a perception of significant stress in global financial markets and what seems to have been a flight to quality, the Federal Reserve injected large amounts of funds into the U.S. banking system on August 9 and 10, on the heels of even larger injections by the European Central Bank (ECB) into the European banking system.

Following August 9 and the Fed's subsequent open market operations, financial markets did not immediately seem to have weathered the liquidity event. In response, sensing that banks and other investors were still having difficulties obtaining financing, the Fed acted, on August 17, by cutting the *discount rate* it charges on loans that it makes to banks through its discount facility by 50 basis points (one-half percent). According to the Fed, the action was taken in the interest of providing banks with "…greater assurance about the cost and availability of funding." The Fed also changed its usual practices of lending on only a very short term basis to allow for renewable term financing to banks for as long as 30 days. According to the Fed, the announced changes "…will remain in place until the Federal Reserve determines that market liquidity has improved materially."

- The discount rate is the rate that the Fed charges commercial banks and other depository institutions on fully secured loans they receive from their regional Federal Reserve Bank's lending facility—the discount window.
- The Federal Reserve Banks offer three discount window programs to depository institutions: primary credit, secondary credit, and seasonal credit, each with its own interest rate. The discount rate is correlated with, but is different from, the more well-known federal funds rate (the interest rates at which banks borrow and lend with each other on an overnight basis), another instrument of monetary policy.

The Fed's actions on August 17 were taken because, according to the Fed at that time: "Financial market conditions have deteriorated and tighter credit conditions and increased uncertainty have the potential to restrain economic growth going forward."

Sensing that significant uncertainties remained in financial markets following its August 17 actions, the Fed cut its target for the federal

funds rate by 50 basis points at its monetary policy meeting on September 18 and also cut the discount rate by another 50 basis points. The Fed then cut both its target federal funds rate and discount rate by a further 25 basis points at each of its next two monetary policy meetings, on October 31 and on December 11 to the current respective rates of 4.25% and 4.75%.

In its most recent monetary policy statement, the Fed noted that there has been recent intensification of the housing correction and strains in financial markets. The Fed also noted that: "Recent developments, including the deterioration in financial market conditions, have increased uncertainty surrounding the outlook for economic growth and inflation."

The quarter-point reductions in the Fed's target lending rates in December and October, in conjunction with the Fed's more aggressive half-point cuts in September should, according to the Fed, "…help promote moderate growth over time."

On Wednesday, December 12, 2007, the Federal Reserve announced measures designed to address recent "elevated pressures" in short-term funding markets. In particular, the Fed has joined with four other major central banks in measures designed to inject added cash into global money markets in hopes of alleviating credit pressures that could threaten economic growth. The Fed has created a new "Term Auction Facility" (TAF), under which it would lend at least $40 billion and potentially far more, in four separate auctions starting on Monday, December 17. The TAF is intended to open up a source of liquidity to the financial system to complement open market operations, which deal with a more limited set of counterparties and collateral, and discount window lending.

The TAF loans will be at auction rates that should be below the rate charged on direct discount-window loans from the Fed, with a minimum auction rate established at the overnight indexed swap rate corresponding to the maturity of the credit being auctioned. (The overnight indexed swap rate is a measure of market participants' expected average federal funds rate over the term of the operation). The new loans can still be secured by the same, broad variety of collateral that banks pledge for discount window loans. Consequently, the TAF effectively eliminates or at least greatly reduces penalties associated with discount window borrowing. One non-pecuniary penalty that will be eliminated is banks' fears that borrowing from the discount widow might be mistaken for accessing emergency loans for troubled institutions—a signal that banks would rather not send to markets. Such fear inhibits that ability of the discount window in the

provision of liquidity to sound financial institutions. TAF borrowing will be significantly more anonymous, thereby avoiding the “stigma” problem associated with discount window borrowing.

The Fed also said it had created reciprocal "swap" lines with the European Central Bank (ECB), for $20 billion, and the Swiss National Bank (SNB), for $4 billion. These will assist the ECB and SNB in making dollar loans to banks in their jurisdiction, in hopes of putting downward pressure on interbank dollar rates such as the London Interbank Offered Rate, or Libor, market. The inability of foreign central banks to inject funds in anything other than their own currency has been a factor creating the squeeze on bank funding in those markets.

The Fed indicated that the new TAF lending facility could become a permanent addition to its monetary policy toolkit.

It is too early to tell whether financial markets have stabilized, whether the liquidity event and flight to quality is over, or whether recent events will continue and lead to the restrained economic growth that the Fed fears.

Federal Reserve’s Regulatory Response to Mortgage Difficulties

In cooperation with other federal supervisory agencies, the Federal Reserve has been active in reviewing and issuing rules and supervisory guidance regarding mortgage lending standards. Those are standards that banks should follow to ensure that borrowers obtain loans that they can afford to repay and that give them the opportunity to refinance without prepayment penalty for a reasonable period before the interest rate resets.

The Fed is also reviewing Truth in Lending Act (TILA) rules for mortgage loans and will be conducting consumer testing of mortgage disclosures for this purpose. In addition, the Fed is developing proposed changes to TILA rules—one to address concerns about incomplete or misleading mortgage loan advertisements and solicitations and a second to require lenders to provide mortgage disclosures more quickly so that consumers can get the information they need when it is most useful to them.

The Fed intends to use its rulemaking authority under the Home Ownership and Equity Protection Act (HOEPA) to propose additional consumer protections this year. The Fed is looking closely at some mortgage lending practices, including prepayment penalties, escrow accounts for taxes and insurance, stated-income and low-documentation lending, and the evaluation of a borrower’s ability to repay.

On Tuesday, December 18 of this year, the Fed proposed and asked for public comment on changes to Regulation Z (Truth in Lending) to protect consumers from unfair or deceptive mortgage lending and advertising practices. The rule, which would be adopted under HOEPA, would restrict certain practices and require certain disclosures to be provided earlier in the mortgage transaction. According to the Fed, the announced proposal includes four key protections for "higher-priced mortgage loans" (which would capture subprime mortgages and generally exclude prime loans) secured by a consumer's principal dwelling:

1. Creditors would be prohibited from engaging in a pattern or practice of extending credit without considering borrowers' ability to repay the loan.
2. Creditors would be required to verify the income and assets they rely upon in making a loan.
3. Prepayment penalties would only be permitted if certain conditions are met, including the condition that no penalty will apply for at least 60 days before any possible payment increase.
4. Creditors would have to establish escrow accounts for taxes and insurance.

The recent problems in subprime lending have underscored the need not only for better disclosure and new rules but also for more-uniform enforcement in the fragmented market structure of brokers and lenders. In that regard, the Conference of State Bank Supervisors (CSBS) has partnered with the American Association of Residential Mortgage Regulators (AARMR) to develop a nationwide licensing system and database for mortgage professionals. The system is expected to start up in early 2008 with seven states, and another 30 states have committed and will be added gradually. A nationwide system would help limit the ability of originators who run afoul of their state regulators to continue operating simply by moving to another state.

Congressional Legislation Regarding Mortgage Market Difficulties

In efforts to address difficulties faced by American homeowners, many legislative remedies have been debated in Congress. Remedies that have been considered to help homeowners broadly contain the following features:

- Tax relief on borrower debt that is forgiven to mortgage borrowers through workout agreements with mortgage lenders. Under current law, the Internal Revenue Service treats some

loan forgiveness as taxable income to those who arrange workout agreements.

- Reform of the Federal Housing Administration (FHA) and government sponsored enterprises. Reform has typically been considered through proposals such as increasing the cap on Federal Housing Authority (FHA) loan limits, allowing for variation in FHA premiums, replacing the Office of Federal Housing Enterprise Oversight (OFHEO) with a Federal Housing Finance Agency (FHFA), and amending or adding to the defined objectives of government sponsored enterprises Fannie Mae and Freddie Mac.
- Alteration of the bankruptcy code to change the manner in which residential housing is treated.

Features of recent legislative proposals intended primarily to prevent recurrence of mortgage-lending problems include:

- Cracking down on "predatory lending" (a loose term) by imposing higher degrees of legal responsibility on lenders and brokers; requiring "ability-to-pay" underwriting standards, imposing civil and criminal penalties on brokers who engage in fraud; imposing additional disclosure and communications requirements on brokers; and cracking down on abuses in prepayment penalties. The "ability-to-pay" underwriting principle requires that a loan be made based on an individual's current and expected income and assets, as opposed to a "collateral dependent loan" that is based on expected changes in the value of the collateral (e.g., home).
- Establishing national standards and requirements relating to, for example, mortgage originator registration and licensing, formulas to evaluate borrows' ability to pay, and establishment of national databases and registries.
- Providing or mandating counseling and financial education for borrowers trying to work out mortgages and for prospective homeowners. Many proposals provide for funding, through the department of Housing and Urban Development (HUD), to various types of counseling and financial assistance programs (including grants to existing state, local, and non-profit organizations, grants to states to set up homeownership protection centers, and grants to housing agencies to provide one-time emergency financial assistance to satisfy homeowners' past-due payments).

While the list above is by no means all-inclusive, it is clear that Congress must continue to work to address difficulties facing American homeowners as the nation's housing correction continues. Included in that work will be support for efforts already underway by the Administration, Treasury Secretary Paulson, Federal Reserve, and a variety of regulatory bodies. At the time of writing this report, Secretary Paulson, the Administration, the Treasury Department, and private partners such as the American Securitization Forum had just unveiled new guidelines for lenders and security holders under the HOPE NOW alliance. That alliance represents a government and private-sector plan aimed at streamlining processes of refinance and modification of home loans to help homeowners who are currently facing difficulties with their mortgages and those facing the prospect of difficulties.

The HOPE NOW Plan Announced on Thursday, December 6, 2007

The HOPE NOW plan announced on December 6 is designed to help subprime borrowers who can at least afford the current, "starter" rate on a subprime loan, but will not be able to make the higher payments once the interest rate goes up.

- There are four groups of subprime borrowers facing rate increases on their adjustable-rate loans:
  - Those who cannot afford their payments even at the current rate;
  - Those who could afford payments at the higher rate;
  - Those who can refinance into sustainable mortgages while keeping investors whole;
  - Those who can afford their mortgages today but could not at the higher rate.

Only the last group will get help, and only for those who took out their mortgage loans between January 1, 2005 and July 31, 2007 and are scheduled to rise to higher rates between January 1, 2008 and July 31, 2010

HOPE NOW members have agreed on a set of new industry-wide standards to provide systematic relief to these borrowers in one of three ways:

1. Refinancing an existing loan into a new private mortgage;
2. Moving them into an FHASecure loan (FHASecure is a new initiative at the Federal Housing Administration

launched by the Administration to offer refinancing to certain homeowners);

3. Freezing their current interest rates for five years (freezing at the introductory "starter," or "teaser," rate, preventing rates from rising).

HOPE NOW estimates that under this streamlined approach up to 1.2 million subprime ARM borrowers will be eligible for fast-tracking into consideration for affordable refinanced or modified mortgages (using one of the above three ways).

Streamlining will free-up resources so servicers can better focus on borrowers whose situations require more in-depth review and can devote resources to identify, contact, and counsel struggling homeowners.

The program announced December 6 will be available only for owner-occupied homes—to ensure that relief is not provided to real estate speculators.

The highest-profile part of the plan is the freeze on certain subprime mortgages to the "starter" rates for five years.

- The freeze will allow time for housing sales and prices to start rising again—a rebound would enable homeowners to refinance their current adjustable rate mortgages into fixed-rate loans with more affordable payments.

The big sticking point in negotiations leading to the plan was getting investors who purchased the mortgages after they were bundled into securities to agree to accept lower interest payments. Officials representing the mortgage and securitization industries believe the plan will withstand legal challenges as loan modifications will be undertaken in line with interests of mortgage-backed security holders.

Why was there government involvement?

The standard loan-by-loan evaluation process that is the current industry practice would not be able to handle the volume of work that will be required. Instead, the industry needed a streamlined approach to address this increased volume. The role of government has been, according to Secretary Paulson, "to convene market participants with common interests to determine if, and then how, they could develop a shared framework to address both the market complexity [existing in current mortgage and mortgage-related-securities markets] and the upcoming volume of mortgage resets."

Regulating Mortgage Lending

Regulators must work to ensure that fraud and abusive lending practices do not occur and must safeguard against any recurrence of risky financial practices in mortgage lending through adequate oversight. At the same time, they must ensure that regulations are not so onerous as to choke off segments of the mortgage market that have provided and can continue to provide avenues to home ownership for those with subprime credit ratings.

Broadly speaking, financial regulators have four types of tools to protect consumers and to promote safe and sound underwriting practices: required disclosures by lenders, rules to prohibit abusive or deceptive practices, principles-based guidance with supervisory oversight, and less-formal efforts to work with industry participants to promote best practices.

The last time Congress tackled "predatory" mortgage lending was in 1994, when it passed the Home Ownership and Equity Protection Act (HOEPA). While HOEPA applies to all lenders, enforcement is handled by an alphabet soup of authorities, each with some oversight of the U.S. mortgage industry: the Federal Trade Commission (FTC), the Office of Thrift Supervision (OTS), the Federal Deposit Insurance Corporation (FDIC), and the Federal Reserve, to name four that cover bank lenders. States also have their own powers.

The vast array of non-bank mortgage lenders that has proliferated in recent years is also subject to HOEPA rules. However, Federal authorities have no power to enforce those rules on them, because such brokers and lenders are regulated in their home states.

The patchwork nature of enforcement authority in subprime lending poses a special challenge. For example, rules issued by the Federal Reserve Board apply to all lenders but are enforced—depending on the lender—by the Federal Trade Commission, state regulators, or one of the five Federal regulators of depository institutions. To achieve uniform and effective enforcement, cooperation and coordination are essential.

The Fed is considering proposing additional rules under HOEPA this year aimed at prohibiting mortgage lending practices that it finds to be unfair and deceptive, including those that could deal with pre-payment penalties, seen by most critics of recent mortgage lending as among the most egregious practices. (The Fed, in 2001, banned several other practices for high-cost loans, such as loan flipping—a practice characterized by frequent and repeated refinancing to generate fees for lenders).

Policy Considerations in Addressing the Mortgage Market

There are three broad considerations in formulating any policy option aimed at addressing rising current and prospective delinquencies and defaults in mortgage markets and rising current and prospective foreclosures on homeowners unable or unwilling to pay their mortgages.

Consideration #1: Bailouts and Moral Hazard—Policies that involve Federal relief to homeowners on their mortgage debts can introduce moral hazard into future mortgage transactions. Moral hazard refers to the chance (hazard) that someone in a transaction will take an inappropriate ("immoral") action.

In the context of a mortgage transaction, if a borrower were to believe that he or she may not have to carry the full burden of possible future losses (such as foreclosure and financial loss because a property loses value), then the borrower may become more inclined to take on more risk than he or she otherwise would.

A bailout today of mortgage obligations can increase borrowers' perceptions about chances that future bailouts will occur, leading to more risk taking than is socially optimal.

Consideration #2: Separating True Victims from Speculators and those who Misrepresented Themselves—A political difficulty in the current environment is that there are truly people who were victimized by fraudulent and misleading lender practices, but would find it difficult and expensive to prove fault and take civil action against those lenders. It is hard to not feel sympathy for the plight of those victims. At the same time, there are also truly people who were recklessly taking out mortgage loans, sometimes through misrepresentation of their actual financial conditions, to either obtain more housing than they could reasonably afford or to obtain housing in the hope that house prices would continue to climb at elevated rates (gamblers, speculators, flippers). Those people should bear the full responsibility of their obligations.

Absent financial punishment upon the realization of losses that arise because house price appreciation failed to be as high as expected, there will be no reason for speculators and those who misrepresented themselves not to engage in high-financial-risk behavior in the future, which can adversely affect their lenders, their personal lives, and even the financial system.

Consideration #3: Walk a Fine Line in Stepping Up Regulation—Regulators in the mortgage market must be obliged to prevent fraud and abusive lending. At the same time, regulators must tread carefully

so as not to suppress, through overly-stringent regulations, responsible lending. Regulations that are too onerous threaten to eliminate refinancing opportunities for existing subprime borrowers and new financing opportunities for prospective subprime borrowers.

While there truly were victims of abusive and fraudulent lending practices of some mortgage lenders, along with fraudulent practices by some borrowers, to impose regulations so stringent that lenders effectively and altogether shut off credit to some segments of the market, such as subprime borrowers, would deny deserving individuals opportunities for homeownership.

Policy Implication: Leave a Small Footprint if Relief is Provided and if New Regulations are Issued—To minimize the introduction of moral hazard into mortgage transactions, any relief should attempt to minimize perceptions that relief will be forthcoming in the future should similar circumstances prevail. To minimize onerous regulation and to keep credit flowing to deserving participants in subprime markets, new regulations should be carefully crafted.

International Developments

The foreign-exchange value of the dollar has been on a general decline since early in this decade. From the beginning of 2001 through November of 2007, the trade-weighted value of the U.S. dollar has depreciated by around 19.8%. Vis-à-vis the euro, the dollar has depreciated by 36.1% during the same period; vis-à-vis the yen, the dollar has depreciated by 4.8% in the period. From its recent peaks in February of 2002 on a trade-weighted basis and vis-à-vis the yen, the dollar has depreciated by around 24.1% and 16.9%, respectively. From a recent peak in October of 2000, the dollar has depreciated by around 41.9% vis-à-vis the euro.

Many believe that further depreciation of the dollar may arise given that the U.S. trade deficit is large relative to GDP and given the possibility of lower U.S. interest rates relative to rates on alternative global assets as the U.S. economy works through the housing and mortgage market difficulties. A declining dollar makes imports more costly and less competitive in U.S. markets and makes U.S. exports more competitive in world markets. As we have seen, robust recent growth in U.S. exports helps fuel overall GDP growth and has been a fortuitous benefit associated with free trade, coming at a time when the housing market has served as a drag on GDP growth. Rising costs of U.S. imports, however, may pose risks to U.S. consumer price inflation if those costs are passed through from importers to consumers.

Trade deficits have helped fuel historically high U.S. current account deficits. The current account deficit, after hitting a near-term low as a percent of GDP of 3.5% in the fourth quarter of 2001, rose to 6.8% of GDP by the fourth quarter of 2005, and has since retreated to around 5.1% of GDP. The current account deficit means that U.S. savings are not sufficient to fund U.S. investment; on the other hand, it also reflects the fact that investors abroad continue to view the U.S. as a particularly attractive place to invest.

Prospects for U.S. exports of goods and services have improved in recent years, with improvements, on balance, in growth in the euro-zone and in Japan's economy. Perhaps buoyed by declines in the foreign-exchange value of the dollar and by growth abroad, export growth in the U.S. has been brisk. Real (inflation-adjusted) export growth has averaged 9.1% over the past 17 consecutive quarters with positive export growth; 10.4% over the past year through the third quarter of 2007; and 18.9% in the third quarter of this year.

The Federal Budget

The federal government recorded a total budget deficit of $163 billion in fiscal year 2007, $85 billion below the deficit incurred in 2006. The 2007 deficit was 1.2% of GDP, down from 1.9% in 2006. Federal government receipts in fiscal year 2007 rose by 6.7% relative to fiscal year 2006, exceeding the growth of nominal GDP for the third consecutive year. In fiscal year 2006, receipts rose by 11.8% and in fiscal year 2005, receipts rose by 14.5%. Receipts as a share of GDP rose to 18.8% in fiscal year 2007, above the average of 18.2% experienced since 1965. Outlays, too, rose in 2007—by 2.8% over their 2006 levels.

Despite the recent favorable swings in the government's fiscal position, the threat to stability in longer-term government finances comes from projected runaway growth in mandatory spending, including Social Security, Medicare, and Medicaid. The relatively certain demographic outlook involves large-scale retirement of the "baby boom" generation, meaning fewer workers per beneficiary in Social Security. Currently, around 3.25 workers contribute to the Social Security system per beneficiary. The number of beneficiaries by 2030 will have doubled and the ratio of workers to beneficiaries will have fallen to around 2.00. At the same time, Medicare spending per beneficiary is expected to rise with increases in the costs of medical care.

In fiscal year 2007, federal outlays for Social Security, Medicare, and Medicaid amounted to 8.8% of GDP, up from 8.5% last year. The majority of the rise in those outlays came from rapid growth in

Medicare and Medicaid spending, which together grew by an average of 9% annually over the 2002-2006 period and by 9.7% in 2007. Social Security outlays rose by 5.9% in 2007. Projections by the Office of Management and Budget suggest that the share of GDP accounted for by federal outlays for Social Security, Medicare, and Medicaid will rise to roughly 13% by 2030.

The nation faces important questions as it examines whether promises imbedded in the Social Security system, Medicare, and Medicaid are sustainable, given budget and social priorities. Many fear that these systems have committed more resources to the baby boom generation than they can realistically deliver without imposing massive burdens on younger generations. If those commitments are untenable, then making changes to the promises should come sooner rather than later, giving people as much time as possible to plan their work, savings, and retirement plans and reducing the fiscal burden on future generations.

THE OUTLOOK

Recent economic data show that economic growth has slowed relative to the blistering pace of the past two quarters, partly reflecting a cooling of the housing market. Looking forward, most forecasters see a gradual return to annualized growth of slightly below 3.0% by the end of next year. Recent escalations in energy prices pose a threat to higher inflation, but inflation expectations seem to remain contained. Unemployment and long-term interest rates remain low by historical standards, and job and real compensation growth continue.

Of course, risks and uncertainties remain. The extent to which the housing market correction is behind us or has a way to go remains uncertain. Uncertainties and turbulence in global and U.S financial markets continue. Continued rapid growth in China, India, and other countries may continue to put upward pressure on prices of key inputs such as oil and commodities. Rising import prices associated with declines in the value of the dollar may put upward pressure on consumer prices. The global risks of terrorism and unrest in the Middle East also remain. And there are uncertainties concerning effects of near-term budget pressures that will increasingly be felt from the demographic tidal wave of baby-boomer retirees in conjunction with existing entitlement promises and rising healthcare costs.

Despite our nation's challenges, we maintain our confidence in the economy's ability to expand and provide improved job opportunities for all Americans. We must work to insure that fiscal and regulatory burdens do not hinder economic growth and job creation and we must continue to fight protectionism against our trading partners that would

prevent Americans from benefiting from the gains of free and fair trade. In light of renewed recent uncertainties and heightened risk aversion in financial markets, expectations of below trend growth in the near term, and stresses placed on American families facing difficulties with their mortgages, one thing seems perfectly evident: Now is not the time to raise taxes on American families, as many members of the majority currently favor.

Representative Jim Saxton
Ranking Republican Member

Senator Sam Brownback
Senior Republican Senator

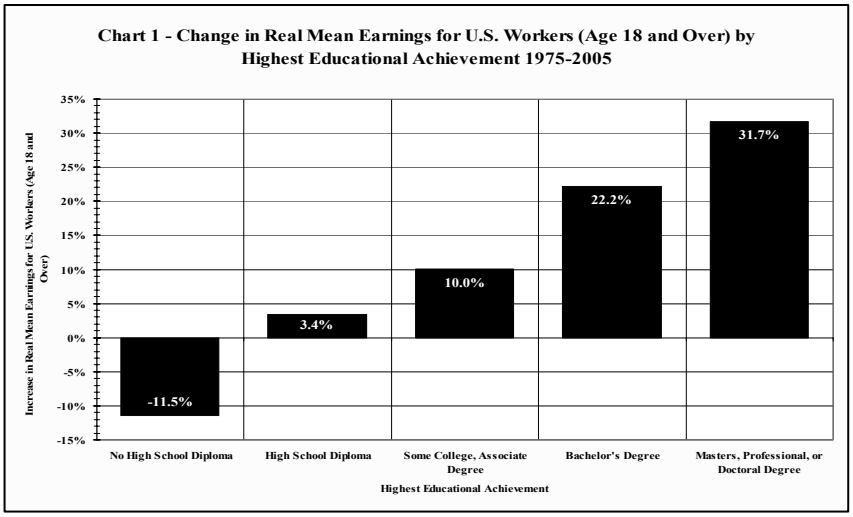
SELECTED REPUBLICAN STAFF REPORTS PREPARED BY THE STAFF OF REPRESENATIVE JIM SAXTON, RANKING REPUBLICAN MEMBER

INFORMATION TECHNOLOGY INCREASES EARNINGS DIFFERENTIAL AND DRIVES NEED FOR EDUCATION

Education premiums. In 1975, U.S. workers with high school diplomas earned a real mean average of $28,471 (all earnings herein are in real 2005 dollars; see Chart 1 for increases in real mean earnings and Chart 2 for education premiums). U.S. workers with bachelor's degrees earned a real mean of $44,767, a premium of 57 percent more than high school graduates, while U.S. workers with masters, professional, or doctoral degrees earned a real mean of $60,714, a premium of 113 percent more than high school graduates.

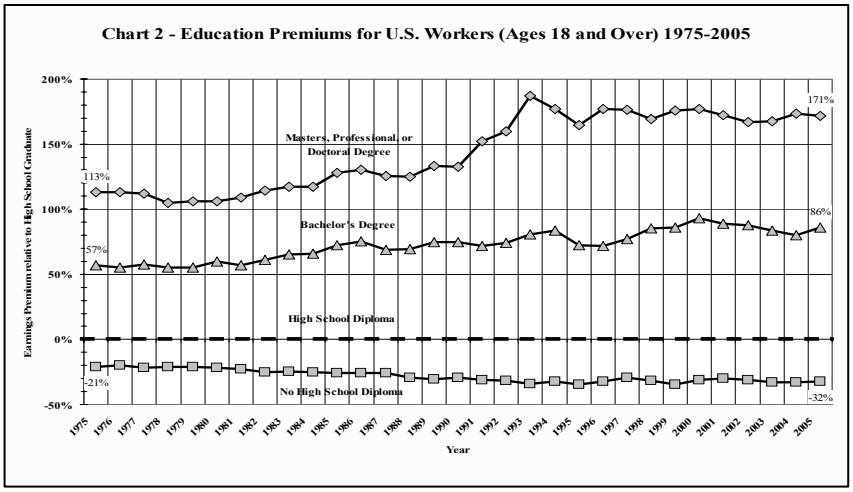
Over the next thirty years, these education premiums expanded significantly. The real mean earnings of U.S. workers with high school diplomas grew by 3.4 percent to $29,448 in 2005, while the real mean earnings of U.S. workers with bachelor's degrees swelled by 22.2 percent to $54,689 in 2005. Thus, the education premium for college graduates with bachelor's degrees increased to 86 percent.

Likewise, the real mean earnings of U.S. workers with masters, professional, or doctoral degrees grew by 31.7 percent to $79,946 in 2005. Thus, the education premium for college graduates with masters, professional, and doctoral degrees expanded to 171 percent.



What caused this expansion of education premiums? During the last three decades, a **skill-biased technological change** (SBTC) altered the demand for different types of labor in the United States. As the

real cost of acquiring and using information technology (IT) assets plummeted, U.S. firms substituted computers and computer-driven machinery for workers performing routine tasks. Simultaneously, computerization improved the availability, accuracy and timeliness of information, increasing the marginal productivity of highly skilled, college-educated workers performing cognitive non-routine tasks. Because SBTC concurrently dampened the demand for routine labor and stimulated the demand for cognitive non- routine labor, SBTC increased the real earnings of college graduates relative to less



educated workers.

SBTC explained a majority of the observed changes in the demand for different types of U.S. workers and the real compensation that these workers received over the last three decades. Moreover, SBTC explained a majority of the observed expansion of the earnings differential among U.S. households over the last three decades. Other causes together explained a minority of the observed changes in labor demand, compensation, and earnings differentials.[66] **Computerization**

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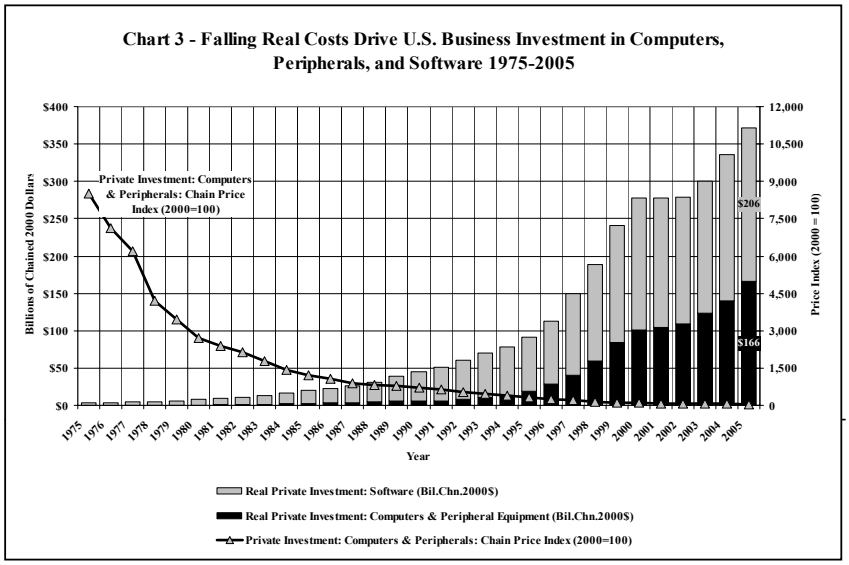
[66] The **progressive liberalization of international trade and investment** tends to increase the compensation of highly skilled workers relative to less skilled workers in both developed and developing economies. For example, see Robert C. Feenstra and Gordon H. Hanson, "Foreign Investment, Outsourcing, and Relative Wages," National Bureau of Economic Research Working Paper No. 5121 (May 1995); Robert C. Feenstra and Gordon H. Hanson, "Global Production Sharing and Rising Inequality: A Survey of Trade and Wages," in Kwan Choi and James Harrigan, eds., *Handbook of International Trade*, Basil Blackwell (forthcoming); and Pinelopi Koujianou Goldberg and Nina Pavcnik, "Distributional Effects of Globalization in Developing Economies," National Bureau of Economic Research Working Paper 12885 (February 2007**).** **Large scale immigration of low-skill workers** may have depressed real wage growth in the lower half of the income distribution. See: George J. Borjas, "Native Internal Migration and the Labor Market: Impact of Immigration," (May 2004). Finally, **statistical anomalies** such as the

and labor demand. Computers and computer-driven machinery rapidly perform routine tasks that can be expressed logically and codified into a sequence of unambiguous commands to achieve desired results. Thus, firms may substitute IT assets for workers performing routine job tasks (e.g., firms may replace filing clerks with personal computers to maintain their records or welders with welding robots to attach parts on assembly lines). Computers do not think creatively, handle ambiguity, or solve problems. Cognitive non-routine job tasks (e.g., analyzing problems, creating new products, interacting with suppliers and customers, and managing) require uniquely human input.

Computers dramatically reduce the cost of providing accurate and timely information. By expanding the availability of information, computerization improves decision-making and increases the marginal productivity of highly skilled workers. Thus, IT assets complement cognitive non-routine labor.

Plummeting cost, increasing investment. The real cost of acquiring and using IT assets dropped during the last three decades. From 1975 to 2005, the real cost of acquiring computers and peripherals plummeted by 99.4 percent, while the real cost of acquiring software dropped by 27.5 percent. The decline in the real cost of acquiring and using IT assets increased computerization. From 1975 to 2005, real private non-residential investment in computers and peripherals rose from less than $500 million to $166 billion, or 1.50 percent of GDP, while real private non-residential investment in software grew from $4 billion to $206 billion, or 1.87 percent of GDP (all investments are in real 2000 dollars; see Chart 3).



Skill-biased technological change. A fall in the real cost of acquiring and using IT assets simultaneously reduces the demand for their substitute, routine labor, and increases the demand for their complement, cognitive non-routine labor. Economists describe this computer-driven shift in the relative demand for different types of labor and the compensation that they receive as a skill-biased technological change. SBTC does not directly affect the demand for manual non-routine labor (e.g., firefighters, servers, and truck drivers).

SBTC increased education premiums. Autor, Levy, and Murnane (2003) found strong empirical support for SBTC as the principal cause for shifting labor demand and the resulting increase in the college education premium.[67] The authors employed detailed U.S. Department of Labor data to identify five major categories of job tasks-

(1) cognitive non-routine analytical;
(2) cognitive non-routine communicative, interactive, and managerial;
(3) cognitive routine;
(4) manual routine; and
(5) manual non-routine

- for approximately 450 aggregated occupations in 140 industries spanning the U.S. economy. The authors measured changes in the demand for job tasks from 1960 to 1998.

Throughout the U.S. economy between 1970 and 1998, the demand for routine task inputs (3 & 4) declined, and the demand for cognitive non-routine inputs (1 & 2) increased. The authors found that task shifts occurred primarily within industries rather than between industries. Thus, the observed task shifts were caused by changes in the mix of labor inputs that U.S. firms used in their production processes rather than changes in U.S. consumer demand for goods and services with higher inputs of cognitive non-routine labor.

The authors also tested two formulations of a computerization-task model. One used the annual change in the percentage of an industry's workers using a computer as an independent variable, while the other used an industry's annual investment in computers, peripherals, and software as an independent variable. Either formulation largely explained the observed task shifts within industries, while other independent variables (e.g., aggregate investment) that were statistically insignificant.

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[67] David H. Autor, Frank Levy, and Richard J. Murnane, "The Skill Content of Recent Technological Change: An Empirical Exploration," *Quarterly Journal of Economics*, 118(4), November 2003.

The authors found significant task changes within nominally unchanged occupations. For example, secretaries typically perform more analytical, communicative, interactive, and managerial functions and fewer routine functions today than secretaries did a generation ago. The computerization-task model explained these task changes within occupations.

Finally, the authors translated the observed task changes into the demand for college-educated and non-college-educated labor. Since 1980, the "model can explain a large fraction – 60 to 90 percent – of the estimated increase in relative demand for college employment. Notably, almost 40 percent of the computer contribution to rising educational demand in the last two decades is due to shifts in task composition within nominally unchanging occupations."[68]

SBTC expanded income inequality. Autor, Katz, and Kearney (2006a, and 2006b) found strong empirical support that SBTC-induced changes in real compensation accounted for a majority of the observed changes in inequality in U.S. income distribution during the last three decades.[69]

High school graduates that perform routine job tasks are clustered in the middle of the U.S. income distribution,[70] while college graduates that perform cognitive non-routine job tasks are clustered in the top two quintiles.[71] By widening education premiums, SBTC has caused a secular expansion of inequality in the upper half of the U.S. income distribution over the last three decades. For example, the 80th percentile to median household income ratio increased from 1.78 in 1980 to 1.98 in 2004, while the 95th percentile to median household income ratio grew from 2.86 in 1980 to 3.54 in 2004.

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[68] Computerization contributed to a rapid increase in CEO compensation by reducing the importance of firm-specific knowledge and increasing the importance of general management skills. Successful managers seeking a CEO position are less limited by firm-specific knowledge to their current firm. As firm-specific knowledge has become less important, firms can easily hire a successful CEO away from another firm in a different industry. This expanded competition among firms for talented CEOs has increased CEO compensation. Kevin J. Murphy and Jan Zabojnik, "CEO Pay and Appointments: A Market-Based Explanation for Recent Trends, *American Economic Review* (May 2004), 192-196.

[69] David H. Autor, Lawrence F. Katz, and Melissa S. Kearney, "The Polarization of the U.S. Labor Market," National Bureau of Economic Research Working Paper 11986, January 2006; and David H. Autor, Lawrence F. Katz, and Melissa S. Kearney, "The Polarization of the U.S. Labor Market," *American Economic Review*, May 2006, 189-194.

[70] The median income for households headed by a high school graduate was $38,191 in 2005. This was in the third quintile.

[71] The median income for households headed by a college graduate with a bachelor's degree was $72,424 in 2005. This was in the fourth quintile. The median income for households headed by a college graduate with an advanced or professional degree was $100,000 in 2005. This was in the top quintile.

Worldwide phenomenon. Expanding education premiums and growing income inequality are not limited to the United States. In its most recent *World Economic Outlook*, the International Monetary Fund reported, "The income share of labor in skilled sectors [in developed economies] … has been on the rise, especially in Anglo-Saxon countries."[72]

Moreover, developing economies have experienced explosive growth in the real compensation paid to highly skilled, college-educated workers relative to other workers in their economies. Thus, education premiums have expanded more rapidly in developing economies such as China and India than in developed economies such as the United States.[73] While SBTC did contribute to these changes, other factors such as domestic economic reforms and globalization are likely to have played greater roles in developing economies than in the United States.

Conclusion. Skill-biased technological change is the major cause for higher education premiums and the resulting increase in income inequality among U.S. households since the 1970s. This secular trend has continued through multiple U.S. business cycles, different presidential administrations, and a variety of federal policies toward taxes, spending, and regulation. This trend is occurring simultaneously in many economies, both developed and developing, around the world.

Since few would forgo the life-improving, productivity-enhancing, and growth-generating benefits of IT assets merely to reduce income inequality, policymakers must seek other ways to increase economic opportunities, especially for Americans in the lower half of the income distribution. The most promising approach is to improve the quality of primary and secondary education so that all Americans may pursue college educations and consequently earn more over their working lives. In addition, it could be made easier for older workers to obtain a college education so that they may enhance their marketable skills and increase their earnings.

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[72] International Monetary Fund, "The Globalization of Labor" in *World Economic Outlook*, Washington, D.C., April 2007.

[73] Goldberg and Pavcnik (February 2007).

EXCESS BURDEN OF FEDERAL TAXES IMPOSES HIGH ECONOMIC COST

Introduction. The overall burden of taxation is much larger than the tax receipts that government collects each year because taxes distort the behavior of individuals and firms. These distortions reduce potential output or economic welfare. Economists refer to this reduction as the **excess burden** or **deadweight loss of taxation**, which is usually expressed as a percent of tax collections either on average or at the margin (the last dollar of tax collected).

Overall cost of taxation. The overall economic cost of the federal tax system above and beyond tax collections arises from three sources:

1. **Administrative costs** are the expenses that the U.S. government incurs in devising, administering, and enforcing its tax laws. In fiscal year 2006, the Internal Revenue Service spent $10.7 billion, or 0.5 percent of federal tax receipts.
2. **Compliance costs** are the value of time and the out-of-pocket expenses that individuals and firms must shoulder to learn tax requirements, keep records, and prepare returns, including accounting and legal fees. In 1999, compliance costs were estimated to be $100 billion, or about 9.4 percent of federal income tax receipts.[74]
3. **Excess burden** or **deadweight loss** is the reduction in potential output or economic welfare that occurs when taxes distort behavior. High marginal tax rates:
   - discourage individuals from working and firms from undertaking investments that would increase GDP;
   - cause individuals and firms to arrange their transactions in ways that minimize tax payments even though these arrangements may reduce GDP; and
   - prompt individuals to increase their consumption of less valuable goods and services that are tax-preferred instead of more valuable goods and services that are taxed.

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[74] Joel Slemrod and Jon Bakija, *Taxing Ourselves: A Citizen's Guide to the Great Debate over Tax Reform* (Cambridge, Massachusetts: MIT Press, 2000): 137.

A JEC study published in 1999 found a midpoint estimate of the excess burden of the federal tax system to be 40 percent of federal tax receipts.[75]

Labor taxation. A higher marginal tax rate on labor income increases the tax wedge between what firms (as consumers of labor) spend to employ workers (including taxes) and what workers (as suppliers of labor) receive. By reducing the after-tax wage rate or equivalently the opportunity cost of leisure, a higher marginal tax rate on labor income simultaneously reduces work effort and increases leisure.[76] The resulting reduction in work effort increases the excess burden of taxation.

The size of the increase in the excess burden depends in part on how responsive the supply of labor effort from workers is to a higher marginal tax rate. Economists use **elasticity** (which is the ratio of the percentage change in one variable to the percentage change in another variable) to measure the responsiveness of labor effort to the after-tax wage rate.[77] Thus, a higher elasticity of labor effort with respect to the after-tax wage rate implies a larger marginal excess burden from any given increase in the marginal tax rate on labor income.

Early empirical research measured labor effort through the quantity of hours-worked. Because only married women had a significant elasticity of hours-worked with respect to the after-tax wage rate, early empirical research found a small excess burden or deadweight loss.

Hours-worked is an incomplete gauge of labor effort because hours-worked measures only the quantity of labor effort. Workers may also reduce the quality of their labor effort in response to a higher marginal tax rate. For example:

- Higher taxes may prompt some workers to choose easier jobs over more demanding jobs that are more productive and consequently

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[75] Richard K. Vedder and Lowell E. Gallaway, *Tax Reduction and Economic Welfare,* prepared for the Joint Economic Committee, 106th Cong., 1st sess., April 1999.

[76] The inverse relationship between marginal income tax rates and labor effort is a substitution effect. An income effect (i.e., higher marginal tax rates may cause some workers to increase work effort to replace lost after-tax income, and vice versa) partially offsets the substitution effect. However, empirical studies have found the substitution effect consistently dominates the income effect, producing a net substitution effect.

[77] Economists use (ε) as the symbol for elasticity. The elasticity of labor effort with respect of the marginal tax rate on labor income (ε) is the ratio of the percentage change in labor effort (L) to the percentage change in the after-tax wage rate ($w * (1 - t_L)$). Mathematically, $\varepsilon = \delta L / \delta (w * (1 - t_L)) * (w * (1 - t_L)) / L$.

pay better. Although both jobs may entail the same hours-worked, this choice reduces the quality of labor-effort and thus output.

- Higher taxes may prompt other workers to forgo additional training or aver moving or changing occupations because of the smaller increase in after-tax income from securing more productive jobs in different industries or locations. Again, these choices may reduce the quality of labor effort and thus output without changing the quantity of hours-worked.

All other things being equal, increasing the marginal tax rate on labor income decreases taxable income by reducing both quantity and quality of labor effort by workers. Higher taxes produce other behavioral changes that also lower taxable income:

- **Firms and their workers may alter the mix of labor compensation by decreasing taxable wages and increasing non-taxable fringe benefits.**
- **Individuals may tend to purchase more tax-preferred goods and services as higher marginal tax rates make deductions more valuable. For example, individuals may purchase a house to take advantage of tax-deductible mortgage interest and property tax payments rather than renting an apartment.**

Because the marginal cost of leisure, fringe benefits, and tax-preferred consumption all equal the after-tax wage rate, economists may combine all of these behavioral responses, estimate the elasticity of taxable income with respect to the after-tax wage rate, and then use this estimate to calculate the marginal excess burden.

Capital taxation. Under the existing federal tax system, personal saving and investment are taxed multiple times. Saving, which is the remainder of after-tax income that is not consumed, is taxed again when it is invested into financial assets that earn interest and dividends. Moreover, dividends are taxed twice – first as profits at the corporate level and again as dividend income at the individual level. Finally, financial assets may be subject to capital gains taxes when sold or estate taxes upon the death of the owner.

By raising the price of saving and investment relative to consumption, this multiple taxation creates a bias against saving and investing in favor of consuming. This bias undermines an important source of capital formation. Although certain provisions in the tax code are designed to offset some of this bias, many of adverse effects from multiple layers of taxation remain. This multiple taxation raises

the cost of capital, rendering some investment projects unfeasible. Thus, the tax bias against saving and investment reduces economic growth and creates a number of specific distortions.

The double taxation of dividends as profits at the corporate level and then again as dividend income at the individual level causes:

- the retention of earnings within profitable U.S. corporations instead of the payment of dividends to shareholders that could have been invested more profitability elsewhere in the U.S. economy; and
- the diversion of funds that would have otherwise been invested in U.S. corporations into the U.S. real estate sector and to foreign corporations.

The deductibility of interest payments, but not of dividends induces U.S. corporations to finance their investments through more debt relative to equity.

- Tax-induced higher debt levels make U.S. corporations more vulnerable to cash flow fluctuations during economic recessions.
- In turn, this vulnerability biases U.S. corporations toward short-term investments because even though long-term investments may have higher present values, the cash flow is more variable from long-term investments than from short-term investments.

Capital gains taxes are largely voluntary since an asset owner can delay paying this tax by not selling assets or can avoid this tax altogether by using appreciated assets to make charitable contributions or holding assets until death. Taxes on capital gains slow the reallocation of investment funds from established corporations to entrepreneurial ventures that could use these funds more profitably.

Owners of capital may make other behavioral changes in response to a higher marginal tax rate on capital income. For example, individuals can substitute tax-exempt municipal bonds for taxable corporate bonds to lower their taxable income. Owners of eligible small firms may elect to organize as S corporations rather than C corporations to avoid paying income taxes at both the firm level and again at the individual level.

Historically, economists estimated the excess burden from capital taxation through the elasticity of saving with respect to the after-tax investment return. Because the volume of saving has displayed a low

elasticity with respect to after-tax investment return, many economists assumed that taxes on investment income produced a small excess burden. However, Feldstein (2006) observed that saving is not an end, but rather a means to an end, namely future consumption.[78] Consider this example:

- A 45-year-old individual who saves $1 now in expectation of using his savings for consumption during retirement 30 years later;
- An expected pre-tax return on a well diversified portfolio of stocks and bonds of 10 percent annually during the next 30 years;
- Reinvestment of all interest and dividend income over 30 years in the portfolio; and
- A 50 percent marginal tax rate (includes all federal, state, and local taxes).

In absence of all capital taxes, this individual could consume $17.45 in 30 years. After taxes, however, this individual would be able to consume only $4.32.[79] In this example, capital taxation creates an effective marginal tax rate on future consumption of 75 percent. Therefore, the relevant elasticity that should be estimated to calculate the marginal excess burden of capital taxation is the elasticity of future consumption with respect to the after-tax rate of capital income.

Feldstein (2006) concluded:

- an excess burden from capital taxation occurs even if the volume of saving is unchanged;
- taxes on investment income can reduce the incentive to work and receive taxable earnings just as taxes on labor income do;
- existing taxes on investment income slow capital accumulation and real GDP growth; and
- slower real GDP growth depresses the real growth of federal tax revenues over time.

Empirical estimates. Examining data before and after the *Tax Reform Act of 1986*, Feldstein (1995) found that the elasticity of taxable income (plus partnership losses) with respect to the after-tax

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[78] Martin Feldstein, *The Effect of Taxes on Growth and Efficiency*, NBER Working Paper 12201 (May 2006).

[79] If this individual were to place this dollar into a tax-deferred retirement saving plan, he or she would have $8.72 available for consumption 30 years later.

wage rate ranged from 104 percent to 125 percent.[80] Using a different model that also accounts for changes in non-tax factors over time, Auten and Carroll (1998) found an elasticity of 66 percent.[81] While Auten and Carroll found a lower elasticity than Feldstein, both were significant above the findings of earlier empirical research.

Feldstein then calculated the economic effects of a 1 percentage point increase in all federal income tax rates. Assuming an elasticity of taxable income with respect to the after-tax wage rate of 40 percent (much less than what either Feldstein or Auten and Carroll actually found), Feldstein found the marginal increase in the excess burden or deadweight loss is $3.5 billion over time, or **76 percent** of the $4.6 billion actual gain in tax revenue. Thus, the actual cost of a new dollar of federal spending in this example is $1.76. Moreover, this hypothetical tax increase would net only $4.6 billion in new revenue, or 57 percent of the $7.5 billion estimated under static modeling. A tax that imposes such high economic costs relative to its revenue gain is inefficient and counterproductive.

Conclusion. While policymakers have frequently debated how proposed federal tax changes would affect the balance in the U.S. government's budget, the level of interest rates, and the short-term growth prospects for the U.S. economy, far less attention has been paid to how these changes would affect the U.S. economy.

Alternative tax policies that raise the same amount of revenue can have vastly different marginal excess burdens. Given the enormous size of the excess burden from the existing federal tax system, policymakers should pay greater attention to the effects of proposed changes on the efficiency and international competitiveness of the U.S. economy when shaping federal tax policy.

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[80] Martin Feldstein, "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act," *Journal of Political Economy* (June 1995): 551-572.

[81] Gerald Auten and Robert Carroll, *The Effect of Income Taxes on Household Income*, U.S. Department of the Treasury, OTA Working Paper 75 (1998).

TAX INCREASES WOULD DAMAGE THE ECONOMY

Introduction. Federal policymakers have recently floated a number of proposals to levy new taxes or to increase existing taxes. These include:

- higher individual income tax rates,
- higher tax rates on capital gains and dividends,
- an income tax surcharge on upper income households,
- removal of the earnings cap on payroll taxes for OASDI benefits (i.e., Social Security pensions),
- eliminating the tax treatment of carried interests as capital gains,
- higher motor vehicle fuel taxes, and
- a new tax on the carbon content of energy.

However, these tax proposals are not paired with significant spending reductions. Instead, many are combined with plans for new spending. It is doubtful whether these proposals should be considered as deficit reduction measures.

Moreover, the tax relief provisions enacted in 2001 and 2003 are currently scheduled to expire on December 31, 2010. These include:

- the reduction in individual income tax rates from a range of 15 percent to 39.6 percent to a range of 10 percent to 36 percent,
- the $1,000 per child tax credit,
- the 15 percent tax rate on long-term capital gains and dividends,
- marriage tax penalty relief, and
- the "death" tax phase-out.

Imposing tax increases at this time, whether through legislation or the failure to renew expiring tax relief provisions, may slow real GDP growth in an economy that has already been weakened by the bursting of housing bubble, the meltdown of the subprime residential mortgage loan market, and high oil prices. Over the next several quarters, real investment in housing may decrease, and a negative wealth effect due to declining housing prices may dampen real growth in consumer spending.

Any significant increase in the marginal tax rates for either households or businesses at this time may slow the growth of business investment in new structures, equipment, and software and may exacerbate any weakness in consumer spending. Hence, tax increases at this time would counteract the monetary easing by the Federal

Reserve and could push the U.S. economy into an otherwise avoidable recession.

Macroeconomic effects of higher taxes in the aggregate. Recent research has found that higher federal taxes may significantly reduce real GDP during the following three years. Christina Romer and David Romer (2007) examined the macroeconomic effects of all U.S. tax changes from 1947 to 2006.[1] Using official records, the authors classified all tax changes by their primary purpose into two categories: endogenous and exogenous. Endogenous changes were intended to maintain or restore normal economic growth. These include tax increases to pay for specific programs[2] and short-term countercyclical tax changes.[3]

In contrast, exogenous tax changes were intended to stimulate long-term economic growth or to reduce inherited federal budget deficits.[4] By separating tax changes into endogenous and exogenous categories, Romer and Romer obtained a more accurate estimate of the macroeconomic effects of any given tax change expressed as a percent of GDP. The authors found:

- "[Exogenous] tax increases appear to have a very large, sustained, and highly significant negative impact on output … [exogenous] tax cuts have very large and persistent positive effects on output."[5] An exogenous tax increase equal to one percent of GDP caused a decline in GDP over the next ten quarters to a maximum of 3 percent below the baseline before leveling out.[6]
- Most of this reduction in GDP occurs because of a decline in investment. "In response to a tax increase of one percent of GDP, the maximum fall in personal consumption expenditures is 2.6

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[1] Christina D. Romer and David H. Romer, "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks," National Bureau of Economic Research Working Paper 13264 (July 2007). Found at: http://www.nber.org/papers/w13264.

[2] For example, enactment of the motor vehicle fuel tax to pay for the interstate highway system and a number of increases in payroll taxes to pay higher OASDI benefits before they were indexed for inflation.

[3] For example, the surtax in 1968 and the tax rebate in 1975.

[4] The pro-growth tax reductions include the Kennedy-Johnson Revenue Act of 1964, the Reagan Economic Recovery Tax Act of 1981, the Bush (43) Economic Growth and Tax Relief Reconciliation Act of 2001, and Jobs and Growth Tax Relief Reconciliation Act of 2003. The deficit reduction tax increases include the Bush (41) Omnibus Budget Reconciliation Act of 1990 and the Clinton Omnibus Budget Reconciliation Act of 1993.

[5] Romer and Romer, 20.

[6] Ibid., 19.

percent, just slightly less than the maximum fall in GDP. The maximum fall in gross private investment is 12.6 percent."[7]

Romer and Romer subdivided exogenous changes into tax reductions to stimulate long-term growth and tax increases to reduce an inherited budget deficit. Tax reductions for long-term stimulation have similar effects to exogenous changes as a whole. In contrast, "output does not fall at all following deficit-driven tax increases."[8] However, there were too few examples of tax increases for deficit reduction to calculate their effects precisely.

"Deficit reduction packages … often include at least some small cuts in spending."[9] Accompanying spending reductions may signal that additional tax receipts will actually be used to reduce budget deficits rather than to boost spending. Thus, deficit reduction packages may have beneficial effects on output through expectations concerning long-term real interest rates that can offset the negative effects that higher taxes and lower spending would otherwise have on output.

Tax increases for deficit reduction raise gross private investment over the first three quarters, but this effect declines over the next seven quarters. Housing investment is more responsive than business investment. Consumer spending on durable goods increases, while consumer spending on non-durable goods and services declines. This pattern suggests that household expectations may improve and real long-term interest rates (to which housing investment is particularly sensitive) may fall in response to tax increases for deficit reduction.[10]

High economic costs from existing federal taxes. Existing federal taxes already impose a large burden on the U.S. economy. In fiscal year 2006, federal revenues were $2.4 trillion (equal to 18.4 percent of GDP). However, the federal tax system imposes other costs on the U.S. economy above and beyond the amount of federal tax receipts collected. These costs arise from three sources:

1. **Administrative costs** are the expenses that the U.S. government incurs in devising, administering, and enforcing its tax laws. In fiscal year 2006, the Internal Revenue Service spent $10.7 billion, or 0.5 percent of federal tax receipts.
2. **Compliance costs** are the value of time and the out-of-pocket expenses that individuals and businesses must shoulder to learn tax requirements, keep records, and prepare returns,

[7] Ibid., 38.
[8] Ibid., 22.
[9] Ibid., 23.
[10] Ibid., 40-41.

including accounting and legal fees. In 1999, compliance costs were estimated to be $100 billion, or about 9.4 percent of federal income tax receipts.[11]

3. **Excess burden of taxation**. Excess burden or deadweight loss is the reduction in potential output or economic welfare that occurs when taxes distort behavior. High marginal tax rates:
   - discourage individuals from working and businesses from undertaking investments that would increase GDP;
   - cause individuals and businesses to arrange their transactions in ways that minimize tax payments even though these arrangements may reduce GDP; and
   - prompt individuals to increase their consumption of less valuable goods and services that are tax-preferred instead of more valuable goods and services that are taxed.

Examining data before and after the Tax Reform Act of 1986, Feldstein calculated the economic effects of a 1-percentage point increase in all federal income tax rates. Under static modeling, this hypothetical tax increase would generate $7.5 billion in federal revenue. However, Feldstein estimated that it would net only $4.6 billion, or 57 percent of the static amount, after taking into account the excess burden of this tax increase on the economy. The marginal increase in the excess burden is $3.5 billion, or 76 percent of the $4.6 billion net gain in tax revenue. Thus, the actual cost of a new dollar of federal spending in this example is $1.76 ($4.6 billion of additional spending financed by an equal amount of new taxes really costs the economy $8.1 billion in taxes and lost potential GDP).[12]

Effects of different types of tax increases. Whether endogenous or exogenous, previous research has found that the elasticity of labor, investment, saving, and consumption with respect to after-tax return (cost) varies widely. Thus, the marginal excess burden of each type of tax differs substantially.[13] Alternative tax increases designed to raise

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[11] Joel Slemrod and Jon Bakija, *Taxing Ourselves: A Citizen's Guide to the Great Debate over Tax Reform* (Cambridge, Massachusetts: MIT Press, 2000): 137.

[12] Martin Feldstein, *The Effect of Taxes on Growth and Efficiency*, NBER Working Paper 12201 (May 2006).

[13] Charles Ballard, John B. Shoven, and John Whalley (1985) found that while the average excess burden across all taxes of raising extra revenue was 33.2 percent, the marginal excess burden from specific taxes ranged from 11.5 percent to 46.3 percent. Charles Ballard, John B. Shoven and

the same amount of receipts can have significantly different effects on output. For example:

- Private business investment in non-residential fixed assets is very responsive to expected after-tax returns. The after-tax return is affected by the marginal individual income tax rates, the marginal corporate income tax rate, tax depreciation schedules, investment tax credits, and marginal tax rates on dividends and capital gains.[14]
- Households may choose when to sell their assets. The realization of capital gains is very responsive to changes in the marginal tax rate on capital gains.

If the goal of the federal tax system is to raise a given amount of receipts with the smallest negative effect on output (i.e., minimize the excess burden of taxation given the desired level of revenue), then policymakers should concentrate taxes on economic activities that have a low responsiveness with respect to their after-tax rate of return. Of course, policymakers may have other objectives in designing taxes. These include the "ability to pay" principle, the desire to link certain benefits and taxes, simplicity and ease of collection, and concerns about the after-tax distribution of income and wealth among households.

However, many of the proposed tax increases that have been recently floated are precisely those types of tax changes that previous research suggests are the most damaging to future economic growth by increasing the marginal tax rate on economic activities that are the most responsive to changes in the after-tax rate of return. These include:

- higher individual income tax rates,
- higher tax rates on capital gains and dividends,
- an income tax surcharge on upper income households, and
- removal of the earnings cap on payroll taxes for OASDI benefits.

Conclusion. The bursting of the housing bubble and the meltdown in the subprime residential mortgage loan market may weaken real GDP growth over the next several quarters. Some policymakers have recent floated proposals to levy new taxes or increase existing taxes.

Recent research suggests that exogenous tax increases are very damaging to economic growth. Moreover, many of the ideas floated

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John Whalley, "General Equilibrium Computations of the Marginal Welfare Costs of Taxes in the United States," *American Economic Review* 75 (March 1985).

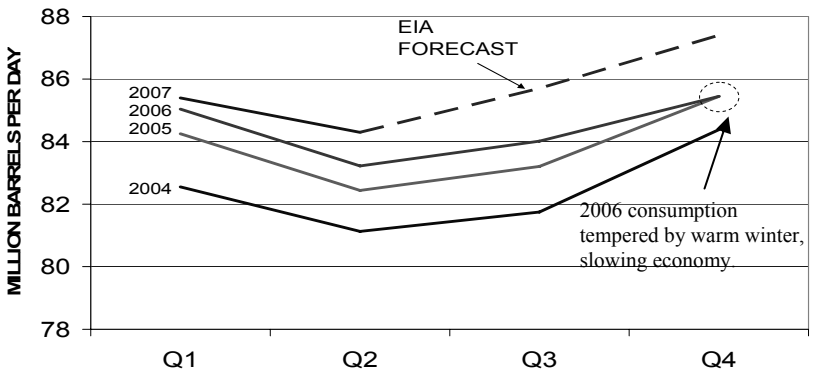
[14] For a discussion, see: Robert P. O'Quinn, *Federal Individual Income Taxes and Investment: Examining the Empirical Evidence*, prepared for the Joint Economic Committee, 107th Cong., 2nd sess. (June 2002).

for raising taxes are precisely the types of tax increases that are likely to have most damaging effects on GDP for each dollar in new receipts.

OPEC'S PURSUIT OF $70 TO $80 OIL

Increasing world oil demand. The world economy has continued to grow, and as a result, world oil consumption has kept rising while also following a seasonal pattern. There is a relative high in the winter and a relative low in the spring. Figure 1 shows oil consumption by quarter beginning with 2004. Based on the typical increase, the Energy Information Administration (EIA) projects oil consumption to reach 87.4 million barrels per day (b/d) in the fourth quarter of this year (see dotted line).

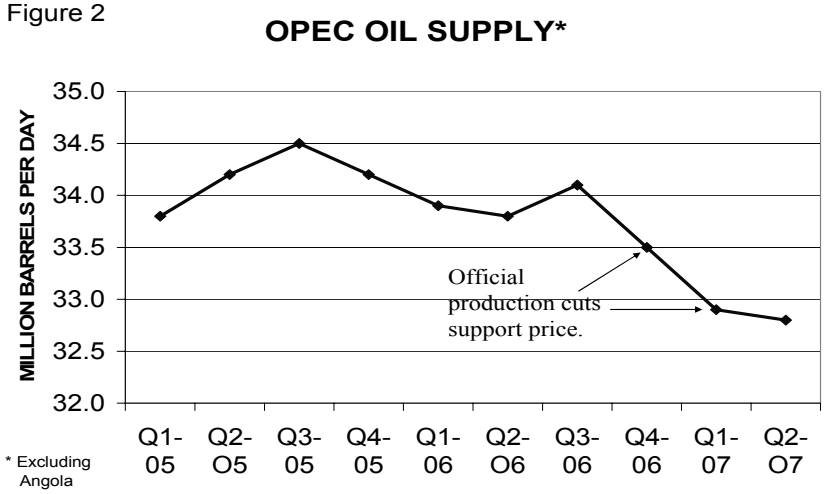
Figure 1



OPEC cut its supply. Countries outside OPEC can only increase oil output slowly. The cartel, on the other hand, can increase oil output relatively quickly; however, it has *cut back* its rate of oil production. Figure 2 shows EIA oil supply data for OPEC (excluding new member Angola) over the past 10 quarters. The price of crude oil has been above $70 per barrel this summer and presently exceeds $75. If OPEC does not reverse course soon and the demand pattern represented in Figure 1 holds, the price may increase still further. The cartel members will meet on September 11 and decide whether to increase oil production in time for the winter heating season.

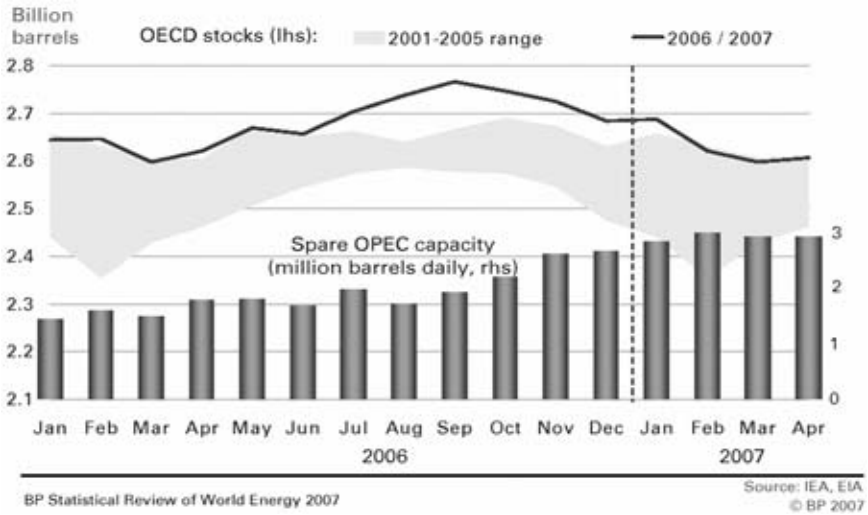
OPEC's price objective. In past years, OPEC officials have indicated implicit price objectives in the $50 and then in the $60 per barrel range. Since last summer, they actually may have been aiming for $70. In August 2006, OPEC's president expressed satisfaction with $70 oil and claimed that it was not damaging the world economy. Heightened supply risks—war in Lebanon and the possibility of another "Katrina" among others—had threatened the oil market and moved oil buyers to

Figure 2



stock up precautionary inventories. OPEC did not accommodate the added demand, which consequently pushed the price up. When Precautionary inventories were released again, the cartel withdrew supply from the market to support the price. The top portion of Figure 3 shows 2006 oil inventory levels in the summer rising far above the range of the previous five years. By autumn, the most severe supply risks had passed and oil from inventory was meeting consumption demand. Some OPEC members promptly reduced their output to offset the oil flow from inventories. But as the price continued to decline, the call went out to all cartel members to cut production by a

Figure 3 **OECD TOTAL COMMERCIAL OIL STOCKS**



total of 1.2 million b/d. The vertical bars in the bottom portion of Figure 3 represent resultant increases in the cartel's spare pumping capacity.

OPEC idled more and more pumping capacity as oil from inventory entered the market (note the decline in the inventory level as of September 2006 and its return to the five-year average range by February 2007). OPEC managed to reverse the price decline. Warm weather during early winter and a slowing U.S. economy tempered the seasonal rise in 2006 fourth quarter oil consumption (see circled data point in Figure 1) and price fell, whereupon OPEC cut output by another 500 thousand b/d in February. Figure 4 depicts the crude oil price movements since 2005. Starting at $50 this year, the price has climbed back above $70 per barrel. Throughout, the cartel has held to its reduced oil output quotas. OPEC officials often proclaim that they offer as much oil to the market as is "needed" and blame a host of factors outside their control for high prices. Unofficially, however, they appear to have been working toward a crude oil price of $70 per barrel all along[96] The cartel's September meeting may reveal whether they now are aiming still higher.

OPEC is behind the rising trend in oil prices. It bears emphasis that increases in oil demand do not necessitate higher prices in this market. The cost of oil production, less than $10 per barrel for OPEC as a whole and $5 or less for its Persian Gulf members, is so far below price that supply could expand very profitably to meet incremental demand without further price increases. OPEC's concerted effort to constrict oil production in the face of rising demand is driving the price up. Having abandoned its previous *official* price band of $22 to $28 per barrel, OPEC refuses to announce a new one and counteract precautionary or speculative demand surges, because it wants the price to keep rising as world oil consumption increases. To facilitate the price rise, it cut its oil production unabashedly and is adding new members to it ranks. Angola, one of the fastest growing oil producers and China's largest supplier of crude in 2006, joined the cartel as of January 1st. Reportedly, Angola will be assigned a quota soon to cap its oil output growth.

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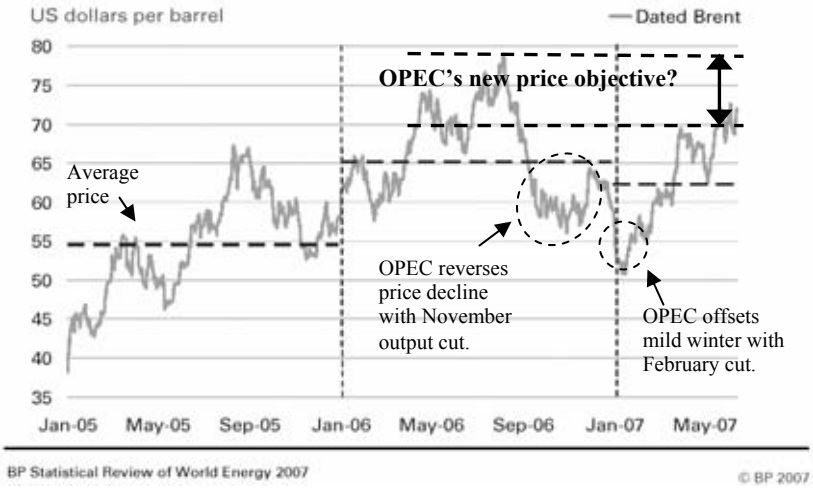
[96] International Energy Agency's (IEA) director general, Claude Mandil, stated: "The market has become aware [that OPEC] has set an implicit new objective of keeping prices at or around $70 per barrel and that the organization is trying to defend this level." Thomson Financial, 8/28/2007.

Figure 4 **THE PRICE OF CRUDE OIL**



Conclusion. OPEC's public statements should not always be taken at face value, but they can provide clues about its intentions, particularly in retrospect when one can match observable actions to them. OPEC takes any new oil price peak that the world economy has absorbed, even for a short time, as the rightful price for its oil. To speed the return to a price peak, it will reduce its oil supply even as demand is trending upward. Oil demand has been increasing mainly in Asia, and the cartel leaders appear to believe that Asia's rapid economic growth not only will be sustained, but together with Middle East growth, can offset a slow-down elsewhere.[97] Therefore, the cartel has become less concerned with the economic stress ever-higher oil prices cause and more assured in its pursuit of aggressive price objectives. At its September 11 meeting, it is likely to remain intransigent with respect to oil supply expansion.

[97] See Bhushan Bahree, "Why Fears of a U.S. Slowdown Aren't Weakening Oil Prices," *The Wall Street Journal*, 8/27/2007.