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Inequality and Household Economic Hardship in the United States of America

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Abstract

Income inequality in the United States of America has increased over the past few decades. Along with this development, employee compensation as a share of national income has tended to decline, the profit share of national income has grown, and inequality within labour has risen. There is no empirical support for the argument that greater inequality has resulted in faster productivity growth, but there is some indication that rising inequality has been connected to slower demand growth. Increased access to credit may have temporarily muted the implications of greater income inequality.

JEL Classification: D63 (Equity, Justice, Inequality and Other Normative Criteria and Measurement), J3 (Wages, Compensation, and Labour Costs).

Keywords: wage inequality, income inequality.

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Inequality and Household Economic Hardship in the United States of America

Heather Boushey and Christian E. Weller

In recent decades, income disparity in the United States of America has increased. Employee compensation as a share of national income has tended to decline, the profit share of national income has grown, and inequality within labour has risen. The increase in inequality may have had effects on the economy at large. Some have argued that greater inequality could have resulted in faster productivity growth, while others have contended that more unequal distribution of economic resources can impede demand growth. Empirically, there is no support for the former, but there is some indication that rising inequality has been connected to slower demand growth. In the U.S., the adverse effects of higher inequality on demand growth may have been temporarily muted due to the greater ease with which households can borrow money to sustain their consumption levels, however, over time, this may result in greater financial instability, reflected in greater economic hardship, especially for poorer households.

Rising U.S. income inequality

A striking characteristic of the economic recovery in the U.S. that started in late 2001 was a rapidly growing gap between supply and demand. Economic growth and employment diverged, as historically weak demand growth did not keep pace with productivity growth.[1] Rising profits were achieved by excessive oversupply over real demand, while employee compensation was held down to contain costs (Bivens and Weller, 2004a; Weller, 2004a) (Figure 1). In response to lower real income, households borrowed more to maintain their consumption levels (Weller, 2004a), while businesses did not step up investment quickly (Weller, Bivens and Sawicky, 2004; Weller, 2004b). Instead, corporations used a substantial share of their additional resources for share repurchases and dividend pay-outs (Bivens and Weller, 2004a). Such measures tend to contribute to rising capital income inequality.

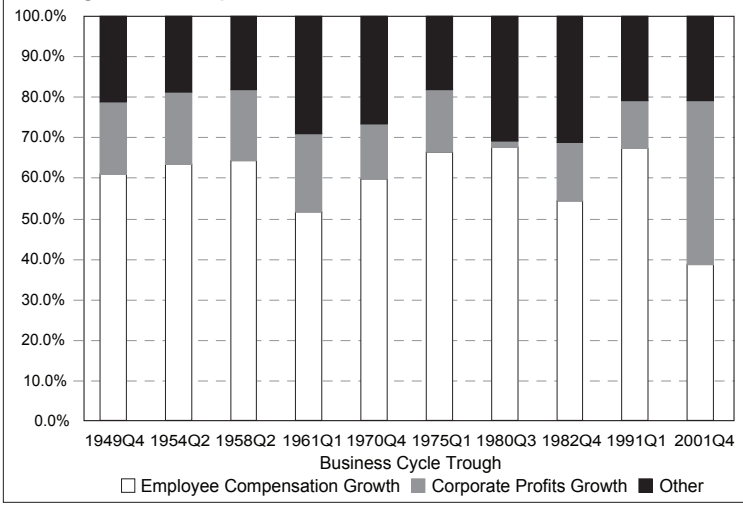
The 'job loss' recovery was, however, the culmination of long-term trends. Since the mid-1970s, growth in productivity has outpaced growth in labour compensation (Figure 2). In an earlier period, between 1947 and the middle of 1975, productivity had grown 6 per cent faster than real hourly compensation, while from 1975 to 2004 productivity grew 25.7 per cent faster than hourly compensation. Paralleling this divergence, firms saw rising profits (Bivens and Weller, 2004b; Wolff, 2003). After-tax profit rates and shares, including net interest earnings, already saw the strongest growth, compared to other profit measures in earlier periods (Table 1).[2] The trends in profit shares are accompanied by the opposite trend in labour shares. Regardless of how the labour share is measured, it declined in the 1975-2004 period, particularly after 2001, whereas in the earlier period, 1947-1975, it had been growing (Table 1).

Inequality in the economic circumstances of workers and their families is one outgrowth of the increased inequality in the trend towards greater share of national income going towards profits, rather than labour income. Over the past few decades, the United States has seen an unprecedented and signifi-

1 All comparisons are for 9 quarters or 28 months after the start of the recovery.

2 All differences were statistically significant at least at the 5 per cent-level.

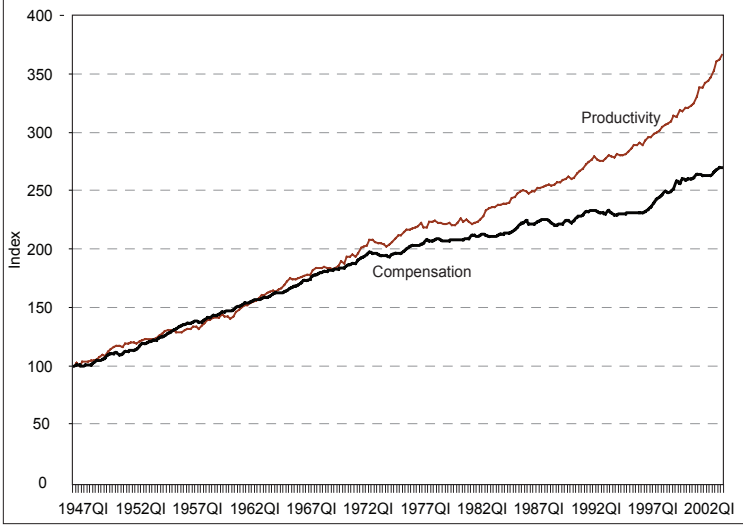
Figure 1:
Components of US national income growth over 8 quarters, 1949-2001



Sources: BEA (2004); authors' calculations.

Note: The figures are calculated as the difference in national income components relative to the difference in national income.

Figure 2:
Productivity vs. compensation, 1947 to 2004



Sources: BLS (2004a); authors' calculations.

Note: Productivity refers to output per hour in the non-farm business sector and compensation is real hourly compensation in the non-farm business sector.

cant increase in inequality between workers at the top and the bottom of the earnings distribution. Further, although wages and salaries make up the bulk of family income, research has found that changes in the distribution of other kinds of income (interest, dividends, and rent) have played just as important a role in explaining the rise in inequality. The rise in inequality is exacerbated by the decline in opportunities for upward income mobility.

Wage inequality

The sharpest increases in wage inequality occurred during the 1980s. From 1979 to 1989, workers in the bottom decile saw their wages fall by 14.1 per cent. Simultaneously, those in the top 5 per cent saw their wage incomes rise by 8.1 per cent. Inequality also increased between workers at the median and those at the top, as wages for the median worker remained the same over the period (Mishel, Bernstein and Boushey, 2003). The overall trend was for the top and bottom to diverge with little change in the middle.

Table 1:
Levels and changes of profit shares and labour shares of national income

	After tax profit share with net interest	*After tax profit share without net interest*	*Before tax profit share with net interest*	*Before tax profit share without net interest*	*Compensation share*	*Compensation and proprietors' share*
Average—earlier period	9.3 (1.4)	6.7 (1.0)	14.2 (1.1)	11.6 (1.4)	62.9 (1.82)	73.2 (1.14)
Average monthly rate of change (percentage points)—earlier period	0.05	0.01	0.03	-0.01	0.05	0.00
Average—later period	13.6 (1.2)	6.4 (1.0)	16.7 (1.0)	9.5 (1.2)	65.6 (0.88)	73.3 (0.88)
Average monthly rate of change (percentage points)—later period	0.04	0.04	0.03	0.03	-0.02	-0.01
Average—2002 to 2004	14.4 (0.7)	8.3 (0.9)	16.7 (0.8)	10.6 (1.0)	65.2 (0.71)	73.7 (0.58)
Average monthly rate of change (percentage points)—2002 to 2004	0.17	0.23	0.23	0.29	-0.18	-0.17

Source: Bivens and Weller (2004a).

Notes: All figures are in per cent. Figures in parentheses are standard errors. The entire sample for profit shares spans from 1947 to the first quarter of 2004 and is split at the second quarter of 1975.

Table 2:
Decomposition of changes in coefficient of variation

	Family income	*Head earnings*	*Other's earnings*	*Government*	*Other (rent, dividend, interest*
1975	0.588	0.407	0.157	-0.025	0.049
2001	0.737	0.433	0.208	0.000	0.096
Change	0.148	0.025	0.051	0.025	0.047

Source: Gottschalk and Danziger (2003).

Between 1989 and 2000, the U.S. economy saw a slowdown in the growth of inequality. Wages increased by 13.1 per cent for those in the bottom decile, and by 16.6 per cent for those in the top 5 per cent. Between 1995 and 2000, wages for those at the bottom of the wage distribution actually saw their wages rise faster than those at the top for the first time in decades (Mishel, Bernstein and Boushey, 2003). Inequality between the top and the middle increased more than between the top and bottom levels, as the median workers saw their wages rise by only 5.9 per cent.

Across-group inequality

If overall inequality rose primarily because of rising inequality between different groups, such as ethnic, gender or professional groups, this could be ascribed to factors specific to particular groups, such as discrimination or increasing returns to skills. But if inequality has been primarily driven by differences within groups, then the problem is more generalized.

Across-group wage inequality declined among male and female workers over the past three decades. From 1975 to 1996, average male wages stagnated, while average female wages rose by about one-fifth. Even after wages are regression-adjusted to control for education and experience, the gender gap closed from 47 per cent in 1975 to 27 per cent in 1993. However, since 1993, the gender pay gap has remained unchanged, hovering at around 25 per cent (Gottschalk and Danziger, 2003).

The inequality gap by race, however, remained. Controlling for personal characteristics, among women, the black/white gap was virtually non-existent in the late 1970s, but increased to 4 per cent by 2001. Among men, the black/white gap was 14 per cent in 1975, rising to about 20 per cent in the early 1980s. It came back down to 15 per cent by 2001.

Inequality by educational level

During the same period, inequality by educational attainment increased, however. Greater educational attainment should signal higher levels of productivity. Thus, there is an expectation of inequality across education levels, but there is no expectation of an increase in this inequality over time. However, in 2003, college-educated men earned 41.5 per cent more than high-school-educated men, whereas in 1973, the college premium was only 25.3 per cent. For women, the rise was less dramatic. In 2003, college-educated women earned 46.1 per cent more than high school-educated women, compared to a 37.7 per cent premium in 1973 (Mishel, Bernstein and Allegretto, 2005). Most of the increase in educational inequality occurred between the late 1970s and the early 1990s. Since 1992, the gap between high school-educated and college-educated workers has been relatively flat among both men and women, although there is slight upward trend, more so for men than for women (Gottschalk and Danziger, 2003).

Implications of within-group inequality

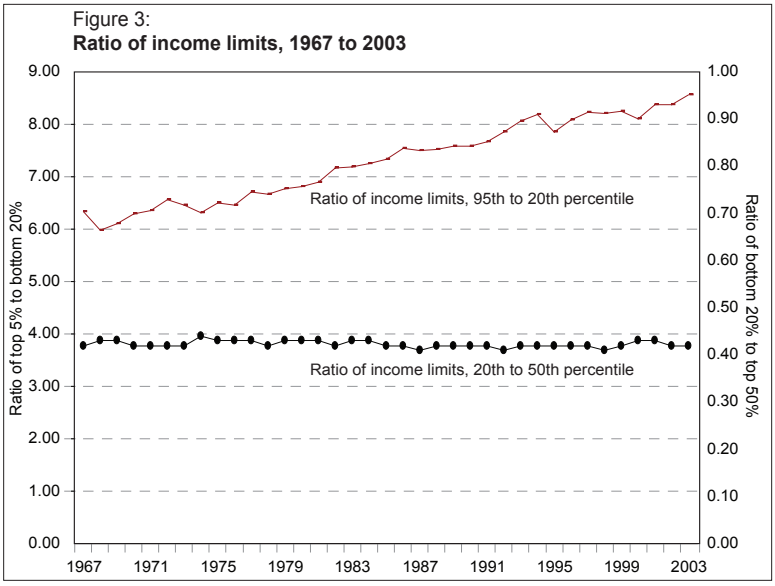
If there are changes in the level of inequality within groups, this indicates that a fundamental change has taken place in the U.S. economy—a change that affects all categories of workers, rather than only certain groups based on their educational attainment or other identifying characteristics. As with across-group inequality, the largest increases in within-group inequality occurred during the 1970s and 1980s. Among both men and women, the residual wage inequality in hourly wages in the bottom decile rose dramatically between 1975 and the late 1990s. A person in the bottom decile of the distribution—where 10 per cent of households have incomes below the benchmark level and 90 per cent have incomes above that level—in the late 1980s had earnings roughly 25 per cent lower than what a similar person had earned in 1975. For individuals in the top decile, wages were about 10 per cent higher in the mid-1980s, compared to 1975, but stopped increasing during the 1990s (Gottschalk and Danziger, 2003).

Income inequality

Trends in income inequality closely mirror wage inequality. From 1947 to 1979, annual growth in real family income was similar across quintiles. However, from 1979 to 2003, those in the top quintile, particularly the top 5 per cent, saw their family income grow significantly faster than those in the lower income quintiles (Figure 3).

The largest increases in income inequality occurred during the 1980s. Between 1979 and 1989, rising inequality was the result of large increases in income among high-income families and declining income among lower income families. During the 1990s, income among lower-income families started to rise,

Figure 3:
Ratio of income limits, 1967 to 2003



Source: U.S. Census Bureau (2004a).

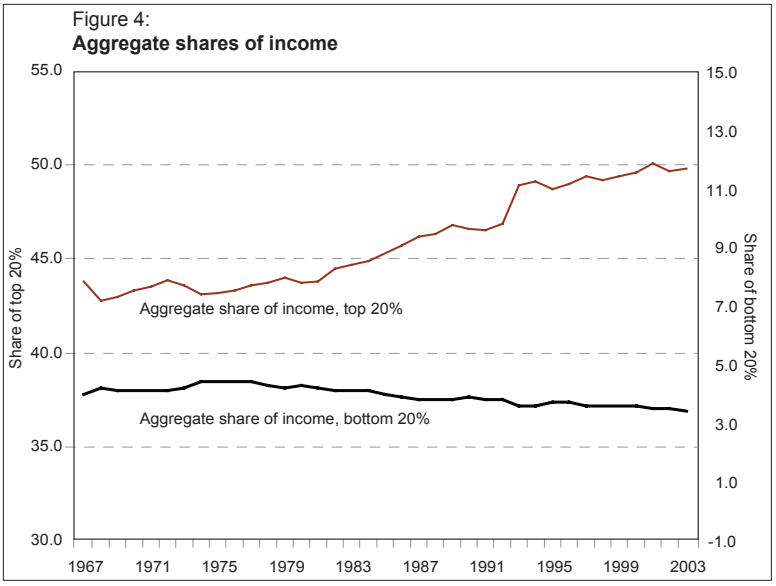
but higher-income families saw their incomes rise even faster. Between 1989 and 2000, among married-couple families with children, incomes of those in the bottom fifth of the income distribution rose by 8.8 per cent, compared to 14.1 per cent among those in the top fifth (Mishel, Bernstein and Allegretto, 2005).

Gains were concentrated at the very top. Research using tax returns found that, between 1973 and 2000, the average real income of the bottom 90 per cent of U.S. taxpayers fell by 7 per cent, while the income of the top 1 per cent grew by 148 per cent (Piketty and Saez, 2001).

While the top pulled away from the bottom, it also pulled away from the middle. Thus, households in the top *quintile* now have over twice the income (2.01 times) of the top *half* of households, whereas back in 1967, this ratio was only 1.66. In contrast, the gap between households at the bottom and middle quintiles has remained relatively constant, at 0.42 in both 1967 and 2003. Similarly, the ratio of the income cut-off for the top 5 per cent of income earners—where 95 per cent of the population has less income—to the bottom quintile—where 75 per cent of the population has more income—rose from 6.3 in 1967 to 8.6 in 2003 (Figure 3). This means that the top 5 per cent of households have grown increasingly richer than the bottom 25 per cent. Also, the annual increases almost doubled after 1980. From 1967 to 1980, the ratio of income cut-offs increased annually by 0.6 per cent, whereas it rose by 1.0 per cent on average each year from 1980 to 2003. In comparison, the ratio of the income for the bottom quintile to the median stayed fairly constant at about 0.42 (DeNavas-Walt, Proctor and Mills, 2004).

In the aggregate, this means that more income became concentrated at the top of the income scale and even less at the bottom. The share of total income accruing to the top quintile of households rose from 43.8 per cent in 1967 to 49.8 per cent in 2003 (Figure 4). In comparison, the share of income going to the bottom quintile of households fell from 4.0 per cent to 3.4 per cent over the same period. Interestingly, the aggregate income share of the bottom quintile of households had actually been rising until 1980, when it reached 4.3 per cent, whereas the share of income accruing to the top quintile had been falling slightly until 1980, when it reached 43.7 per cent (DeNavas-Walt, Proctor and Mills, 2004).

Figure 4:
Aggregate shares of income



Source: U.S. Census Bureau (2004a).

Economic mobility

This rise in income inequality happened even as the number of members within a family who worked for money increased. In 1973, most mothers did not work outside the home, while by 2000, most mothers did. The increase in hours worked by wives was greater among families in the bottom fifth of the income distribution. Between 1979 and 2000, wives in families with children increased their hours by 43.9 per cent, compared to a 27.4 per cent increase in hours among wives in families in the top fifth. Among married-couple families with children, inequality would have increased even more without the contribution of wives' income. Between 1979 and 2000, among families in the bottom fifth, incomes would have fallen by 13.9 per cent without the earnings of wives, rather than rising by 7.5 per cent, as was the case. Among families in the top fifth, incomes would have increased by 51.5 per cent, rather than by 63.0 per cent, as they did (Mishel, Bernstein and Allegretto, 2005).

If wage and income inequality were counterbalanced by mobility, then greater inequality would not necessarily mean that some people got stuck at the bottom (or at the top). However, wage and income inequality was *not* counterbalanced by mobility. In the 1970s, 50.7 per cent of families who began the decade in the bottom quintile and 49.1 per cent of families who began the decade in the second quintile from the bottom moved into a higher quintile over the decade. However, in the 1990s, only 46.8 per cent of families who began the decade in the bottom quintile and 37.9 per cent of families who began the decade in the second quintile from the bottom moved into a higher quintile (Bradbury and Katz, 2002).

Wysong and others (2004) found that social class matters now more than ever. Sons from the bottom three-quarters of the socio-economic scale were less likely to move up in the 1990s than their counterparts had been in the 1960s. By 1998, only 10 per cent of sons of fathers in the bottom quarter (defined by income, education and occupation) had moved into the top quarter, whereas in 1973, by comparison, 23 per cent of lower-class sons had moved up to the top. Thus, the chance that a low-income family will move up the income ladder has diminished over time.

The labour force participation of wives has had an impact on mobility. Families where wives had high and rising employment rates, work hours, and pay were more likely to move up the income ladder or maintain their position (Bradbury and Katz, 2004).

Capital income also mattered, since its share of personal income doubled from 7.1 per cent in early 1947 to 14.1 per cent in the second quarter of 2004 (BEA, 2004). However, the assets underlying these income streams are fairly unequally distributed. For instance, Wolff (2002a) reported that the bottom 40 per cent of households had negative financial net worth in 1998, and little total net worth. Further, Wolff (2004) reported that wealth inequality for total net worth rose between 1998 and 2001.

Causes of increase in inequality

Various authors have ascribed the rising inequality observed in the U.S. since the mid-1970s to either the increasing openness of the economy to international trade or to technological change, mostly biased against unskilled labour. Autor and others (1999) provide a good review of the latter literature (technological change), while Cline (1997) provides one of the former. Both theories can partly explain the increasing divergence between compensation and productivity, but a lot still remains unexplained.

Institutional authors have argued that a relatively deflationary macroeconomic environment was the dominant cause of inequality in wage and capital incomes. Galbraith (1998) examined the rise in inter-industry wage differentials and their relationship with the unemployment rate, arguing that high unemployment is associated with rising inter-industry differentials. This still leaves ample room for competing or complementary explanations, especially since Galbraith (1998) primarily addresses inequality within labour earnings.

Another factor that explains the divergent trends between capital and labour is a rising imbalance in the corporate governance realm. Specifically, a growing concentration among institutional shareholders and the rising power of managers in deciding on the allocation of corporate resources is juxtaposed to a declining unionization rate. Over the years, more funds have become concentrated among institutional shareholders. In 1952, institutional investors owned less than 10 per cent of outstanding equities, and in 2004, their share surpassed 50 per cent for the first time (BOG, 2004c).

Over the last 30 years, institutional investors have had increasing incentives to use their expanded managerial leeway to allocate resources towards capital. Starting in the 1970s, institutional changes, such as the Employee Retirement Income Security Act (ERISA) of 1974 and the introduction of 401(k) plans, gave fund managers and households a common interest in maximizing asset returns (Bivens and Weller, 2004a). This altered the way corporations were run, creating a new class of professional managers who enjoyed greater freedom in allocating corporate resources towards a strategy of rent extraction, including downsizing, outsourcing, and restructuring, as well as a reorientation towards financial service activities, away from actual production (Lazonick and O'Sullivan, 2000; O'Sullivan, 2000). Consequently, labour compensation declined, along with union representation, as jobs, especially in manufacturing, were lost. Thus, the allocation of corporate resources towards raising profits proceeded with less opposition than in the past.

In important ways, the rise in income inequality is explained by changes in corporate governance. For one thing, these changes have been a main driver of the growing emphasis on profit generation, which in turn has reduced the allocation of corporate resources towards labour. Changes in corporate governance also explain the growing inequality within labour that has resulted from increased rent extracting activities and from making executive compensation contingent on share price performance. Finally, the close tie between executive compensation and share prices also explains the fact that a growing proportion of

personal income derives from assets. This in turn contributes to the rise in income inequality related to unequal distribution of household wealth.

The level of unemployment is critical in explaining rising inequality within labour: higher unemployment leads to increasing inequality; conversely, inequality tends to shrink during periods of tight labour markets. This is because unemployment adversely affects the fortunes of those at the bottom more than those at the top. Individuals with limited education, or those who earn at the bottom of the wage distribution range, are more likely to lose their jobs when unemployment rises. In the U.S., the mechanisms through which unemployment affects wages are not always direct, but, at their core, they are related to the relative power of labour and capital within the economy. At times of high unemployment, workers will be less likely to bargain hard for higher wages, for fear of losing their jobs; they will also be less able to find a new position at a higher wage (or benefit) level.

Structural changes in the U.S. economy are also implicated in the rise of inequality. The decline in unionization, the lessening of labour market regulation, changes in the industrial and occupational mix of jobs, and globalization have all contributed to growing inequality. A declining real minimum wage and de-unionization can explain about one-third of the growth in wage inequality, while globalization—immigration, trade, and capital mobility—can explain another one-third of inequality's rise (DiNardo, Fortin and Lemieux, 1996; Gottschalk, 1997; Lee, 1999; Card, Lemieux and Riddell, 2003).

Growing inequality is also the result of the lack of a broad-based social insurance system. Once an American becomes poor, it is exceedingly difficult for him or her to rise back up into the middle class. The OECD has found that, in the U.S., not only are there more poor families, but also, these poor families are less likely than the poor in other countries to 'exit' from poverty. For example, while 41.1 per cent of poor Germans exit poverty each year, only 29.5 per cent of poor Americans do so. Because income transfers are so small, the only way out of poverty is through earnings or by marriage. This circumstance has left poor people in the U.S. more likely to exit poverty through earnings than their counterparts in other OECD nations. Yet, because of limited growth in wages among low-wage workers over the past few decades (up until the late 1990s), this led to lower poverty exit rates in the U.S. Thus, the U.S. social welfare system does not reduce inequality by helping families back into the middle class; further, the U.S. has more wage and income inequality than any other OECD country (OECD, 2001).

Economic trends in the U.S.

The U.S. economy has been characterized by a number of major trends. For one, households have been saving less and borrowing more to maintain their consumption levels.[3] The personal savings rate declined from 9.7 per cent in the early 1970s to 2.2 per cent in the latest business cycle (Table 3). Over the same period, consumer debt rose from 63.7 per cent of disposable income in the early 1970s to over 100 per cent in the most recent business cycle, from 2001 through 2004.

These changes did not come without a cost. Economic strains on households grew. From 2001 through mid-2004, households dedicated at least 13 per cent of their disposable income to servicing debts—the largest share in twenty years (Figure 5). Also, for instance, credit card charge-off rates, the share of loans deemed uncollectable, were above 5 per cent since 2001 (BOG, 2004a). In addition, per-

3 At the same time, worker compensation became more unequally distributed, exacerbating the trends discussed here.

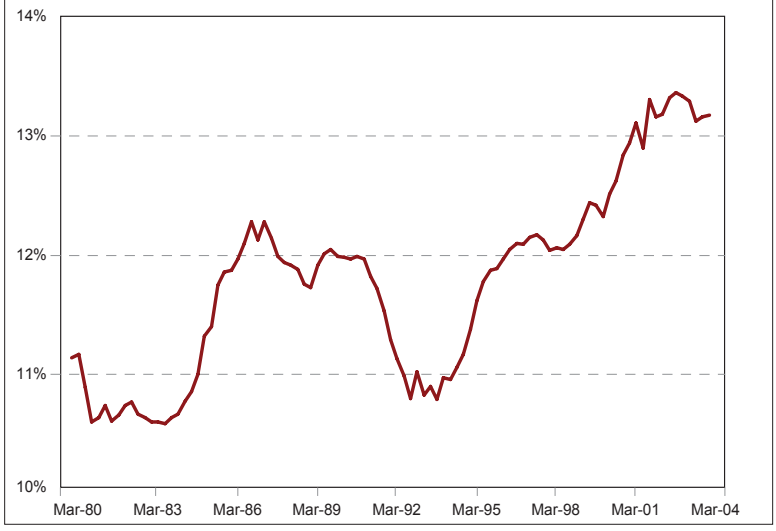
Table 3:
U.S. savings and consumer debt, business cycle averages, 1949-2004

Business cycle periods	*Personal savings rate*	*Total consumer debt as share of disposable income*	*Mortgages as share of disposable income*	*Consumer credit as share of disposable income*
1949Q4-1953Q2	7.4	38.2	23.1	11.6
1953Q3-1957Q3	7.9	47.3	29.1	13.9
1957Q4-1960Q2	7.9	55.0	35.0	15.0
1960Q3-1969Q4	8.4	65.4	41.0	17.7
1970Q1-1973Q4	9.7	63.7	38.2	18.1
1974Q1-1980Q1	9.5	65.2	40.1	17.6
1980Q2-1990Q3	8.9	73.4	47.0	17.9
1990Q4-2001Q1	4.7	91.7	61.3	20.0
2001Q2-2004Q1	2.1	109.0	74.3	23.9

Source: Bivens and Weller (2004a).

Notes: All figures are percentages. Mortgages comprise both traditional mortgages and home equity loans. Consumer credit refers to revolving consumer credit, such as credit card debt, and non-revolving credit card debt, such as car loans.

Figure 5:
Household debt service ratio (DSR)



Source: BOG (2004b)

sonal bankruptcies have risen, so that the share of households that declared bankruptcy reached an estimated record 1.5 per cent in 2003 (Figure 6).

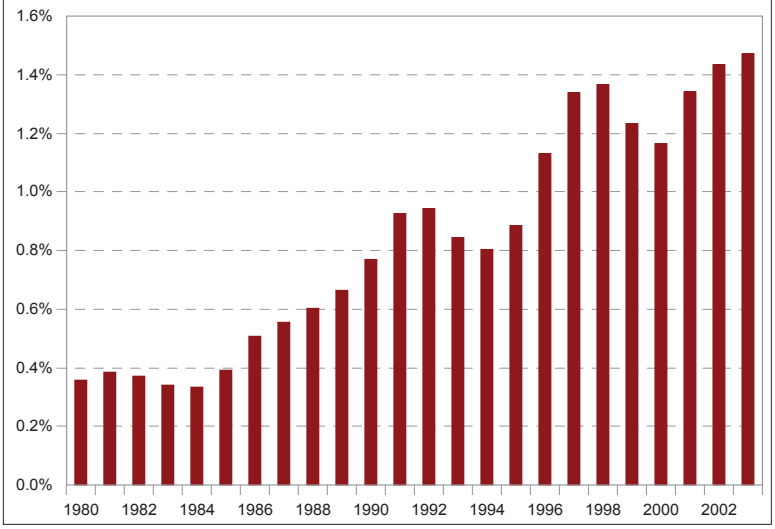
In a context of weak growth in labour income, consumption growth slowed down (Table 5). For 2002 and 2003, average real consumption growth was 1.9 per cent, compared to 3.2 per cent in the 1990s—the slowest consumption increase of any post-war business cycle. However, consumption never declined during the most recent recession in 2001, and consumer spending on new homes and home improvements accelerated more than in prior recoveries. Thus, consumer spending contributed more to growth than the actual growth rate, reflecting the continued trade deficits and the slowdown in investment (Table 5) (Weller, Bivens and Sawicky, 2004).

On the other hand, firms used their profits for purposes other than investments in productivity. They increased their share repurchases and dividend pay-outs. Corporations used 10.7 per cent of their resources for such purposes in the 1970s, but more than 30 per cent since the 1980s, while capital expenditure simultaneously declined (Table 4).

Inequality and the macroeconomy

What is the relationship between inequality and the macroeconomy? If the rise in the profit share translates into an increase in the profit rate, firms could have a greater incentive to invest (Bivens and Weller,

Figure 6:
Personal bankruptcy filings as share of households



Sources: ABI (2004); U.S. Census Bureau (2004b); authors' calculations.

Notes: Figures for 2003 are based on estimates for total number of households. Total number of households is assumed to be equal to 1/1.1 times the number of housing units.

Table 4:
Selected use of U.S. non-financial corporate resources, business cycle averages, 1953-2004

	Financial uses as share of total internal resources			*Productive uses as share of total internal resources*
Business cycle periods	*Total*	*Dividend payouts*	*Net equity issues*	*Capital expenditures*
1953Q3-1957Q3	17.9	23.3	-5.4	79.1
1957Q4-1960Q2	17.9	22.3	-4.5	74.6
1960Q3-1969Q4	20.1	21.8	-1.7	83.1
1970Q1-1973Q4	10.7	20.0	-9.3	101.2
1974Q1-1980Q1	14.8	17.2	-2.5	106.4
1980Q2-1990Q3	31.4	18.5	12.9	95.1
1990Q4-2001Q1	32.0	25.2	6.8	88.3
2001Q2-2004Q1	30.8	25.4	5.4	76.7

Source: Bivens and Weller (2004a).

Notes: All figures are percentages. Total internal resources are defined as after-tax profits plus inventory valuation adjustments and capital consumption allowance. Net equity issues, originally a source of funds, are multiplied by minus one to make them comparable with other uses of funds. Figures do not add to 100% since other sources, especially borrowing of funds, are excluded.

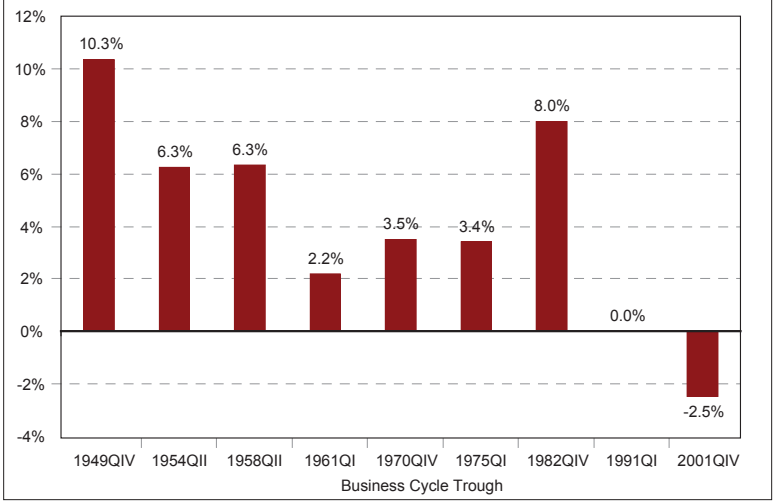
Table 5:
Selected U.S. macroeconomic measures, business cycle averages, 1948-2003

Business cycle periods	*Share of income of bottom quintile*	*Share of income of top quintile*	*Ratio of income limits of top 5% to top half*	*Real consumption growth*	Growth contribution, consumption & residential fixed investment	Consumption as share of disposable income
1948-1952	n.a.	n.a.	n.a.	4.77	-37.49	91.42
1953-1957	n.a.	n.a.	n.a.	2.92	6.91	90.34
1958-1959	n.a.	n.a.	n.a.	2.96	6.02	90.12
1960-1969	4.10	43.20	2.61	4.33	64.41	89.49
1970-1979	4.13	43.58	2.69	2.92	205.69	87.87
1980-1990	4.35	43.48	2.82	2.89	25.65	88.22
1991-2000	3.66	48.67	3.36	3.22	83.01	91.82
2001-2003	3.47	49.87	3.56	1.86	144.96	94.52

Sources: BEA (2004); DeNavas-Walt, Proctor and Mills (2004); BLS (2004a).

Notes: All figures are percentages. Starting date for inequality data is 1967.

Figure 7:
Difference between growth in recoveries, 8 quarters after the start of the recovery, 1947-2004



Sources: BLS (2004a); BEA (2004); authors' calculations.

2004b; Palomba, 2002). However, at the same time, a higher profit rate may raise market entry and ultimately lower the profit rate (Peretto, 1995). Further, if a higher profit rate is achieved by reducing the share of labour costs, demand growth may suffer, thereby lowering profit growth in the long-run (Palley, 1996). Moreover, firms may abandon core activities to allocate funds towards rent extraction, which could impede organizational learning and innovation (Lazonick and O'Sullivan, 2000; O'Sullivan, 2000). These concerns, though, do not necessarily contradict the original notion that a higher profit rate will lead to more investments. They do suggest, however, that over time, countervailing forces will gain ground and weaken the link. The existence of another positive link between inequality and the macroeconomy is confirmed by the fact that inequality may imply a greater wage premium on skills, leading to greater productivity growth. On the other hand, greater inequality could lead to political instability, and thus to disincentives for investment (Alesina and Perotti, 1996; Larrain and Vergara, 1997; Rodriguez, 2000). There may

be a threshold, below which inequality fosters growth, but above which, increasing political instability outweighs any gains from skills development (Benhabib, 2003; Chen, 2003).

Patterns of wage growth show no link between inequality and skills (Mishel, Bernstein and Schmitt, 2001; Mishel, Bernstein and Allegretto, 2005). Entry-level wages among male college graduates were stagnant from 1973 to 1989, and fell 9.9 per cent from 1989 to 1995. Among young college graduates, real wages rose 14.9 per cent for men and 9.4 per cent for women between 1995 and 1999, a period when increases in wage inequality slowed down, but productivity growth accelerated. Also, wage inequality rose the fastest in the 1980s, a time when productivity growth did not accelerate (Mishel, Bernstein and Schmitt, 2001; Mishel, Bernstein and Allegretto, 2005). Also, the occupations that account for the largest wage differentials for education were managerial and sales positions, not technical professions (Mishel, Bernstein and Schmitt, 2001). Research on the effect of inequality on innovation shows, by and large, no systematic link. Scully (2002) found a positive, albeit small effect of inequality on growth (Scully, 2002). However, others found a negative relationship between the two (Alesina and Perotti, 1996; Panizza, 2002; Rodriguez, 2000; Rupasingha, Goetz and Freshwater, 2002). The findings of a link between inequality and growth, though, appear to be sensitive to the specifications of the empirical model (Crafts, 1992; Panizza, 2002). Alternatively, if the labour share declines, aggregate demand could fall due to a slowdown in consumption. This effect could be greater if more income is concentrated among high income earners who have a higher propensity to save. However, the share of consumption relative to disposable income, which should be expected to decline in the face of rising inequality, has actually grown (Table 5). Lower-income households generally spend a greater share of their income, compared to higher-income households, and rising inequality has led to lower growth in income at the bottom, which should lower consumption overall. Also, savings incentives should be relatively more effective for high income earners. Engen and Gale (2000), though, found that savings incentives seem to be more effective in raising savings for low income earners, and not for high income ones (Engen and Gale, 2000). In comparison, several studies suggest a negative connection between inequality and aggregate demand (Arestis and Howell, 1995; Brown, 2004; Pressman, 1997).

Consumer debt and household economic hardship

One explanation for the fact that consumption did not slow in the face of rising inequality may be the easy access to consumer credit. As inequality rose, consumption should have declined without any increase in consumer debt (Brown, 2004). Specifically, it has been argued that greater inequality gave rise to an endogenous credit market, prompting the credit supply to grow as inequality rose (Kruger and Perri, 2002). An endogenous credit market is the outgrowth of low labour income; as families see their inflation-adjusted incomes fall or remain constant, they turn to increased credit to make up the difference in their family budgets.

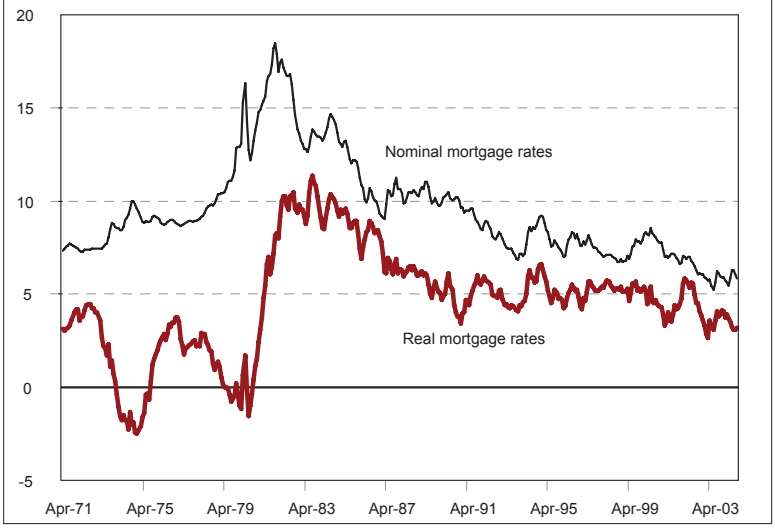
In fact, as inequality grew, the credit supply expanded, particularly among low-income households. This was due mainly to three important developments:

- The standardization of mortgages and the introduction of mortgage backed securities;
- Financial innovations that increased the credit supply; and
- Access to credit increased as financial competition intensified.

First, the standardization of mortgages and the introduction of mortgage backed securities began in the 1960s: with the creation of Ginnie Mae under the Housing and Urban Development Act of 1968; the creation of Freddie Mac; the engagement of Fannie Mae in the pass-through market under the Emergency Home Finance Act of 1970; and tax advantages for mortgages under the 1986 Tax Reform Act (Vandell, 2000). These innovations helped to reduce the risks for mortgage lenders and lowered the costs of mortgages (Figure 8) (Van Order, 2002). Pearce and Miller (2003) estimated that the cost savings to consumers facilitated by these policies amounted to somewhere between $8.4 billion and $23.5 billion.

Second, the credit supply increased as a result of financial innovations. The Tax Reform Act of 1986 phased out the deductibility of most non-mortgage interest and introduced new marginal tax rates that reduced the tax advantage of all types of debt. This led to a shift in consumer debt towards mortgages and home equity loans (Figure 9) (Dunsky and Follain, 2000; Stango, 1999). Stango (1999) estimates

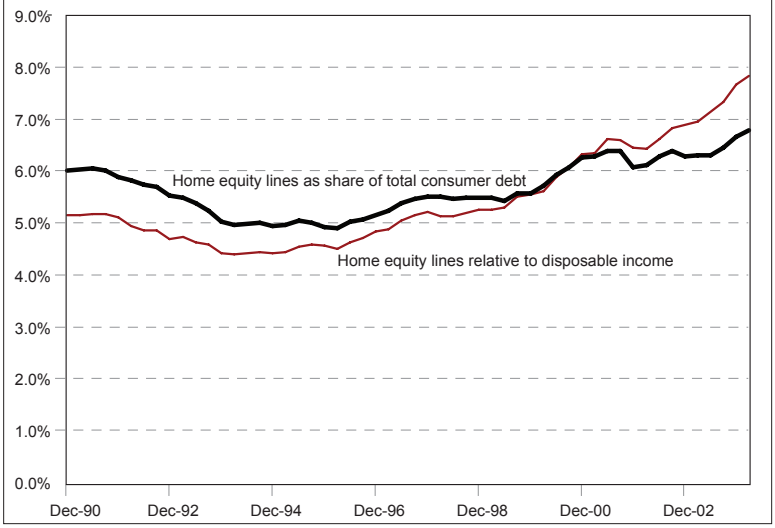
Figure 8:
Mortgage rates



Sources: BLS (2004b); BOG (2004d); authors' calculations.

Note: Real mortgage rates are the difference between the nominal mortgage rates and the year-on-year change in the consumer price index (CPI).

Figure 9:
Home equity lines



Sources: BOG (2004c); authors' calculations.

that by 1991, aggregate mortgage debt was over 1 per cent higher, credit card debt approximately 14 per cent lower, and auto loan debt approximately 9 per cent lower than they would have been without these changes.

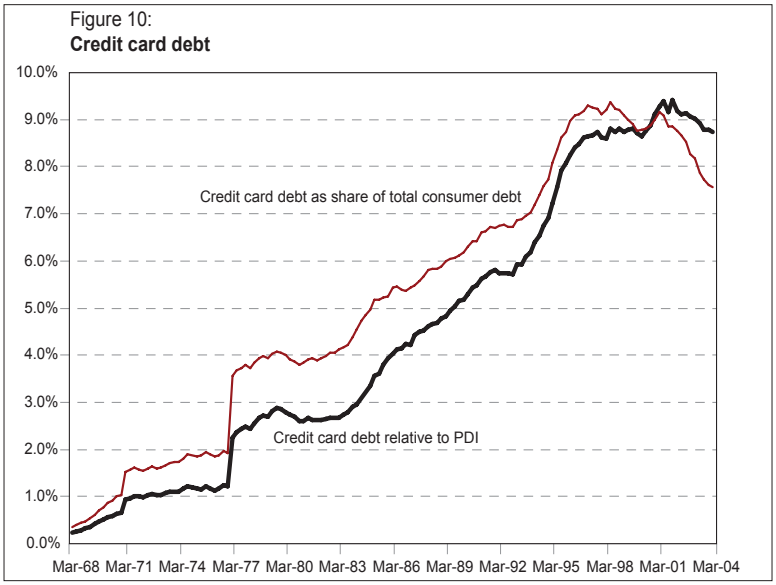
Third, access to credit increased as financial competition intensified. Competition among credit card providers gave financial institutions incentives to offer credit cards to clients who had previously been underserved, leading to a sharp increase in credit card debt (Figure 10), especially among lower income households (Manning, 2000; Yoo, 1996). Non-bank credit, including payday loans, pawn-broking, rent-to-own and appliance title loans, and tax refund anticipation loans grew in parallel to rising inequality, especially among low-income customers (Barr, 2001; CFA, 1998, 1999; Stegman and Faris, 2003). The mechanics of consumption, income and consumer debt are as follows. Greater availability of credit can offset the effects of greater inequality, but higher debt service costs can outweigh the added impulse to spend resulting from greater debt (see Box 1).

During the last business cycle in the early 2000s, personal income became a negative contributor to changes in consumption, i.e. consumption grew faster than personal income.[4] Since the 1980s, debt has outpaced consumption, helping to finance the gap left by slower income growth. Yet, despite faster debt growth, interest payments relative to consumption spending remained unchanged and even declined since the 1980s, due to falling interest rates (Table 6, Figure 8). For our estimate regarding the effect of inequality on the credit supply, see Box 2. Under credit rationing, realized credit is equal to the credit supply (Stiglitz and Weiss, 1980). The term credit supply indicates credit in relation to disposable income. Its explanatory variables are expected income gains and interest rates.

Table 7 presents our results for total debt. Regression (1) shows the baseline results. All variables have the expected sign. In regression (2), we add our measure for inequality between capital and labour. A greater distribution of national income towards labour is less likely to give rise to endogenous credit expansion and thus should reduce the credit supply, ceteris paribus. The estimated parameter is statistically insignificant.

4 For ease of comparison, all figures are divided by consumer spending.

Figure 10:
Credit card debt



Sources: BOG (2004c, 2004e); authors' calculations.

Note: Credit card debt refers to revolving consumer credit.

Box 1:
Mechanics of consumption, income and consumer debt

Greater availability of credit can offset the effects of greater inequality, but higher debt service costs can outweigh the added impulse to spending resulting from greater debt:

$$\Delta C_t + \Delta Tr_t + \Delta I_t + \Delta A_t = \Delta Y_t + \Delta D_t \quad (1)$$

The change in consumption, *C*, is equal to the change in disposable income, *Y*, plus the change in debt, *D*, minus the change in net transfers, *Tr*, minus the change in assets, *A*, minus the change in interest payments, *I*. Assuming that borrowing is the only thing that keeps consumption rising, consumption can increase as long as new debt is larger than the increases in interest payments:

$$\Delta A_t = \Delta r_t * D_{t-1} \quad (2)$$

For consumption to increase on account of rising household debt, the growth of household debt has to remain greater than the increase in credit interest.

Table 6:
Sources and uses of U.S. household finances

Business cycle periods	*Change in disposable income relative to consumer spending*	*Change in financial assets to consumer spending*	*Change in interest payments to consumer spending*	*Change in transfer payments to consumer spending*	*Change in debt to consumer spending*
1954Q3-1957Q3	0.74	-7.93	0.31	0.00	-1.28
1957Q3-1960Q2	-1.78	2.79	0.16	-0.13	1.68
1960Q2-1969Q4	3.91	-0.55	0.49	0.13	-2.14
1969Q4-1973Q4	2.76	4.11	-0.05	0.11	3.11
1973Q4-1980Q1	-1.74	-0.40	0.22	-0.11	1.56
1980Q1-1990Q3	-0.94	-0.18	0.47	0.41	-2.44
1990Q3-2001Q1	-5.91	-6.91	0.00	0.39	0.22
2001Q1-2004Q2	-2.18	2.97	-0.77	0.13	5.14

Sources: BOG (2004c); BEA (2004).

Notes: All figures are percentages. Totals do not add up to zero due to statistical discrepancies. Disposable income refers to personal income minus taxes plus net investments in consumer durables and consumption of fixed capital minus all new spending on consumer durables, government insurance and pension reserves, and net capital transfers. Consumer spending refers to personal consumption expenditures plus capital expenditures on real estate.

In regression (3), we add our two measures for income inequality, which are statistically insignificant. Regression (4) introduces an alternative measure for inequality between capital and labour. Now, we consider proprietors' income as part of total labour compensation. This generates a statistically significant, yet positive correlation between inequality and the amount of debt. One explanation for this unexpected sign may be that more labour income may also constitute more collateral for households to borrow against.

Box 2:
Estimated effect of inequality on the credit supply

In the equation below, we use real disposable income lagged once and the real mortgage rate. We supplement this standard specification with measures of inequality. We use the labour share of national income and the Atkinson inequality measure with a calibration factor of 0.5 for wage inequality and the ratio of a stock market index to the housing price index as a proxy for wealth inequality (Wolff, 2002b):

$$\frac{D}{Y}_t = \beta_0 + \beta_1\left(\sum_{i=t-4}^{t}\frac{LI}{NI}_i\right)/4 + \beta_2\left(\sum_{i=t-4}^{t} Atkinson05_i\right)/4 + \beta_3\left(\sum_{i=t-4}^{t}\frac{SP500}{HPI}_i\right)/4 + \beta_4 y_{t-1} + \beta_5 r_t + \varepsilon_t \quad (3)$$

where *LI* is labour income, *NI* is national income, *Atkinson05* is Atkinson's inequality measure calibrated with a parameter of 0.5, *SP500* refers to the S&P 500 index and *HPI* to the housing price index, *y* is real disposable income, *r* is the real mortgage rate, and ε is a randomly distributed error term. Since income inequality is likely to affect debt over the course of some time, we use the average of the four quarters ending in the current quarter for all of our inequality measures.[a] In each case, the natural logarithm is used.

*Sources:*Labour income, national income, and disposable income: BEA (2004);
Data for the Atkinson's inequality measure is from CEPR (2004);
Data for the S&P 500 is from Yahoo! Finance (2004);
Data for the Housing Price Index is from OFHEO (2004); and
Interest rate data are from BOG (2004d).

[a] All series are non-stationary, integrated at the first degree, and cointegrated at the one per cent-level.

Box 3:
Between-labour and capital inequality and within-labour inequality

The following equation supplements the standard model with the authors' measure for inequality between labour and capital and inequality within labour:

$$\frac{BR}{HH}_t = \beta_0 + \beta_1 UR_t + \beta_2\frac{MEX}{Y}_t + \beta_3\frac{y_t - y_{t-1}}{y_{t-1}} + \beta_4\frac{CCR}{TC}_t + \beta_5\frac{DS}{Y}_t + \beta_6\left(\sum_{i=t-4}^{t}\frac{LI}{NI}_i\right)/4 + \beta_7\left(\sum_{i=t-4}^{t} Atkinson05_i\right)/4 + \beta_8\left(\sum_{i=t-4}^{t}\frac{SP500}{HPI}_i\right)/4 + \varepsilon_t \quad (4)$$

where *BR* refers to the total number of quarterly bankruptcy cases, at an annualized rate, *HH* refers to the total number of households,[a] *MEX* to total medical expenditures, *CCR* to credit card debt, *TC* to total household credit, and *DS* to debt service ratio. To make the results comparable for both our economic distress variables, we estimate the regression for the period from 1985 to 2003.[b]

Sources: Medical expenditure: BEA (2004); unemployment rate: BLS (2004c); and debt service: BOG (2004b).
[a] The total number of households is calculated by dividing the number of housing units by 1.1.
[b] Our previous results on debt levels are unaffected by the choice of time period.

Table 7:
Regression results for determinants of U.S. household debt, 1980-2003

Explanatory variables	*Baseline (1)*	*Between inequality (2)*	*Within inequality (3)*	*Alternative between inequality (4)*	*Alternative within inequality (5)*	*Combined labour inequality (6)*
y_{t-1}	0.47[b] (010)	0.56[b] (0.10)	0.62[b] (0.10)	0.64[b] (0.09)	0.61[b] (0.11)	0.59[b] (0.11)
r_t	-0.05[a] (0.02)	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.03)
LI/NI_t		0.72 (0.51)	0.81 (0.52)		0.78 (0.52)	0.78 (0.52)
LPI/NI_t				1.01[a] (0.51)		
$Atkinson05_t$			-0.14 (0.14)	-0.11 (0.13)		
$Atkinson10_t$					-0.13 (0.16)	
$SP500/HPI_t$			0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	
$LIneq_t$						-0.01 (0.02)
constant	-4.14[b] (0.90)	-4.56[b] (0.85)	-5.42[b] (1.00)	-5.60[b] (0.89)	-5.23[b] (0.98)	-4.80[b] (0.91)
n	93	93	93	93	93	93
Adj. R-squared	0.23	0.25	0.45	0.65	0.44	0.33
Durbin-Watson	1.86	1.86	1.88	1.86	1.87	1.88

Notes: In each case, a Prais-Winsten regression is used. LPI refers to labour income plus proprietors' income and Atkinson10 refers to the Atkinson inequality measure with 1.0 parameter, instead of 0.5. LIneq refers to the combined labour inequality measure derived by using the first factor. All inequality measures refer to the four quarter average ending in the current quarter. Figures in parentheses are standard deviations.

a Denotes significance at the 5%-level.
b Denotes significance at the 1%-level.

In regressions (5) and (6), we test the robustness of our results with respect to within labour inequality. In regression (5), we replace the Atkinson measure with the 0.5 calibration factor, with the Atkinson measure with a 1.0 calibration factor. The results remain robust. To circumvent any collinearity problems, we combine both within labour measures using factor analysis. We first standardize both variables and then calculate the principal factors. We use only the first factor to generate a new variable—labour inequality. This is a linear combination of the two variables and explains 89 per cent of their variance. Using this new variable, instead of two separate measures for labour inequality, generates regression (6). The results are again largely robust.

Inequality linked to debt?

One reason for the lack of a link between inequality and debt may be that in the aggregate total of borrowing by both high and low income households, these may have had a mutually offsetting effect. Specifically, higher income earners are more likely than lower income households to own a home, and thus be able to borrow against their real estate (Wolff, 2002b, 2004).

Income inequality rose partially because incomes of higher earners pulled away from the middle. Thus, households that were more likely to own their residence also had more collateral to borrow against, but less need to borrow additional money. In comparison, lower income households saw below average income gains as inequality rose, but also had fewer opportunities to borrow against their own homes. As they had a greater need to borrow, but less collateral, endogenous credit expansion may have taken place, manifesting itself in more credit card debt for low income households. Thus, we estimate our results separately for mortgages (Table 8) and credit card debt (Table 9).[5]

We find a consistent, positive, and statistically significant relationship between the labour share of national income and mortgage debt, suggesting that less labour income allowed fewer households to buy a home and borrow against the value of their real estate than otherwise would have been the case. A 1 per cent decline in the four quarter average of labour's share of national income translated into a 1 per cent decrease in the ratio of mortgage debt to disposable income. The results also show that the rising inequal-

5 Credit card debt refers to revolving consumer credit (BOG, 2004e).

Table 8:
Regression results for determinants of U.S. mortgage debt, 1980-2003

Explanatory variables	*Baseline (1)*	*Between inequality (2)*	*Within inequality (3)*	*Alternative between inequality (4)*	*Alternative within inequality (5)*	*Combined labour inequality (6)*
y_{t-1}	0.51[c] (0.11)	0.59[c] (0.16)	0.66[c] (0.12)	0.63 (0.11)	0.65[c] (0.12)	0.66[c] (0.12)
r_t	-0.05[a] (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
LI/NI_t		0.95[a] (0.51)	1.13[b] (0.51)		1.09[b] (0.51)	1.13[b] (0.51)
LPI/NI_t				1.30[b] (0.53)		
$Atkinson05_t$			-0.27[a] (0.14)	-0.24[a] (0.14)		
$Atkinson10_t$					-0.27[a] (0.16)	
$SP500/HPI_t$			-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	
$LIneq_t$						-0.03[b] (0.02)
constant	-4.82[c] (0.98)	-5.12[c] (0.97)	-6.31[c] (1.09)	-6.10[c] (1.05)	-6.12[c] (1.08)	-5.68[c] (0.98)
n	93	93	93	93	93	93
Adj. R-squared	0.35	0.41	0.45	0.50	0.46	0.25
Durbin-Watson	1.37	1.39	1.50	1.51	1.48	1.98

Notes: In each case, a Prais-Winsten regression is used. LPI refers to labour income plus proprietors' income, and Atkinson10 refers to the Atkinson inequality measure with 1.0 parameter, instead of 0.5. LIneq refers to the combined labour inequality measure derived by using the first factor. All inequality measures refer to the four quarter average ending in the current quarter. Figures in parentheses are standard deviations.

a Denotes significance at the 10%-level.
b Denotes significance at the 5%-level.
c Denotes significance at the 1%-level.

Table 9:
Regression results for determinants of U.S. credit card debt, 1980-2003

Explanatory variables	*Baseline (1)*	*Between inequality (2)*	*Within inequality (3)*	*Alternative between inequality (4)*	*Alternative within inequality (5)*	*Combined labour inequality (6)*
y_{t-1}	1.19[c] (0.22)	1.18[c] (0.24)	0.99[c] (0.23)	1.06[c] (0.22)	0.98[c] (0.23)	0.99[c] (0.23)
pr_t	0.001 (0.04)	-0.01 (0.04)	-0.02 (0.04)	-0.01 (0.04)	-0.02 (0.04)	-0.02 (0.04)
LI/NI_t		-0.81 (1.05)	-1.28 (1.04)		-1.23 (1.04)	-1.28 (1.04)
LPI/NI_t				-0.86 (1.08)		
$Atkinson05_t$			0.51[a] (0.28)	0.46[a] (0.28)		
$Atkinson10_t$					0.61[a] (0.33)	
$SP500/HPI_t$			0.12[a] (0.06)	0.11[a] (0.06)	0.11[a] (0.06)	
$LIneq_t$						0.08[b] (0.03)
constant	-13.21[c] (1.92)	-12.91[c] (1.96)	-10.78[c] (2.15)	-11.22 (2.11)	-10.83[c] (2.11)	-11.97[c] (1.92)
n	93	93	93	93	93	93
Adj. R-squared	0.78	0.85	0.85	0.85	0.85	.84
Durbin-Watson	1.48	1.93	1.93	1.92	1.93	1.93

Notes: In each case, a Prais-Winsten regression is used. Credit card debt refers to the share of revolving credit out of total household debt. LPI refers to labour income plus proprietors' income, and Atkinson10 refers to the Atkinson inequality measure with 1.0 parameter, instead of 0.5. LIneq refers to the combined labour inequality measure derived by using the first factor. All inequality measures refer to the four quarter average ending in the current quarter. Figures in parentheses are standard deviations.

a Denotes significance at the 10%-level.
b Denotes significance at the 5%-level.
c Denotes significance at the 1%-level.

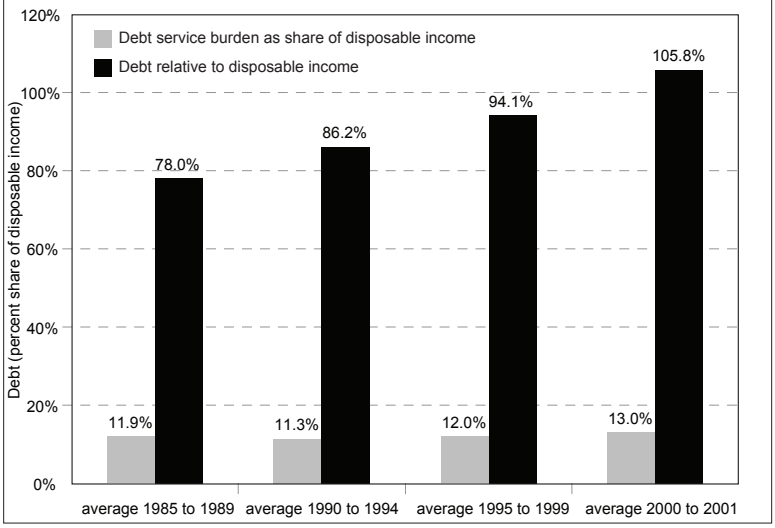
ity in the distribution of wage earnings had an adverse effect on mortgage debt. A rise in earnings inequality translated into less mortgage debt (Table 8).

In comparison, we find no link between the inequality between capital and labour and the amount of credit card debt, but we find that greater inequality within labour results in more credit card debt (Table 9). A 1 per cent increase in wage inequality has resulted in a 0.5 per cent increase in credit card debt relative to disposable income. From 1980 to 2003, an increase in inequality by 1 standard deviation would explain a 3.2 per cent increase in debt relative to disposable income. In comparison, a 1 standard deviation increase in capital inequality would have meant a 5.6 per cent increase in the ratio of credit card debt to disposable income.

Increased consumer debt may have paralleled greater economic hardship, especially since the credit supply expansion was concentrated among lower income households (Iyigun and Owen, 1997). The

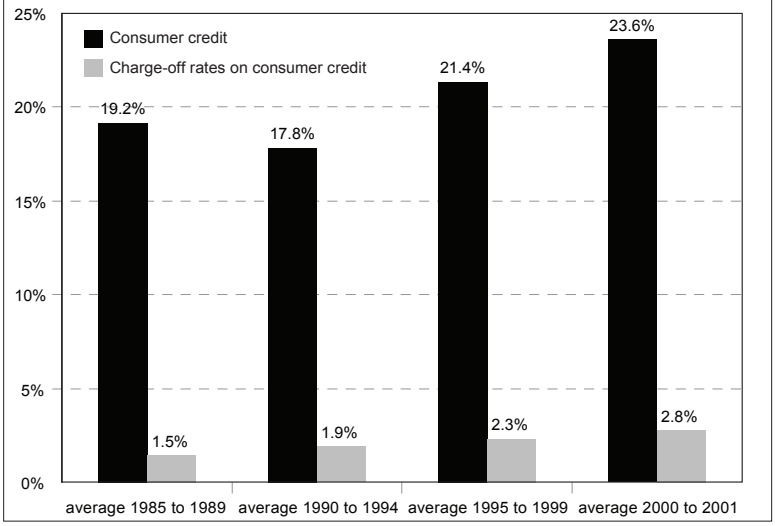
debt service burden rose from an average of 11.9 per cent in the early 1980s to 13.0 per cent since 1999, a 9 per cent increase (Figure 11). Also, household debt relative to disposable income rose from 78.0 per cent to 105.8 per cent between the late 1980s and early 2000s, or a 36 per cent increase (Figure 11). Thus, the burden of repaying debt rose more slowly than debt levels. In contrast, however, personal bankruptcies as a share of households rose fourfold from 0.4 per cent in 1980 to 1.5 per cent in 2003; default rates on consumer credit almost doubled from the early 1980s to the period after 1999 (Figure 12), and the charge-off rate on credit card loans increased almost threefold from 2.0 per cent in 1985 to 5.9 per cent at the end of 2003 (BOG, 2004a). Consequently, trends in economic hardship were out of line with debt service trends, but consistent with the greater debt levels. Increasing inequality may explain this divergence. Credit, especially in more costly forms, such as credit card debt, may have grown faster where income growth was slower, i.e. low and moderate income households (Bird, Hagstrom and Wild, 1998; Black and Morgan, 1999). Additionally, lenders may have screened customers carefully and offered worse terms to

Figure 11:
Debt and debt service relative to disposable income



Sources: BOG (2004a, 2004c); authors' calculations.

Figure 12:
Amount and charge-off rates of consumer credit



Sources: BOG (2004a, 2004c); authors' calculations.

customers who were more likely to become delinquent on their payments than to others (Ausubel, 1997; Stavins, 2000). Thus, both types of inequality may have contributed to a rise in economic hardship, due to the ensuing demand for credit and the extension of rising, and more costly credit, such as credit card debt (Chatterjee and others, 2002; Gross and Souleles, 1998; Stavins, 2000).

Inequality and economic hardship

In estimating the link between inequality and economic hardship, we use alternatively economic hardship, personal bankruptcy, charge-off rates on all consumer credit, and charge-off rates on credit card debt as dependent variables. The inclusion of inequality measures in addition to debt service and debt composition controls for the fact that credit may have expanded in forms not captured here (e.g., payday loans and pawnshops). Economic hardship is typically a function of income growth,[6] debt composition, out-of-pocket medical expenditures, debt service, and unemployment, in addition to demographic characteristics (Ausubel, 1997; Chaterjee, Corbae, Nakajima and Rios-Rull, 2002; Gross and Souleles, 1998; Stavins, 2000). We supplement this model with our measure for between-labour and capital inequality and within-labour inequality

All explanatory variables have the expected sign or are statistically insignificant (Table 10).[7] Regression 1 presents our baseline results for personal bankruptcies, which seem unaffected by inequality between labour and profits, as regression 2 shows. However, inequality within labour, especially arising from wealth inequality, results in a higher personal bankruptcy rate (regression 3). Using our combined labour inequality measure does not change the results materially (regression 4). A 1 standard deviation increase in labour inequality would result in a 39 per cent increase in the personal bankruptcy rate—explaining less than one-tenth of the rise in the personal bankruptcy rate. The effect of the within-labour inequality on charge-off rates is similar to that on personal bankruptcy rates as they also rose fourfold from 1985 to 2003 (Table 10).

Conclusion

We have studied the potential link in the U.S. between rising income inequality and increasing financial instability of households. Our research shows that the increase in inequality between labour and capital and within labour has contributed systematically to a rise in credit card debt. While easy access to credit may have helped to maintain consumption levels in the short term at a time of slow income growth for low and middle income households, it may also have contributed to a rise in household economic hardship. Our results suggest that the rise in inequality may be able to explain about one-tenth of the increase in household economic hardship observed over the past few decades. Although not an insignificant economic factor in the aggregate, it is important to keep in mind that rising inequality may have contributed substantially more to the economic hardship of particular income groups, where credit expansions, especially more costly ones, may have been more pronounced relative to disposable income.

6 Please note that, while economic hardship is inversely related to income, this model is measuring income growth, not income level.

7 The results remain robust if the bankruptcy rate is calculated separately for Chapter 7 and Chapter 13 filings. They are also robust if the between inequality measure includes proprietors' income and the Atkinson 1.0 measure, instead of the Atkinson 0.5 measure, is used for wage inequality.

Table 10:
Regression results for U.S. economic distress measures

		Personal bankruptcy rate		*Charge-off rate, consumer credit*			*Charge-off rate, credit cards*	
Explanatory variables	*Baseline (1)*	*Between inequality (2)*	*Within inequality (3)*	*Combined labour inequality (4)*	*Within inequality (5)*	*Combined labour inequality (6)*	*Within inequality (7)*	*Combined labour inequality (8)*
$(y_t-y_{t-1})y_{t-1}$	-0.02[a] (0.01)	-0.02[a] (0.01)	-0.02[a] (0.01)	-0.02[a] (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Ur_t	-0.03 (0.02)	-0.03 (0.17)	0.24 (0.19)	0.13 (0.19)	0.49[b] (0.24)	0.35 (0.23)	0.72[c] (0.24)	0.67[b] (0.25)
$(MEX/Y)_t$	1.80[c] (0.43)	1.81[c] (0.44)	1.79[c] (0.41)	1.84[c] (0.44)	0.66 (0.58)	0.80 (0.59)	0.13 (0.49)	0.80 (0.63)
$(CCR/TC)_t$	0.64[b] (0.30)	0.64[b] (0.31)	-0.02 (0.40)	0.17 (0.40)	-0.08 (0.60)	-0.25 (0.61)	0.77 (0.51)	-0.09 (0.68)
$(DS/Y)_t$	0.96[a] (0.52)	0.96[a] (0.53)	0.95[a] (0.48)	0.87 (0.53)	1.76[b] (0.75)	1.92[b] (0.77)	1.69*** (0.57)	1.73[b] (0.79)
$(LI/NI)_t$		-0.08 (2.69)	-2.47 (2.85)	-2.47 (2.99)	-0.64 (3.42)	-1.70 (3.47)	1.76 (3.51)	-2.16 (3.63)
$Atkinson05_t$			0.60 (0.78)		0.38 (0.87)		-0.70 (0.99)	
$SP500/HPI_t$			0.40[c] (0.15)		0.44 (0.15)		0.31[a] (0.18)	
$LIneq_t$				0.18[a] (0.10)		0.21[b] (0.09)		0.21[b] (0.10)
N	76	76	76	76	76	76	76	76
Adj. R-squared	0.96	0.96	0.96	0.96	0.13	0.08	0.25	0.11
Durbin-Watson	1.78	1.78	1.81	1.80	2.08	1.96	1.97	1.96

Notes: In each case, a Prais-Winsten regression is used. All inequality measures refer to the four quarter average ending in the last quarter. Figures in parentheses are standard deviations.

a Denotes significance at the 10%-level.
b Denotes significance at the 5%-level.
c Denotes significance at the 1%-level.

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