



The Levy Economics Institute of Bard College

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# ***Levy Institute Measure of Economic Well-Being***

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## **INTERIM REPORT 2005**

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The Effects of Government Deficits and the  
2001–02 Recession on Well-Being

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EDWARD N. WOLFF, AJIT ZACHARIAS, and HYUNSUB KUM

May 2005



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**This report is available on the Levy Institute website at [www.levy.org](http://www.levy.org).**

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## Preface

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This interim report compares the LIMEW and official measures of economic well-being for 1989–2002, a period marked by the U.S. economic boom of the late 1990s and a mild recession in 2001–02. All measures show that the well-being of the average U.S. household was significantly higher in 2000 than in 1989, with most of the improvement occurring in the latter half of the 1990s. In contrast, while the official measures show deterioration in well-being of 2–3 percent for the average household in the period 2000–02, the LIMEW shows a hefty increase of more than 5 percent. Nevertheless, inequality was higher in 2002 than in 1989 according to *all* measures of well-being.

The authors' close examination of the middle quintile, or “middle class,” of the LIMEW and EI (the official measure of disposable income) in 2000–02 shows that the income-from-wealth component declined in EI, but not in the LIMEW. Net government expenditures shifted strongly in favor of the middle class and the household sector as a whole, due to a sharp growth in transfers accompanied by a considerable decline in taxes. While the shift was insufficient to offset the negative impact of falling income from wealth in EI, it contributed to an increase in the LIMEW.

The well-being of single female-headed families made no progress relative to married-couple families between 1989 and 2002. Another concern is that the well-being of the elderly worsened relative to the nonelderly. Moreover, taxes increased LIMEW inequality in 2000–02, a result of flattening of the tax schedule between the second and ninth deciles. These findings are relevant to the formulation of public policies that affect economic well-being.

I welcome your comments and suggestions.

Dimitri B. Papadimitriou, *President*  
May 2005

## Introduction

The official measure of household economic well-being in the United States is gross money income (MI), but that measure does not adequately reflect households' command over, or access to, the products produced in a market economy over a given period of time. The U.S. Census Bureau's most comprehensive measure, which we refer to as extended income (EI), is a better approximation of a household's command over commodities because it accounts for the most important types of taxes and noncash transfers, and attempts to include better measures of income from wealth. However, in our view, EI has significant limitations because it does not adequately capture the economic advantage from wealth, while it ignores public production of services (e.g., education) and provisioning within households (e.g., child care).

The Levy Institute Measure of Economic Well-Being (LIMEW) is more comprehensive than the official measures (see Table 1 for a comparison of LIMEW and EI components). Specifically, the LIMEW is constructed as the sum of the following components: base money income (gross money income less property income and government cash transfers), in-kind compensation from work (employer contributions for health

insurance), income from wealth, net government expenditures (transfers and public consumption, net of taxes), and the value of household production. Income from wealth is estimated using a variant of the lifetime annuity method for nonhome wealth and an imputed rental cost for homes. Net government expenditures are calculated using the government-cost approach. A modified replacement-cost approach is used to value the time spent on housework by adult household members. (Details regarding our concepts, sources, and methods are outlined in Wolff, Zacharias, and Caner 2004a.)

Our basic data is drawn from the public-use version of the files used by the U.S. Census Bureau to construct MI and EI. The calculation of base money income uses values reported in the Census files for the relevant variables, without adjustment. The value of employer contributions for health insurance is also taken directly from these files. Additional information from the Federal Reserve surveys on household wealth, unofficial national time-use surveys, the National Income and Product Accounts (NIPA), and several government agencies is integrated into our basic data in order to estimate the other components of the LIMEW.

**Table 1 Components of the LIMEW and Extended Income (EI)**

LIMEW	EI
Gross money income (MI) <i>Less:</i> Property income and government cash transfers <i>Equals:</i> Base money income <i>Plus:</i> In-kind compensation from work Employer contributions for health insurance <i>Equals:</i> Base income <i>Less:</i> Taxes Income taxes <sup>1</sup> Payroll taxes <sup>1</sup> Property taxes <sup>1</sup> Consumption taxes <i>Plus:</i> Income from wealth Annuity from nonhome wealth Imputed rent on owner-occupied housing <i>Plus:</i> Cash transfers <sup>1</sup> <i>Plus:</i> Noncash transfers <sup>1,2</sup> <i>Plus:</i> Public consumption <i>Plus:</i> Household production <i>Equals:</i> LIMEW	Gross money income (MI) <i>Less:</i> Property income and government cash transfers <i>Equals:</i> Base money income <i>Plus:</i> In-kind compensation from work Employer contributions for health insurance <i>Equals:</i> Base income <i>Less:</i> Taxes Income taxes Payroll taxes Property taxes  <i>Plus:</i> Income from wealth Property income and realized capital gains (losses) Imputed return on home equity  <i>Plus:</i> Cash transfers <i>Plus:</i> Noncash transfers  <i>Equals:</i> EI

1. The amounts estimated by the Census Bureau and used in EI are modified to make the aggregates consistent with the NIPA estimates.

2. The government-cost approach is used: the Census Bureau uses the fungible value method for valuing Medicare and Medicaid in EI. The main difference between the two methods is that, while the fungible value method assigns an income value for a benefit according to the recipient's level of income, the government-cost approach assigns an income value for a benefit irrespective of the recipient's income.

This document provides estimates of the LIMEW and its components, estimates of the LIMEW for selected key demographic groups, and estimates of economic inequality. We compare our findings with the official measures for the period 1989–2002—a period of special interest, since the economy entered a mild recession in 2001–02 following a prolonged expansion, from 1989 to 2000, that included the boom of the late 1990s. The unemployment rate, for example, fell from 5.3 percent in 1989 to 4.0 percent in 2000, before rising to 5.8 percent in 2002 (Council of Economic Advisers 2005). During the same period, the budgetary position of the government, as measured in the NIPA by the ratio of the difference between total receipts and expenditures to GDP, also shifted remarkably—from a deficit of -3.2 percent in 1989 to a surplus of 2.6 percent in 2000, and, in a dramatic reversal, to a deficit of -3.8 percent in 2002.

### Level and Composition of Well-Being

The picture of economic well-being is substantially altered when the LIMEW is used rather than the official measures. By construction, the average values of the LIMEW are higher than MI and EI. As shown in Table 2, the median values of MI and EI were approximately 56 percent of the LIMEW in 2002, as compared to about 64 percent in 1989. Two additional measures related to the LIMEW are also shown in the table. As noted in the introduction, MI and EI seek to approximate the magnitude of the command over commodities. If we exclude public consumption and household production from the LIMEW, we arrive at a similar measure, labeled LIMEW–C. EI is particularly suited for comparison with LIMEW–C because it is also a post-tax, post-transfer measure of economic well-being. The addition of public consumption to LIMEW–C results in a “post-fiscal income” (PFI) measure that reflects the effect of net government expenditures, with expenditures expanded to include public consumption in addition to transfer payments.

An advantage of the information base constructed for the LIMEW is that it allows us to estimate the hours spent on total work—paid work plus housework—by the average household. The estimates reported in Table 2 (Addendum, Panel A), indicate that median annual work hours rose by 2.6 percent, or 119 hours, between 1989 and 2000, an increase of almost three weeks of full-time work (based on a 40-hour workweek). A decline in annual hours of paid work between 2000 and 2002 resulted in a median value of total work hours that was slightly

below the 1989 level (by 25 hours). While median annual hours of paid work (not shown) rose by 52 hours (from 2,236 to 2,288) from 1989 to 2000, the worsening employment situation between 2000 and 2002 resulted in a sharp fall of 208 hours (4 percent). In addition, the median annual hours spent on household production activities were 2,008 hours in 2002—approximately 4 percent below the 1989 level.

In 2002, the total mean annual hours worked by women were higher than those worked by men—roughly 60 hours more, or 2 percent (Figure 1). However, the gender disparity in

**Table 2 Economic Well-Being and Work, 1989–2002**

**A. Median Values (in 2002 dollars)**

Measure	1989	1995	2000	2001	2002
<b>Levy measures</b>					
LIMEW	64,981	67,066	72,221	73,757	76,112
PFI <sup>1</sup>	48,985	50,537	54,692	55,434	57,335
LIMEW–C <sup>2</sup>	41,169	42,271	45,478	45,982	47,585
<b>Official measures</b>					
Money income (MI)	41,963	40,135	43,878	42,865	42,432
Extended income (EI)	41,265	41,456	44,528	43,889	43,556
Addendum:					
Total work hours <sup>3</sup> (median annual values)	4,621	4,666	4,740	4,645	4,596

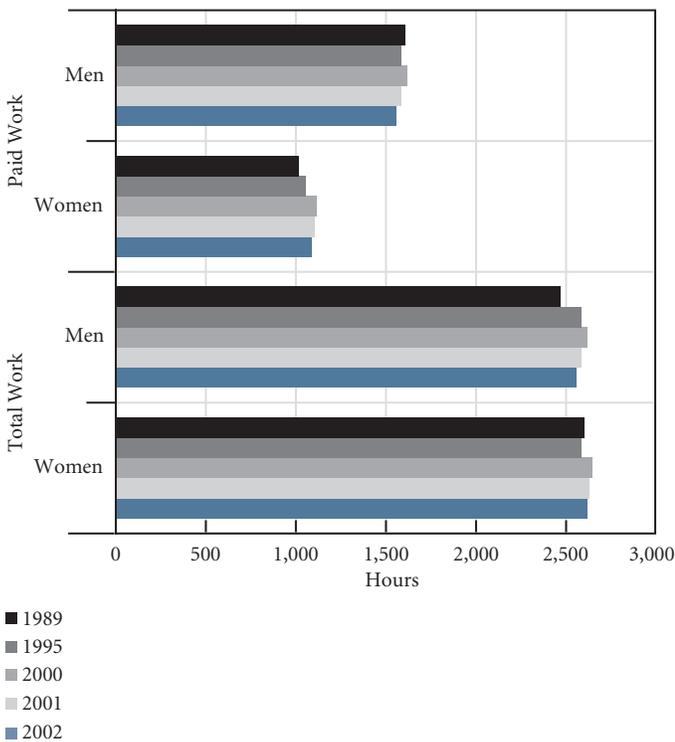
**B. Percent Change**

Measure	1989–95	1995–2000	2000–01	2001–02	1989–2002
<b>Levy measures</b>					
LIMEW	3.2	7.7	2.1	3.2	17.1
PFI <sup>1</sup>	3.2	8.2	1.4	3.4	17.0
LIMEW–C <sup>2</sup>	2.7	7.6	1.1	3.5	15.6
<b>Official measures</b>					
Money income (MI)	-4.4	9.3	-2.3	-1.0	1.1
Extended income (EI)	0.5	7.4	-1.4	-0.8	5.6
Addendum:					
Total work hours <sup>3</sup>	1.0	1.6	-2.0	-1.1	-0.5

1. Post-Fiscal Income (PFI) = LIMEW less the value of household production.
2. LIMEW–C = LIMEW less the value of household production and public consumption.
3. Total work hours is the sum of paid work and housework. Weekly hours of housework for 1995–2002 are imputed from the time-use survey conducted in 1998–99. Estimates of housework and paid work for 1989 are imputed from the time-use survey conducted in 1985. Annual hours of paid work are calculated by multiplying the weekly hours of paid work with the weeks worked per year reported in the ADS, and annual hours of housework are obtained by multiplying weekly hours of housework by 52.

Source: Authors’ calculations

**Figure 1 Annual Hours of Paid Work and Total Work by Sex, 1989–2002 (mean values)**



Source: Authors' calculations

annual hours of paid work was much greater, as men accrued 40 percent more. Interestingly, while the hours of paid work by men were 3 percent lower in 2002 compared to 1989, hours of paid work by women rose 7 percent during the same period, reflecting increased labor market involvement.

The Levy and official measures of economic well-being generally show different rates of change. This is primarily a reflection of differences in their components (e.g., public provisioning is included in the LIMEW but not in the official measures) and in the components' makeup (e.g., income from nonhome wealth is included as a lifetime annuity in the LIMEW, but as the sum of property income and net realized capital gains in EI). Of the subperiods shown in Table 2, the Levy and official measures chart similar upward trends in well-being from 1995 to 2000 only. According to official measures, the preceding subperiod (1989–95) is characterized by decline or virtual stagnation, while the Levy measures indicate a slight improvement. Most notably, MI and EI decline (in real terms) between 2000 and 2002, while the Levy measures rise considerably.

The contrast between the median values of the LIMEW and EI measures from 2000 to 2002 can be examined further by focusing on the components responsible for the trends in the well-being of “middle class” households, identified as households in the third quintile. Since the relative economic positions of individual households differ between the LIMEW and EI distributions, households in the LIMEW middle class may not be the same as those in the EI middle class. It is necessary to use the respective rankings of the two measures because our focus is the divergence of median values.

In an accounting sense, the percent change in a measure of well-being can be expressed as the sum of the contributions to that change by individual components. The calculations for the middle quintile of the LIMEW and EI measures for 2000–02 are shown in Table 3. According to the LIMEW, taxes and transfers underwent a dramatic change in favor of the middle class, with taxes lower in 2002 than in 2000 by 16.1 percent, and transfers higher by 19.2 percent. These two components were the largest contributors to growth in well-being for the middle class, and accounted for 94 percent of the 5.4 percent overall increase in the LIMEW.<sup>1</sup> Household production, public consumption, and income from wealth also contributed positively to well-being; however, most of the gain was offset by a decline in base income.

In contrast, according to EI, middle-class well-being declined by 1.9 percent between 2000 and 2002,<sup>2</sup> despite a favorable swing in terms of taxes (-9.1 percent) and transfers (10.3 percent). Although taxes and transfers generated an upward push of 3.4 percentage points, the gain was entirely offset by a downward pull of equal magnitude related to income from wealth. Base income—the only component common to the two measures in both concept and amount—contributed -2.0 percentage points to the change in EI, which is similar to its effect on the LIMEW (-1.8 percentage points).

According to both measures, net government expenditures contributed to an increase in economic well-being for the middle class. However, the income-from-wealth component behaved very differently, with a pronounced negative impact in the middle of the EI distribution and no significant impact in the middle of the LIMEW distribution. This behavior reflects three factors:

(1) The share of income from wealth in EI for the middle class in 2000 was greater than the share in the LIMEW (12.3 versus 9.0 percent). Because a component's contribution to change increases with its share of the measure, a given percent

**Table 3 Change in Middle-Class Economic Well-Being, 2000–02**

Component	Percent Change in Mean Value		Contribution to Percent Change in Total (in percentage points)	
	LIMEW	EI	LIMEW	EI
Base income	-3.0	-2.2	-1.8	-2.0
Income from wealth	3.0	-26.8	0.3	-3.3
Transfers	19.2	10.3	2.3	1.7
Taxes	-16.1	-9.1	2.8	1.7
Public consumption	4.6		0.6	
Household production	5.8		1.4	
Total	5.4	-1.9	5.4	-1.9

Note: Middle class refers to households in the third quintile of the distribution of the LIMEW or EI.

Source: Authors' calculations

change in income from wealth contributes more to the change in EI than in the LIMEW. The greater relative importance of income from wealth for the EI middle class is due to the fact that it is concentrated more in the topmost economic tiers in the LIMEW (Wolff, Zacharias, and Caner 2004c).

(2) While income from nonhome wealth (property income and net realized capital gains) for the EI middle class fell considerably between 2000 and 2002 (-27 percent), its counterpart in the LIMEW (lifetime annuity from nonhome wealth) showed almost no change. The difference: the LIMEW measure of income from wealth uses a *fixed* rate of return over the entire period analyzed (1989–2002). As a result, the decline in income from wealth between 2000 and 2002 reflects only the fall in the value of net worth (not its rate of return). In contrast, the decline in income from wealth seen in EI reflects the actual reduction in property income and realized capital gains in 2000–02, which was considerable given the recession during that period.

(3) The imputed return on home equity for the EI middle class fell by 18 percent between 2000 and 2002, while its counterpart in the LIMEW (imputed rent on owner-occupied housing) increased slightly (4 percent). Returns were affected by declines in middle-class home equity and in the rate of return.<sup>3</sup> In contrast, the imputed rent reported in the NIPA showed an increase over the same period.<sup>4</sup> Since our estimates of income

from home wealth are based on distributing the NIPA aggregate among households using the imputed distribution of gross value of houses (from the Federal Reserve's 2001 Survey of Consumer Finances), the imputed rent also increased for middle-class households in the LIMEW.

The significance of differences in the components of well-being measures is also evident when we shift our focus from the middle class to all households. Calculations identical to those behind the results reported in Table 3 for the third quintile were carried out for all households (see Table 4). We have chosen to highlight three years: 1989, 2000, and 2002. The first two years were the terminal years of the economic expansions of the 1980s and 1990s, and 2002 is the latest year for which we have data.

The LIMEW and EI measures of growth in household well-being between 1989 and 2000 are very similar (Table 4, Panel B). Base income and income from wealth—components that are driven predominantly by market forces—were the main contributors to the growth in both measures. But their relative importance is strikingly different in the two measures: base income and income from wealth accounted for 56 percent and 45 percent, respectively, of the total change in the LIMEW, while the change in EI was largely due to increases in base income. Notably, net government expenditures acted as a drag on the growth of economic well-being in both measures—a drag offset in the LIMEW, however, by a positive contribution from household production.

Between 2000 and 2002, the mean values of the LIMEW and EI shifted in opposite directions: the LIMEW grew by 2.2 percent, while EI shrank by 4.8 percent. Falling base income and income from wealth contributed to the decline in well-being in each case. However, the relative importance of the two components is quite different from the previous period: the contribution of income from wealth is much higher than that of base income, and the impact of income from wealth is much greater for EI than for the LIMEW. (As noted above, the decline in income from wealth in EI reflects the actual decline in property income and realized capital gains, whereas the LIMEW reflects the decline in asset values only.)

The negative impact of falling base income and income from wealth in the LIMEW was offset by dramatic growth in net government expenditures and, to a much smaller extent, by growth in the value of household production. Net government expenditures in the LIMEW equaled \$3,547 per household in 2002, as compared to -\$226 (in 2002 dollars) in 2000. This shift

**Table 4 Composition of Economic Well-Being for All Households, 1989, 2000, and 2002****A. Mean Values (in 2002 dollars)**

Component	LIMEW			EI		
	1989	2000	2002	1989	2000	2002
Base income	46,055	54,163	53,548	46,038	54,161	53,548
Income from wealth	16,214	22,747	20,450	8,815	9,820	6,585
Net government expenditures	1,081	-226	3,547	-6,664	-8,149	-6,952
Transfers	7,221	8,798	9,868	5,494	6,413	6,808
Taxes	-13,673	-17,635	-15,217	-12,158	-14,562	-13,760
Public consumption	7,533	8,610	8,896			
Household production	18,338	19,550	20,849			
Total	81,687	96,234	98,394	48,190	55,832	53,181
Addendum:						
Money income	51,787	59,695	57,844			

**B. Contribution to Percent Change in Total (in percentage points)**

Component	LIMEW		EI	
	1989–2000	2000–02	1989–2000	2000–02
Base income	9.9	-0.6	16.9	-1.1
Income from wealth	8.0	-2.4	2.1	-5.8
Net government expenditures	-1.6	3.9	-3.1	2.1
Transfers	1.9	1.1	1.9	0.7
Taxes	-4.8	2.5	-5.0	1.4
Public consumption	1.3	0.3		
Household production	1.5	1.3		
Total (in percent)	17.8	2.2	15.9	-4.8

Source: Authors' calculations

was made possible by the simultaneous increase in transfers (12 percent) and decrease in taxes (-14 percent). There was also a favorable, though more limited, shift in EI: transfers increased by 6 percent, while taxes fell by 6 percent, which lowered the net tax payments by households.<sup>5</sup>

Further details on government transfers and taxes are shown in Table 5. We note that the tax and transfer components in the LIMEW are aligned with their NIPA counterparts (except consumption taxes), unlike EI (*see* Table 1). Transfers in the LIMEW also include several programs that are not included in EI (e.g., the imputed value of the noncash component of the federal/state program Temporary Assistance to Needy Families [TANF]). Thus, we recommend that the reader keep in mind these features of the LIMEW, their NIPA alignment, and their expanded coverage when interpreting the discrepancy between the LIMEW and EI.

The decline in taxes in both measures was mainly due to the substantial decline in federal income taxes, which is the biggest item, by far, among total taxes (Table 5, Panel B). The change during the 2000–02 period accounted for almost 90 percent of the total tax reduction in the LIMEW and 68 percent in EI. The considerable gap between the sizes of the tax cuts implied by the two measures reflects the divergence between the U.S. Census Bureau and the NIPA in estimating the aggregate federal personal income taxes.

According to the LIMEW, government transfers grew 12.2 percent between 2000 and 2002. The two largest items—Social Security and Medicare—constituted about 61 percent of all transfers yet accounted for only 30 percent of the overall increase. Other items, such as Medicaid and unemployment compensation, grew much faster and contributed to the bulk of the increase in overall transfers (e.g., unemployment compensation contributed nearly

**Table 5 Government Transfers and Taxes, 2000 and 2002**

A. Mean Values (in 2002 dollars)

Component	LIMEW		EI	
	2000	2002	2000	2002
<b>Taxes</b>	<b>17,635</b>	<b>15,217</b>	<b>14,562</b>	<b>13,760</b>
Federal income taxes	9,644	7,466	7,780	7,233
State income taxes	1,935	1,641	2,325	2,144
Payroll taxes	3,460	3,470	3,341	3,297
State consumption taxes	1,649	1,596		
Property taxes	947	1,043	1,116	1,087
<b>Government transfers</b>	<b>8,798</b>	<b>9,868</b>	<b>6,413</b>	<b>6,808</b>
Social Security	3,721	3,829	3,506	3,481
Medicare	1,980	2,195	1,451	1,489
Medicaid	1,454	1,698	307	413
All others	1,643	2,145	1,149	1,426
Unemployment compensation	192	460	141	333

B. Percent Change

Component	Percent Change		Contribution to Percent Change in Total (in percentage points)	
	LIMEW	EI	LIMEW	EI
	<b>Taxes</b>	<b>-13.7</b>	<b>-5.5</b>	<b>-13.7</b>
Federal income taxes	-22.6	-7.0	-12.3	-3.8
State income taxes	-15.2	-7.8	-1.7	-1.2
Payroll taxes	0.3	-1.3	0.1	-0.3
State consumption taxes	-3.2		-0.3	
Property taxes	10.2	-2.6	0.5	-0.2
<b>Government transfers</b>	<b>12.2</b>	<b>6.2</b>	<b>12.2</b>	<b>6.2</b>
Social Security	2.9	-0.7	1.2	-0.4
Medicare	10.9	2.7	2.4	0.6
Medicaid	16.8	34.2	2.8	1.6
All others	30.6	24.1	5.7	4.3
Unemployment compensation	139.6	137.1	3.0	3.0

Source: Authors' calculations

25 percent of the total change in transfers). Similar patterns are also evident in EI: Social Security and Medicare played only minor roles in transfer growth between 2000 and 2002, while unemployment compensation accounted for nearly 50 percent.

### Disparities in Economic Well-Being

The mean values of the LIMEW and EI for households in selected population subgroups are shown in Table 6. The group-

**Table 6 Economic Well-Being by Measure and Selected Household Characteristics, 1989 and 2002 (Mean values in thousands of 2002 dollars)**

Characteristic	1989		2002	
	LIMEW	EI	LIMEW	EI
<b>A. Family type<sup>1</sup></b>				
Married-couple	102.2	59.9	127.3	68.8
Single female-headed	66.6	33.3	83.0	38.2
Single male-headed	78.7	48.8	91.8	49.8
<b>B. Age</b>				
Less than 65 years	80.9	50.5	99.7	56.3
Less than 35 years	62.5	39.8	76.1	44.6
35–50 years	90.7	56.5	107.7	61.9
51–64 years	90.8	55.8	111.9	59.8
65 or older	84.7	39.2	93.2	40.5
<b>C. Money income</b>				
Less than \$20,000	39.3	14.5	50.0	14.3
\$20,000 – \$50,000	62.2	35.1	70.9	36.3
\$50,000 – \$75,000	92.0	56.7	98.1	57.9
\$75,000 – \$100,000	118.7	76.2	127.0	75.8
More than \$100,000	178.2	116.8	219.6	131.4
<b>All households</b>	<b>81.7</b>	<b>48.1</b>	<b>98.4</b>	<b>53.1</b>

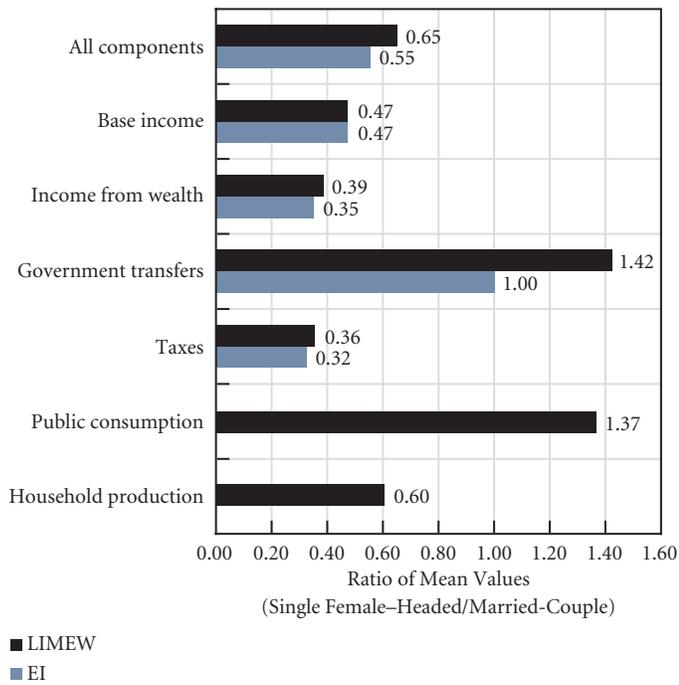
1. A family consists of two or more persons sharing the same house and related by birth, marriage, or adoption.

Source: Authors' calculations

ings are based on the characteristics of a single individual in a household—the householder—rather than on those of all individuals in the sample; for example, a household that has an elderly person listed as householder may include nonelderly individuals.

The disparity between single female-headed families and married-couple families is less, according to the LIMEW, than the official measures. Calculations based on Table 6 show that the ratio of mean values in 2002 is 0.65 in the LIMEW and 0.55 in EI.<sup>6</sup> Notably, there was no reduction in the relative disadvantage of single female-headed families by either measure between 1989 and 2002.<sup>7</sup> At the mean, the gap between married-couple and single female-headed families in 2002 was \$30,600 (EI) and \$44,300 (LIMEW). The disparity in terms of the ratio of mean values between these two family types is smaller in the LIMEW than in EI mainly because the ratio of government transfers is higher and public consumption is

**Figure 2 Disparity Between Single Female-Headed and Married-Couple Families by Measure and Component, 2002**



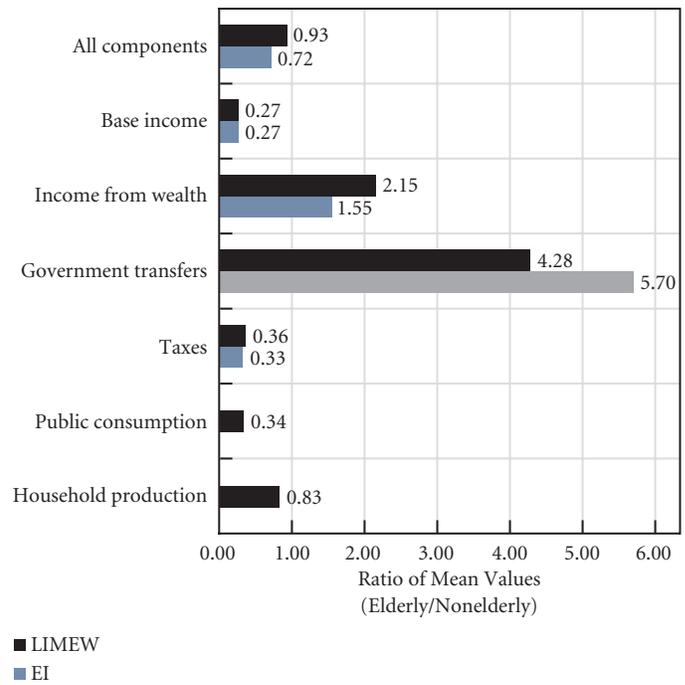
Source: Authors' calculations

included in the LIMEW (see Figure 2). According to the LIMEW, the mean value of government transfers received by single female-headed families in 2002 was 42 percent higher than that received by married-couple families, while transfers were almost exactly the same for both groups according to EI. Therefore, this component has a greater equalizing effect in the LIMEW. Similarly, public consumption, which is 37 percent higher for single female-headed households, also reduces the disparity between the two family types.<sup>8</sup>

The relative well-being of the elderly appears to be much higher according to the LIMEW than EI (Figure 3), a difference that stems mainly from the manner in which income from wealth is reckoned. The LIMEW includes the annuity value of nonhome wealth as an income component, which can be high for the elderly, who have more accumulated wealth and a shorter remaining life expectancy. In contrast, income from wealth in EI consists of property income and realized capital gains. As a result, the wealth advantage of the elderly compared to the nonelderly is more pronounced in the LIMEW (2.15 times) than in EI (1.55).

Both the LIMEW and EI measures suggest that the relative well-being of the elderly was lower in 2002 than in 1989. Com-

**Figure 3 Disparity Between Elderly and Nonelderly Households by Measure and Component, 2002**

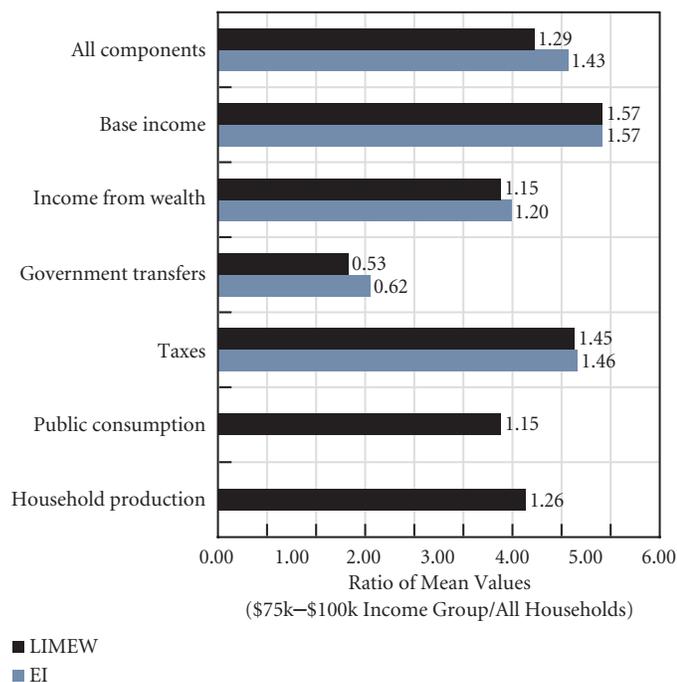


Source: Authors' calculations

pared to the mean LIMEW values for the nonelderly, the elderly were 5 percent ahead in 1989 but 7 percent behind in 2002. Using the mean EI values, the elderly were 22 and 28 percent behind the nonelderly.<sup>9</sup> In either measure, the decline in the relative value of income from wealth—and, to a much lesser extent, government transfers—was responsible for the deterioration. According to the LIMEW, the ratio of income from wealth between the elderly and nonelderly fell from 3.50 to 2.15 between 1989 and 2002, and the corresponding ratio for transfer payments declined from 5.23 to 4.28. The EI income-from-wealth ratio fell from 1.90 to 1.55, and the transfer ratio from 6.69 to 5.70.

Calculations based on Table 6 show that disparities among households grouped by MI are considerably smaller.<sup>10</sup> In 2002, for example, households with money income in the \$75,000–\$100,000 range were 43 percent better off in terms of EI, but only 29 percent better off in terms of the LIMEW (Figure 4).<sup>11</sup> Much of this difference is due to the incorporation of household production and public consumption in the LIMEW, which is distributed relatively equally among income groups.

**Figure 4** Disparity Between the \$75,000–\$100,000 Money Income Group and All Households by Measure and Component, 2002



Source: Authors' calculations

### Economic Inequality

The Levy and official measures indicate that the distribution of economic well-being, as determined by the Gini coefficient,<sup>12</sup> was more unequal in 2002 than in 1989 (Table 7, Panel A). As noted above, LIMEW–C, MI, and EI are measures that seek to approximate the magnitude of the command over commodities. Our estimates indicate that the level of inequality for LIMEW–C was substantially higher than EI in 2002—a difference of 6.6 percentage points—but almost the same as MI. With the exception of 1995, LIMEW–C shows the highest degree of inequality, suggesting that the official measures might understate inequality in the distribution of the command over commodities. From 1995 to 2002, the growth in inequality was also the highest for the LIMEW–C measure (2.8 percentage points).

Public consumption and household production are distributed among households fairly equally; hence, the inclusion of these components generally lowers the degree of inequality in an income measure. Surprisingly, our PFI measure, which includes public consumption in addition to the command over

**Table 7** Economic Inequality, 1989–2002

A. Gini Coefficient x 100

Measure	1989	1995	2000	2001	2002
<b>Levy measures</b>					
LIMEW	38.7	38.6	42.4	40.7	40.6
PFI	40.8	40.5	44.6	42.8	43.2
LIMEW–C	43.9	43.5	48.4	46.5	46.3
<b>Official measures</b>					
Money income (MI)	41.8	45.0	46.0	46.4	46.2
Extended income (EI)	36.9	39.2	40.8	40.4	39.7

B. Contribution to Change in Overall Inequality (in percentage points)

Component	1995–2000		2000–02	
	LIMEW	EI	LIMEW	EI
Base income	-0.7	1.4	-0.2	2.1
Income from wealth	5.7	1.7	-2.8	-3.5
Home wealth	0.2	-0.5	0.1	-0.3
Nonhome wealth	5.5	2.2	-2.8	-3.2
Transfers	0.2	0.1	-0.1	0.0
Taxes	-0.7	-1.6	1.1	0.3
Public consumption	0.0		0.0	
Household production	-0.6		0.2	
Total	3.8	1.6	-1.8	-1.1

Source: Authors' calculations

commodities, has a higher level of inequality than EI (a considerable difference of 3.5 percentage points in 2002). Not surprisingly, our PFI measure shows a lower level of inequality than MI. Another unexpected finding is that the LIMEW, which also includes household production, is not substantially different from EI in 1995, 2001, or 2002, but conspicuously higher in 1989 and 2000. Inequality in MI is higher than that in the LIMEW because MI is a pretax measure that does not fully account for government transfers, and it excludes public consumption and household production.

The Levy measures indicate that the level of inequality was similar in 1989 and 1995, rose considerably during the economic boom of 1995–2000, and declined between 2000 and 2002. In contrast, the official measures indicate that the level of inequality was substantially higher in 1995 than in 1989, and increased mildly between 1995 and 2000.<sup>13</sup> The two official measures diverge between 2000 and 2002, as inequality declined moderately in EI yet remained relatively unchanged in MI. Thus, the trend of inequality during the 1990s differs significantly

among the various measures. Further, the LIMEW suggests that the relative weakening of macroeconomic performance between 2000 and 2002 led to a notable decline in inequality, while EI shows a somewhat smaller decline and MI very little change at all.

The Gini coefficient of any measure of well-being can be expressed as the sum of the contributions to inequality made by its components, with each contribution calculated as the product of that component's share in the measure and its concentration coefficient.<sup>14</sup> Hence, the change in the Gini coefficient can also be expressed as the sum of the changes in the components' contributions. The results of this calculation for the LIMEW and EI over the periods 1995–2000 and 2000–02 are displayed in Table 7, Panel B.

According to the LIMEW, the latter half of the 1990s witnessed solid growth in the contribution of income from nonhome wealth to increasing inequality. In fact, the contribution between 1995 and 2000 exceeded the overall increase in inequality during the same period for both measures (5.5 versus 3.8 percentage points for the LIMEW, and 2.2 versus 1.6 percentage points for EI). The increase for the LIMEW was smaller because of the offsetting negative contributions from base income, taxes, and household production. Since EI does not include household production, and base income contributed positively to the change in inequality, taxes offset the boost provided by income from nonhome wealth. Annuities are a greater proportion of the LIMEW and are concentrated in the upper economic tiers to a greater extent than the sum of property income and net realized capital gains in EI.<sup>15</sup> Between 1995 and 2000, the share of income from nonhome wealth and its concentration grew by a much larger extent in the LIMEW than property income and net realized capital gains in EI. Therefore, the contribution of income from nonhome wealth to inequality was much higher in the LIMEW than EI.

A reversal of sorts appears to have occurred during 2000–02. The share and amount (in real terms) of income from nonhome wealth fell in the LIMEW and EI. Consequently, the contribution from nonhome wealth to the decrease in overall inequality exceeded the *decline* in overall inequality in both the LIMEW and EI (-2.8 versus -1.8 percentage points in the LIMEW, and -3.2 versus -1.1 percentage points in EI). Because the share of income from nonhome wealth fell much more in EI than in the LIMEW, its contribution to the decline in EI inequality was greater.<sup>16</sup> The decline in

LIMEW inequality was checked primarily by the positive contribution from taxes (1.1 percentage points), whereas the smaller decline seen in EI was checked by positive contributions from base income (2.1 percentage points) and taxes (0.3 percentage points).

Taxes contributed to increasing inequality because their share in the LIMEW declined from 18.3 percent in 2000 to 15.5 percent in 2002 (calculated from Table 4). The LIMEW is an after-tax measure of well-being, and taxes are recorded with a negative sign. A decline in the share of taxes, therefore, increases inequality. In the case of EI, that share remained rather stable (26.1 percent in 2000 and 25.9 percent in 2002), so that the small increase in inequality from taxes was the result, primarily, of the minor change in the concentration coefficient of taxes.<sup>17</sup>

Given the actual and proposed changes to the tax system since 2000, it is also interesting to compare the distribution of the tax burden in 2000 and 2002. We do not attempt to disentangle the effects of the business cycle or changes to the tax code but report only *ex post* outcomes, as reflected in the distribution of economic well-being. For this purpose, it is better to express taxes as a percentage of a well-being measure that reflects the household's pretax command over commodities rather than as a percentage of the LIMEW, since taxes represent a reduction in command. An appropriate measure can be obtained by adding taxes to LIMEW-C, our after-tax measure of household command over commodities.<sup>18</sup> For simplicity, we refer to this measure as "pretax income." Estimates of pretax income, total taxes, and federal income taxes—the largest component—are shown in Table 8. The implicit or effective tax rates are displayed in Figure 5.

There is an apparent lack of progressivity from the ninth to the tenth decile in 2000 as displayed by the pronounced declines in the effective total tax rate (from 25.6 to 20.1 percent) and the federal income tax rate (from 14.7 to 13.5 percent). However, the change in the effective total tax rate is negligible (from 20.9 to 19.6 percent) in 2002, while the federal income tax rate increases notably (from 10.1 to 13.0 percent), suggesting the emergence of progressivity.

The lack of progressivity in effective total tax rates from the ninth to the tenth decile of pretax income is attributable to the sharp increase in income from nonhome wealth. As noted earlier, however, such income fell significantly between 2000 and 2002. While households in other deciles had higher levels

**Table 8** Pretax Income, Total Taxes, and Federal Income Taxes by Decile, 2000 and 2002 (Mean values in 2002 dollars)

Pretax Income Deciles	2000			2002		
	Pretax Income	Total Taxes	Federal Income Taxes	Pretax Income	Total Taxes	Federal Income Taxes
1	12,608	1,677	343	12,898	1,534	194
2	24,393	3,170	806	24,911	2,762	472
3	32,838	5,008	1,514	33,297	4,192	871
4	41,554	6,805	2,354	41,901	5,653	1,363
5	51,187	9,251	3,584	51,471	7,656	2,164
6	62,598	12,280	5,131	62,984	10,466	3,383
7	76,833	16,432	7,544	77,368	13,783	5,027
8	95,770	22,563	11,511	96,012	18,570	7,886
9	126,143	32,348	18,569	126,420	26,428	12,821
10	333,141	66,816	45,083	311,465	61,138	40,490
All	85,706	17,635	9,644	83,866	15,217	7,466

Note: Pretax income equals LIMEW-C plus taxes.

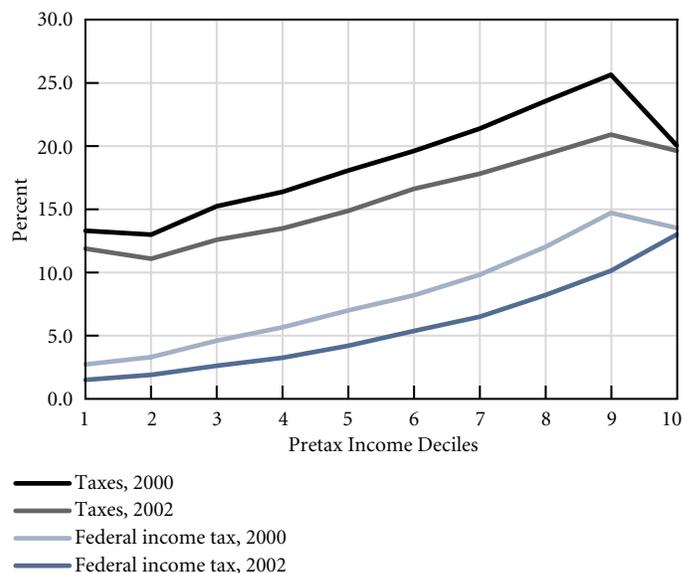
Source: Authors' calculations

of pretax mean income in 2002 than in 2000, the top decile had a lower level (by 6.5 percent), primarily due to losses from falling stock prices. Fortunately for households in the top decile, total taxes and federal income taxes also fell to the extent that effective tax rates were slightly lower in 2002 than in 2000. The reduction in regressivity in total tax rates and the emergence of progressivity in federal income tax rates between the ninth and tenth deciles were due to the drop in effective tax rates for the ninth decile between 2000 and 2002.

The degree of progression between successive deciles from the bottom to the ninth decile appears to have worsened throughout the distribution in 2002 vis-à-vis 2000 for the effective total (and federal income) tax schedules. This is shown in Figure 5 by comparing the slopes of the schedules: the 2002 schedules are flatter than those for 2000, especially the federal income tax rates. The exception appears to be between the fifth and sixth deciles, where the decline in tax rates is similar.<sup>19</sup>

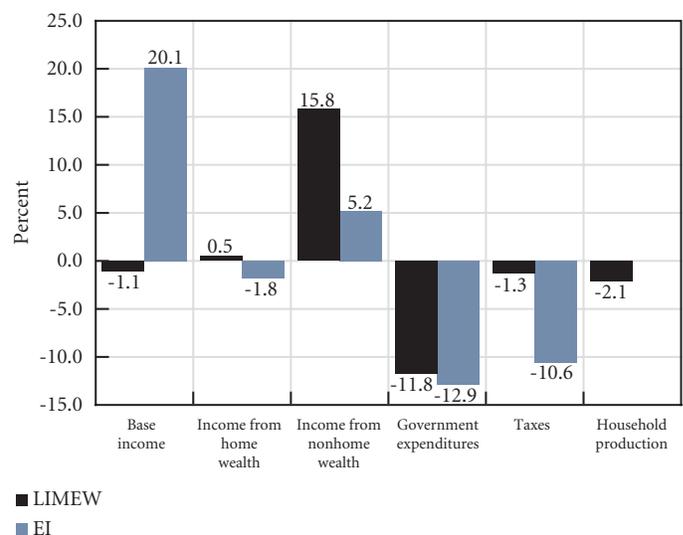
We have also estimated the incremental effects of different components of the LIMEW and EI on 2002 levels of overall inequality (see Figure 6). These estimates are interesting from a policy standpoint, since policy changes affecting the distribution of economic well-being typically operate at the margin.

**Figure 5** Total Tax Rates and Federal Income Tax Rates by Pretax Income Deciles, 2000 and 2002



Source: Authors' calculations

**Figure 6** Incremental Effects on Inequality by Measure and Component, 2002



Source: Authors' calculations

The incremental effect on inequality of any component refers to the proportionate change that occurs from a hypothetical, small proportionate change in that component, all else remaining the same (*see* Wolff, Zacharias, and Caner 2004b for formulae and references).<sup>20</sup> Since “all else” does *not* remain the same, these estimates should be considered a rough indication of the relative merits of the potential effect of policy changes on overall economic inequality.

The incremental effects on inequality of base income and income from nonhome wealth are strikingly different in the LIMEW and EI. In fact, their roles are reversed. While base income has a large positive effect on inequality in EI, it has a small negative effect in the LIMEW. Conversely, income from nonhome wealth has a large positive effect in the LIMEW, but a much smaller effect (less by two-thirds) for EI. Earnings—the overwhelming portion of base income—is the decisive factor shaping the overall level of inequality in EI. In contrast, earnings is a much smaller portion of inequality in the LIMEW. This outcome suggests that the notion of economic inequality as being shaped by earnings inequality may be misleading: wealth inequality also plays an important role.

Furthermore, the incremental effects of taxes and expenditures are different in the two measures. The EI measure suggests that taxes and expenditures have roughly similar effects, while the LIMEW measure shows that expenditures have a markedly higher incremental effect than taxes on reducing inequality.

## Summary and Conclusions

The economic well-being of the average U.S. household was significantly higher in 2000 (the end of the 1990s boom) than in 1989 (the end of the 1980s boom). The median value of the LIMEW and EI was about 11 percent and 8 percent higher, respectively, in 2000 than in 1989. Much of the improvement took place between 1995 and 2000. The higher relative growth rate in median LIMEW appears to be due to income from wealth, especially nonhome wealth, which is reckoned as a lifetime annuity rather than as current income from assets (including net capital gains), as in EI.

Official measures of economic well-being show deterioration for the average household after 2000, as the median levels of MI and EI were lower by 3 percent and 2 percent, respectively, in 2002. In sharp contrast, the median LIMEW showed a hefty increase of 5.6 percent during the same period.

Our close examination of the middle quintile of the LIMEW and EI distributions (i.e., the “middle class”) suggests that base income (mainly earnings), which is the only shared component that is identical in concept and amount, contributed to a 2-percentage-point decline in well-being. The contribution made by the steep decline in property income and net capital gains for households in the middle of the EI distribution exceeded the overall decline (-3.3 percentage points) by a substantial margin. In contrast, the LIMEW middle class did not experience any decline from the income-from-wealth component. According to both measures, net government expenditures shifted strongly in favor of the middle class, due to a sharp growth in transfers accompanied by a considerable decline in taxes. According to EI, however, this shift was merely large enough to overcome the negative effect of the decline in income from wealth, so that the final result was a decline in overall well-being for the middle class identical in size to the negative contribution of base income (-2 percent). In contrast, the favorable shift in net government expenditures (5.6 percentage points) contributed much more to the increase in the LIMEW for the middle class. This shift, coupled with a positive contribution from the value of household production that helped moderate the negative impact of base income, resulted in a 5.4 percent increase for the LIMEW middle class.

The importance of net government expenditures in sustaining growth in well-being during 2000–02 was also evident for the household sector as a whole. Net government expenditures in the LIMEW increased dramatically (from -\$226 per household in 2000 to \$3,547 per household in 2002), contributing 3.9 percentage points to growth in mean LIMEW. The positive impact of these expenditures was wiped out, to some extent, by the negative impact of base income and income from wealth: mean LIMEW grew by only 2.2 percent during the period. By comparison, EI shrank by 4.8 percent, the negative impacts of income from wealth (-5.8 percentage points) and base income (-1.1 percentage points) overwhelming the positive contribution from net government expenditures (2.1 percentage points).

Between 2000 and 2002, transfers grew much faster in the LIMEW than in EI (12.2 versus 6.2 percent), and taxes fell much faster (13.7 versus 5.5 percent). The primary reasons for the discrepancy are that our estimates of taxes and transfers are aligned with their appropriate NIPA benchmarks, and our transfers include several items not included in EI. The favorable shift in net government expenditures is more pronounced in the LIMEW than in EI, and largely accounts for the opposite

movement in mean values between 2000 and 2002. Indeed, the substantial growth in public debt was, in part, a direct consequence of ballooning net government expenditures.

Our examination of disparities among population subgroups yields conclusions that are relevant for social policy. Single female-headed families made no progress in well-being relative to married-couple families between 1989 and 2002 (their mean LIMEW and EI were 65 and 55 percent, respectively, of married-couple families in 2002). The lower level of disparity in the LIMEW was due to the relatively higher amounts of government expenditures (transfers and public consumption). The elderly appeared to be worse-off relative to the nonelderly in 2002 (-7 percent) than in 1989 (5 percent). According to EI, the elderly were 22 and 28 percent behind the nonelderly in 1989 and 2002, respectively. The loss in relative well-being for the elderly appears tied to declines in income from wealth and, to a lesser extent, government transfers.

Overall inequality was higher in 2002 than in 1989. However, the timing of changes in inequality appear to differ by income measure. The increase in inequality in the second half of the 1990s (a period of strong macroeconomic performance) was much higher by our measures than the official measures. Weaker growth between 2000 and 2002 resulted in a significant reduction in inequality, according to the Levy measures, but there was no comparable reduction according to the official measures. The results from our decomposition analysis of Gini coefficients suggest that the greater increase in LIMEW inequality from 1995 to 2000 stemmed primarily from the growing share of income from wealth and its greater concentration among the upper quantiles of the distribution. Similarly, the decline in inequality between 2000 and 2002 was largely a result of reductions in the share of income from wealth.

An interesting finding from the decomposition analysis is that taxes contributed to an increase in LIMEW inequality when its share of the measure fell from 18.3 percent, in 2000, to 15.5 percent, in 2002. Further analysis showed that the schedule of effective tax rates was flatter in 2002 than in 2000. As a proportion of pretax income, taxes declined for the second to ninth deciles and remained the same for the bottom and top deciles. The flattening of the tax schedule between the second and ninth deciles was due to a greater relative decline in effective tax rates for the higher deciles.

Alternative measures of well-being that display the same magnitude of overall inequality can have considerably different

implications regarding the determinants of inequality. Our analysis of the incremental effects of individual components suggests that base income (which consists primarily of earnings) and income from wealth play dramatically different roles in the LIMEW and EI. The incremental effect of base income on increasing inequality is much higher than income from wealth in EI. In sharp contrast, base income has a smaller, reductive effect and income from wealth a substantially larger, enhancing effect on inequality in the LIMEW than in EI. More important from a policy standpoint, perhaps, is the asymmetric incremental effect of taxes on inequality between the measures. In EI, taxes have a large negative effect that is similar to government spending. In the LIMEW, however, government spending appears to have a much larger, reductive effect than taxes.

Several aspects of the issues related to well-being require further research and evaluation. We hope that our analysis will stimulate a rethinking of public policy in this area, and that it will promote further academic and policy research into the disparity among households.

## Acknowledgments

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## Notes

1. The percent change in the median LIMEW for all households during the same period was also 5.4 percent (calculated from Table 2). The mean LIMEW (in 2002 dollars) of households in the third quintile was \$72,493 and \$76,432, respectively, in 2000 and 2002—values close to median LIMEW for all households (*see* Table 2).
2. The percent decline in the median EI for all households during the same period was slightly higher at 2.2 percent (calculated from Table 2). The mean EI (in 2002 dollars) of households in the third quintile was \$44,621 and \$43,753, respectively, in 2000 and 2002—values close to median EI for all households (*see* Table 2).
3. The rate of return used by the U.S. Census Bureau is the rate of return on high-grade municipal bonds, which

declined from 5.77 to 5.05 percent (Council of Economic Advisers 2005; Table B-73). We calculated the implied home equity for the middle class by dividing the imputed return on home equity by the rate of return.

4. Our calculation from NIPA table 7.12 showed that imputed rent on owner-occupied housing increased by 10 percent in real terms (using CPI-U as the deflator) between 2000 and 2002.
5. It is convenient to interpret positive net government expenditures as *net benefits* and negative net government expenditures as *net taxes*. In the former instance, expenditures for the household sector exceed payments made by the sector, while in the latter, household tax payments exceed expenditures for the sector. In all years examined here, EI indicates a net tax, while the LIMEW shows a net benefit (except in 2000). This difference is primarily due to the exclusion of public consumption from the expenditure side in EI. Our estimates indicate that public consumption is comparable in size to transfers (*see* Table 4, Panel A).
6. The ratio of median values in 2002 is similar (0.68 in the LIMEW and 0.55 in EI).
7. This conclusion remains unchanged when the measures are adjusted for family size and composition. The ratio of equivalence scale-adjusted LIMEW mean values was 0.67 in 1989 and 0.65 in 2002. The EI counterparts were 0.59 and 0.56, respectively. The equivalence scale used in the calculations was the three-parameter scale used in the U.S. Census Bureau's experimental poverty measures (Short 2001).
8. It is interesting to note that, while the gap in well-being between single female-headed and married-couple families was almost identical in 1989 and 2002, single male-headed families fell farther behind married couples by 2002, according to both the LIMEW and EI.
9. The trend in the relative well-being of the elderly appears to be the same for equivalence scale-adjusted measures, too. The elderly/nonelderly ratios for the adjusted LIMEW mean values were 1.38 and 1.21 in 1989 and 2002, respectively. For EI, the ratios were 0.99 and 0.91.
10. We expect disparities to be less according to measures other than MI, since households are classified into groups in MI. However, the surprising finding is how much the discrepancies are reduced by using the LIMEW.
11. The ratio of median values was substantially higher than the mean values for the LIMEW in 2002 (1.50 versus 1.29). According to EI, the ratios are the same.
12. The Gini coefficient is an index that ranges from 0 (perfect equality) to 1 (maximal inequality). To facilitate exposition, we use values that are 100 times the Gini coefficient. We also estimated the Atkinson measures of inequality. They are not reported here because our arguments about the level of, and change in, inequality seem to be valid with either measure.
13. Comparison of inequality between 1989 and other years is difficult for MI and EI for two reasons: (1) the U.S. Census Bureau changed its survey methodology and revised upward the amount of income reported in the survey (the so-called "top-coded" amount) starting in 1994; and (2) the bureau changed the manner in which it reported the top-coded incomes in the public-use version of its survey data beginning with the 1995 file.
14. The concentration coefficient is similar to the Gini coefficient. The Gini coefficient is the area between the Lorenz curve and the 45-degree line multiplied by 2, while the concentration coefficient is the area between the concentration curve and the 45-degree line multiplied by 2. The Lorenz curve plots the cumulative proportion of income on the vertical axis and the cumulative proportion of households on the horizontal axis, with the proportions calculated after households are ordered by income from the lowest to the highest. If we were to plot the cumulative proportion of a component of income (e.g., wages), keeping the same ordering of households on the horizontal axis, the curve connecting all points would be the concentration curve for that component.
15. See Wolff, Zacharias, and Caner (2004c) for a detailed discussion of the economic advantage from nonhome wealth in the LIMEW and EI measures.
16. The share of income from nonhome wealth fell from 17.4 to 14.5 percent in the LIMEW, and from 11.5 to 7.2 percent in EI. It is interesting to note the asymmetry in how the upswing and downswing in nonhome wealth is reflected in the income measures. During the 1995–2000 upswing, our measure of annuities shows much more rapid growth than the EI measure, but during the downswing, our measure shows a much slower decline in income from nonhome wealth. Again, this difference reflects the more rapid appre-

ciation of asset values captured in the LIMEW during the 1995–2000 economic expansion than the sum of property income and net realized capital gains in EI. The converse is true for the 2000–02 period.

17. Decomposing the contribution from taxes to the change in inequality into the changes in its share and concentration coefficient showed that the changing shares accounted for the entire change in the contribution of the tax component in the LIMEW, but for only 36 percent of the change in EI.
18. This measure is close to the definition used by the Congressional Budget Office (2003) in their distributional tables. An important difference is that we include a lifetime annuity as income from nonhome wealth, while the Budget Office uses the sum of property income and net realized capital gains, as in EI.
19. Our observations regarding progressivity from the bottom to the ninth decile are also valid if we replace pretax income with “EI plus taxes,” and our estimate of taxes with taxes in EI. Not surprisingly, our observations regarding progressivity from the ninth to the top decile are *not* valid under the replacement just mentioned, due mainly to the different manner in which income from nonhome wealth is reckoned. Specifically, using EI concepts, there is progressivity from the ninth to the top decile for total and federal income tax rates, and the degree of progressivity increases from 2000 to 2002.
20. The incremental effect is equal to a component’s share in inequality minus its share in the overall measure. In turn, the share in inequality is equal to a component’s contribution to inequality divided by the Gini coefficient for the measure.

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