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Measuring Inequality in the National Accounts

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Introduction

This paper provides context for the Bureau of Economic Analysis (BEA) prototype estimates of the distribution of income. It describes measurement questions, such as what concept of income should be used, and a summary of the results for the 2007–2018 period. The paper also presents a comparison with estimates produced by other studies of the distribution of income.

Simon Kuznets, in the 1930's creation of gross domestic product (GDP), maintained that the aggregate totals were not sufficient to measure the economic well-being of society. In 1953, Selma Goldsmith, an economist at the Department of Commerce Office of Business Economics (OBE), produced an article in the *Survey of Current Business* that estimated the distribution of personal income (PI) from 1944 to 1950. The initial year, 1944, was the year that the Bretton Woods Agreement declared an international standard for measuring growth, gross national product (GNP). From 1950 to 1962, OBE and then its successor, BEA, regularly released distributional estimates in the *Survey of Current Business* (Fitzwilliams 1964). Estimates for 1971 followed Radner and Hinrichs (1974). The decomposition by income level is in the spirit of decompositions of BEA aggregate data by regions and by industry. This year, BEA has re-established these regular estimates with new prototype estimates (first released March 2020).

This paper provides an overview of inequality measurement in the United States; to fully examine the relationship between changes in the household distribution of income and growth in income, a comparable measure of income is required. The paper also discusses the methods of determining the appropriate income and inequality measures and their implications for inequality and growth. The detailed methodology (including a description of computational changes since the March release) is described in the updated technical document "An Updated Methodology for Distributing Personal Income" (hereafter referred to as "technical document" (Gindelsky 2020)). These methodological changes reflect expert feedback, including from participants at the National Bureau of Economic Research conference, BEA Advisory Committee, and Committee on National Statistics panel.

This release updates the release of March 2020 and includes disposable personal income (DPI). Released prototypes can be found in tables 1–3 and charts 1 and 2. They are also compared with other current research on the U.S. income distribution (see Auten and Splinter (AS) (2019); Piketty, Saez, and Zucman (PSZ) (2018); and Congressional Budget Office (CBO) (2018)). Table 1, "Major Components of Personal Income and Disposable Personal Income by Decile," distributes the household income portion of National Income and Product Accounts (NIPA) table 2.9, "Personal Income and Its Disposition by Households and by Nonprofit Institutions Serving Households," by decile in two ways. First, households are ranked by personal income and assigned to deciles (first 10 numerical columns). Next, households are re-ranked by disposable personal income (personal income less taxes) and assigned to deciles. Table 1 also includes the totals for each line item in the first column as well as summary lines for personal income and disposable personal income.[2]

2. Selma Goldsmith was the Chief of the Income Size Distribution Section (see OBE (1953)).

By providing shares of income by both personal income decile and disposable personal income decile, we are able to glean additional insights from the income distribution, both as compared to the commonly provided quintiles (Census Bureau (tables A3 and A4)) and relative to solely pretax income. Table 2, "Decomposition of Personal Income for Households," shows the decomposition of personal income as compared with Census money income (discussed below in section 3), with two additional lines for taxes and disposable personal income. Table 3, "Inequality Metrics," reports inequality statistics for equivalized household income, equivalized personal income, and equivalized disposable personal income (described below in section 6). Additionally, charts 1 and 2 show the levels of PI and DPI and their growth from 2007 to 2018.

The What, Who, Where, When, Why, and How of Inequality

To measure inequality, we need to decide on our measurement yardstick. That is, whose standard of living are we measuring and how are we going to measure it and update it over time? The various summary statistics are helpful if the measure is well defined. To truly understand inequality measurement, the following questions should be answered:[3]

What: Which resource measure will be used?

Who: Whose income is being measured?

When: What time period is used, and which inflation measure?

Where: How do we adjust for differences by geographic location?

Why: What is the purpose of these measures?

How: Which summary statistics?

What: The choice of income

Since one of the first National Bureau of Economic Research meetings of the Conference on Research in Income and Wealth (1943), researchers have discussed the many choices that need to be made in determining the appropriate components of income to include in a measure of income distribution.[4] There are a multitude of income measures used by researchers and the government in examining inequality. Table 8.1 in Fixler and Johnson (2014) provides a comparison of income definitions across a variety of agencies and income measures. Most studies of income and its distribution include the money income concept, but do not examine changes in assets, and only a few examine the impact of capital gains (for example, CBO (2013) and Piketty and Saez (2003)).

3. Here we follow the approach in Johnson and Smeeding (2014).

4. Economists usually focus on the suggestions of Haig and Simons. Haig (1921) stated that income was "the money value of the net accretion to one's economic power between two points of time," and Simons (1938) defined PI as "the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question."

Table 4 builds on Fixler and Johnson (2014) and compares the components of PI, Census money income, national income (NI) measures found in PSZ and in AS, and the CBO income measure. There are many components of income that are included in the measures. All components of PI are also included in DPI, except taxes. Only three components are included in all income measures—employment income, proprietors' income, and investment income. The main differences are the treatment of imputed income, retirement income,[5] capital gains (realized and unrealized), unrealized interest on property income, and the inclusion of government in-kind transfers. In terms of government transfers, there are differences in the treatment of social insurance cash transfers (like Social Security, unemployment insurance and disability insurance), means-tested cash transfers (like Temporary Assistance for Needy Families (TANF)), and in-kind transfers (like Supplemental Nutrition Assistance Program (SNAP) and Medicaid). The CBO, AS and PSZ each produce complementary after-tax-and-transfer measures (see table 4), which include all of the government transfers, which we can compare to disposable PI, or DPI. By subtracting federal and state taxes from PI to calculate DPI, we are able to gain more insights into household inequality by seeing the impact of taxes on the relative position of households in the income distribution. Since PSZ and AS pre-tax measures do not include transfers, the DPI measure is more comparable to the after tax and transfer NI measures constructed by PSZ and AS.[6]

BEA regularly releases the levels and changes in PI and Personal Consumption Expenditures (PCE).[7] Hence, the BEA prototype estimates use PI, which is the income received by persons from participation in production, from government and business transfers, service flows from homeownership and from holding interest-bearing securities and corporate stocks. PI is household income plus income received by nonprofit institutions serving households (NPISH). The Current Population Survey (CPS) measure of money income, produced annually by the Census Bureau, is defined as the total pretax money income received by people on a regular basis, excluding certain lump-sum payments and capital gains, and represents about two-thirds of PI.

Because PI incorporates many sources of income, it is substantively different from earnings, or even money income. Computing PI requires many complex imputations. One way to decompose it is to think of it as (1) census money income (definitionally adjusted to be consistent with national accounts) + (2) financial items, such as imputed interest and dividends on pensions and life insurance and rental equivalence + (3) health items, such as employer contributions to health insurance and Medicare and Medicaid, + (4) other transfers, such as the Supplemental Nutrition Assistance Program, Women, Infants, and Children program, refundable tax credits, and so forth. We further calculate DPI by subtracting taxes from PI. The methodology for arriving at each of these subtotals is described in the technical document and a numerical decomposition is laid out in table 2.

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5. One of the main differences is the treatment of retirement income. Consider an elderly person with both a savings account and a defined contribution retirement account. The interest on these accounts will be counted as income in all measures, but the timing is different. Planned pension disbursements (including social security) will also be included in the Census and CBO measure (including any interest earned), but not in PI, since these income components are not part of current production.

6. AS also construct a pre-tax, post-transfer measure of NI more comparable to PI.

7. Kuznets (1955) suggested using PI in the early days of national accounts; he stated: "...income should be defined as it is now for national income in this country, i.e., received by individuals, including income in kind, before and after direct taxes, excluding capital gains."

While there are other measures of income in the NIPAs (for example, NI and gross domestic income (GDI)), PI incorporates household income and is closest to the measure of economic resources available to households to purchase goods in the PCE. Compiling PI and DPI (after taxes) will allows us to better compare to consumption in a future research project.[8]

It is important to note that since others use different income concepts, it can be challenging to compare results. For example, PSZ and AS use NI. PSZ state, "[it is] in our view a more meaningful starting point, because it is internationally comparable, it is the aggregate used to compute macroeconomic growth, and it is comprehensive, including all forms of income that eventually accrue to individuals." Despite the difference in definition, PI and NI are fairly close in aggregate and trend.[9] One advantage of PI is that it includes all income and transfers that can be used to increase consumption, and hence, corresponds to the BEA measure of PCE. Furthermore, by comparing PI to DPI, we can evaluate the distributional impact of taxes on inequality and provides a comprehensive measure that can be compared to other after tax and transfer measures (as in CBO and PSZ).

Who: Whose income?

To examine the distribution of income, researchers need to determine whose income to evaluate, that is, the unit of analysis. The focus on the national accounts has always been per capita PI (or GDP). However, many measures of inequality and the standard of living use household (or family) resources, as with the Census measures (Semega et al. 2019). The significant differences between these metrics can result in different effects on the growth of income. Since the number of households has increased more than the number of people, using a per capita measure (per person) will show a larger increase than using a per household measure. PSZ (and others who are using tax data) use a tax unit (such as a married couple with two dependents) or an adult as the unit of analysis, which could be smaller than the household. Most inequality research uses the household as the unit of analysis; this has been recommended as the international standard by the Canberra Group report (2011).

Since households with more members may need additional income to be comparable (that is, equally well-off) to smaller households, most studies also adjust household income by an "equivalence scale" to adjust for economies of scale within the household. One of the most common scales is the single-parameter constant-elasticity equivalence scale reviewed by Buhmann et al. (1988) and Ruggles (1990); it is used most often in international comparisons of inequality (see Atkinson, Rainwater, and Smeeding 1995) and is recommended by the Canberra Group report (Canberra 2011). In general, the constant elasticity scales are given by (household size)^e, in which e is the scale elasticity. Notice that if $e = 1$, then the scale equals the household

8. Research demonstrates that using consumption could be a useful measure for economic well-being (Fisher, Johnson, and Smeeding 2015; Meyer and Sullivan 2017), and often wealth is used instead of income (Wolff 2014; Bricker et al. 2017). BEA will jointly collaborate with researchers at the Bureau of Labor Statistics on a distribution of consumption.

9. Table 4 does not include all relevant components of PI and NI. PI is NI less corporate profits (including taxes on production), contributions for social insurance, net interest, business current transfer, and current surplus of government enterprises plus PI receipts and personal current transfer receipts.

size, there are no assumed economies of scale in living arrangements, and the equivalent resources are simply the per-capita resources. Alternatively, if the elasticity equals zero then there is no adjustment for family size, there are complete economies of scale in living, and the marginal cost of another person is zero.

Earlier research has shown that the choice of equivalence scale can affect both the level of and trend in the standard of living (Coulter, Cowell, and Jenkins 1992; Short et al. 1999). In addition, research on poverty measurement shows how different scales can have large impacts for larger families (Short et al. 1999; Johnson 2004). Following the suggestions by Ruggles (1990), Buhmann et al. (1988), and the Canberra Group (2011), most research uses an elasticity of 0.5, which is the square root of household size. CBO and AS follow this approach, and the BEA prototype estimates also use the household as the unit and equivalize income using the square root of household size.[10]

When: Choosing a time period and adjusting income over time

In order to create trends in income and the distribution of income, one must choose a reference period, time period, and methods to adjust for changes in the cost of living that occur during the time period. Most studies use annual measures of income. Monthly or quarterly measures of income are typically more volatile, without providing meaningful information on inequality trends. Alternatively, if the goal is to measure permanent income or consumption, which requires more stability, averaging over longer periods (years) may be more appropriate. The time period chosen significantly affects the results.

When measuring real income, a price index is necessary, such as PCE or the Consumer Price Index (CPI) to adjust for changes in price. While different price indexes lead to a variety of changes in the level of the median and mean and to changes in the levels of various quintiles, they do not affect the trend in inequality measures. Census uses the CPI-U-RS to deflate the trends in real mean and median income, while BEA uses the PCE price index, which rises more slowly.[11] As a result, the mean increases more over a longer period.[12] Fixler and Johnson (2014) and Nolan et al. (2019) show the impacts of price indexes on the changes in the median income; however, inflation can affect inequality measures if the inflation is different for different incomes, such as high or low income.[13] In the case of PI, the PCE price index is the appropriate price index.

Where: How are the measures adjusted for differences in geographic location?

Similar to the adjustment for family size, it could be that some areas in the country (or even different countries) have different living costs. BEA has constructed a regional price parity index to adjust PI and show that the range across countries narrows; that is, inequality is lower across the country than when using unadjusted income.

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10. PSZ use the number of adults over age 20 in the household and create a per capita measure, which will not adjust for any changes in household size over the period.

11. CPI-U-RS is the current urban price adjustment method used by the BLS.

12. Between 1979 and 2018 the real mean household money income increased 35 percent (Semega et al. 2019); using the PCE price index to adjust for inflation would yield a 51 percent increase.

13. See Sherman and Van de Water (2019) for a discussion about whether inflation is higher for the poor.

Moretti (2013) and Deaton (2010) discuss other implications of using geographically adjusted income in comparing wages across the United States and income internationally. Especially in making international comparisons, the Canberra Group report (2011) suggests using price index adjustments. At this point, the BEA prototype estimates are only produced at the national level and do not adjust for differences in the geographic price differences.[14] The development of regional estimates is also a BEA research project.

How: Which summary statistic and data set?

Much research focuses on the levels and trends in the Gini coefficient to evaluate inequality, but Atkinson (1970), Sen (1997), and Theil (1967) evaluate a variety of inequality measures and their properties. The Gini coefficient is a common summary measure of the amount of inequality (or disparity) in income (or any resource). The Gini ranges from 0 to 1, with 0 meaning perfect equality—everyone gets the same income—and 1 signifying perfect inequality. The Gini is determined by examining the shares of income owned by each household, or group of households (like percentiles or quintiles). Hence, the top 1 percent owning 20 percent compared to 15 percent of all income, would lead to higher Gini coefficients. The Gini satisfies a variety of properties that are valuable in evaluating inequality, such as being unaffected by a proportional increase in everyone's income, but falling if income shifts from a higher income person to a lower income person.[15]

The Census Current Population Reports (Semega et al. 2019) produce a variety of inequality measures. While all show increases in inequality over the past 40 years, the changes differ. In addition, some measures show much more volatility and are affected by changes at the top of the distribution (such as the coefficient of variation) or the bottom of the distribution (such as the Theil measure).

Another metric is the concentration of income measured by shares of income owned by the top percentiles of the distribution. These measures are more volatile and can increase more than overall inequality measures that capture the entire distribution (Jasso 2014; Alvarado 2011). One way of simultaneously assessing the concentration and looking at the distribution overall is to decompose PI into quantiles, such as deciles and quintiles.

Related to how one measures inequality is the choice of data set used to measure inequality (and income). The Census Bureau and CBO use the CPS to create their income measures. CBO extends the CPS to create a more comprehensive income measure by using tax data. PSZ and AS use income tax records from the Internal Revenue Service. The Federal Reserve Board Survey of Consumer Finances has also been used to examine inequality (see Bricker et al. (2017)). Others have used a combination of data sets (see Fisher et al. (2018)).

Different data sets yield different levels of measurement error. Research using the CPS demonstrates a significant amount of underreporting of income and transfers (Meyer, Mok, and Sullivan 2015; Rothbaum 2015). While aggregate wages in the CPS are fairly close to the national account totals, interest and dividends are substantially lower. Meyer, Mok, and Sullivan (2015) show that government transfers in the CPS are underreported.

14. Fixler et al. (2017) show how price differences could affect the level and trends in inequality across states.

15. See Sen (1997) for a discussion of these properties.

However, one advantage of using the CPS is that it also allows us to include non-filers, and better capture the bottom of the distribution than if we were starting with tax units. Scaling up the aggregate totals addresses most of the underreporting as long as underreporting occurs similarly across the distribution and all people report receipt of the income source. As Meyer, Mok, and Sullivan (2015) show, however, much of the underreporting is due to people not reporting receipt of government transfers. As discussed in the accompanying technical document, the prototype estimates use the CBO imputations for the receipt and amount for some of these government transfers to address this.

Similar improvements could be made for the receipt of self-employment income, as demonstrated by Abraham et al. (2013). New linkages to administrative data (see Meyer and Mittag (2019)) could yield improved estimates for receipt of other government programs. Similar methods could be used to adjust for the underreporting of interest and dividends and the level of employer contributions to retirement and health care.

Why: The purpose of the measure

Each of the choices—what, who, where, when, why, and how—has different implications for the levels and trends of inequality. As a result, researchers need to decide on the purpose of their evaluation when making these choices, whether it is to answer questions about overall changes in inequality, the redistributive impacts of government taxes and transfers, or the differences between annual and permanent income. Each of these questions may require different data and inequality measures.

The BEA purpose is to distribute the aggregate measure of income to households. As PI is about 87 percent of GDI, focusing on PI goes a long way in explaining how aggregate income is distributed. Hence, household income (and by extension, PI) is chosen. Another purpose of the exercise would be to assess economic well-being. Jorgenson and Slesnick (2014) construct a more general measure of economic well-being that uses expenditure patterns.

PI may include income that may not best represent household well-being. For example, research has examined whether allocating the actual costs of Medicare and Medicaid per recipient increases household well-being. However, these are included in the NIPA aggregates, and therefore, need to be distributed. It could be that there is a more restricted measure of income to use for assessing the distribution of economic well-being; however, for the purpose of distributing changes in growth, changes in PI and its distribution are more closely related to measured growth.

One purpose of the prototype estimates is to create a decomposition of income that can be related to growth. The comparisons below use real PI and DPI (both adjusted by the PCE price index), as used in previous BEA/OBE analyses, for households adjusted by the square root equivalence scale. The prototype estimates span 2007 to 2018, using the most recent data available. Using CPS as the base and adjusting using multiple data sources, we produce the shares of income for deciles, quintiles, the top 5 percent, and the top 1 percent, along with the Gini coefficients.

Comparisons

It is useful to compare BEA prototype estimates to other research estimates to place the prototype estimates into context. The CBO and AS have multiple income measures that consider both taxes and transfers. Since the annual Census estimates are used by many researchers, we include household money income in the comparisons. However, as median equivalized household money income is unavailable in published tables, we compute it for each year using the CPS microdata.[16] Additionally, we compute post-tax household money income by subtracting federal and state taxes from money income. Similarly, we construct pretax and post-tax-and-transfer NI Ginis using the PSZ microdata.

As shown in table 4, there are many components in PI that are not included in Census money income. In addition, the technical document shows that the CPS measure can only account for 65 percent of PI. Many items, such as imputed interest and rental equivalence, need to be allocated using an alternative measure of income. In many cases, our approach uses the distribution of variables in the CPS as well as the distribution of related variables in other data sources to distribute NI totals for variables such as imputed interest, wages for supplemental compensation, and so on—details of which are provided in the technical document. This choice of base level can have a large impact on the distribution as shown by AS and PSZ for nontaxed capital income or unreported income.

We can begin by comparing the real equivalized medians for various sources in table 5.[17] Each series specifies whether taxes and transfers are included, which is important to note in assessing the trends. For example, money income includes some of the transfers that PI includes but does not include in-kind government transfers, employer benefits, and other income from financial assets. Generally, the addition of transfers raises median income, while the subtraction of taxes lowers it. Accordingly, the BEA PI has the highest equivalized median, while PSZ pretax-and-transfer has the lowest in 2018 (though it closely tracks money income). Although BEA DPI is also the highest post-tax median, the difference in the post-tax series between sources is significantly smaller (except Census sources, which are lower by definition).

As there are significant differences in the series in levels, it is helpful to consider their trends as well. Equivalized median PI and DPI grew by 10.2 percent and 12.1 percent, respectively. These increases are larger than those implied by the Census money income measure and about twice as much as the comparable PSZ measures over this period.[18] Given the dramatic dynamics of the business cycle over this period, it is worthwhile to break the overall period into sub-periods and compare the trends. For example, 2007–2009

16. In our analysis, we implement the Census redesign in CPS survey years 2015 and 2019, affecting our results for 2014 and 2018, respectively. This redesign (implemented in stages) led to increases in inequality, as can be seen in census Table A-4.

17. The BEA, Census, and CBO medians are equivalized by dividing by the square root of the household size. PSZ equivalize by constructing measures per adult. The method of equivalization can have a slight impact on the distribution as well. CBO and PSZ measures have been converted to real 2012 dollars using the PCE price index to compare across metrics.

18. Though BEA methodology has been revised, the trends in the series for most of the period are very close to those of the March 2020 release. PSZ have also revised their methodology and their series recently. For details, see Saez and Zucman (2020). We have also revised the chosen CBO and Census series for comparison in this release for a closer conceptual comparison.

saw decreases in pretax income for all metrics, but PI had the smallest decrease (note the transfers included in this metric). The "recovery" period, 2009–2013, saw very limited growth across all measures. In fact, money income and post-tax CBO household income actually decreased during this period. Unsurprisingly, 2013–2017 showed strong growth across all measures. PI and DPI grew at about the same rates as their corresponding pre-and-post-tax CBO and PSZ series, while money income grew slightly more. In sum, the more comparable post-tax-and-transfer series (by definition) all grew very similar amounts from 2007–2017 (6–9 percent), while the BEA pretax series grew significantly more than the PSZ and CBO series, highlighting the importance of transfers and of comparing apples to apples.

The choice of summary measure makes a difference for both the levels and trends in inequality. Much research uses the Gini coefficient to summarize the changes in the distribution over time. It is also less sensitive to changes that occur at the top and bottom of the distribution. In panels A and B of chart 3, we compare Gini coefficients for equivalized pretax and post-tax series, respectively. In panel A, it is clear that all series show very similar trends for the Gini over the period, which is a very small increase (except the published Census series, which appears slightly larger due to the fact that approximately half of the increase comes from the redesign (see jumps in 2014 and 2018) from the start of the period to the end.[19] Comparing the two CBO series shows the role that transfers play in lowering the Gini.[20] Their inclusion lowers the CBO pretax Gini by about 0.03 at the start of the series and 0.04 at the end. The BEA PI series is appropriately close to the CBO and Census series, which include transfers, but significantly below the PSZ and CBO series, which do not. In panel B, all three series follow very similar trends until 2016 (despite the initially bigger drop in the CBO series during the recession). The DPI Gini does show some increase at the end of the period, like the PI Gini. Because of the inclusion of both taxes and transfers, the PSZ post-tax-and transfer measure is much lower than the pretax and transfer measure compared to the differences between BEA PI and DPI. Again, BEA DPI has the lowest Gini of the three, though it is quite close to that of the CBO.

Having compared the medians and the overall inequality of the distribution, we turn to a comparison of top shares in table 6. PSZ argue it is more important to examine concentration of income at the top since increases in concentration that can impact the level of overall growth in GDP (see Krueger (2012); Fisher et al. (2020)). Although BEA is also interested in top income shares, one of the reasons for the choice of the CPS survey as the base dataset is that we are interested in the distribution overall, including the top shares. The CPS allows us to observe lower income individuals, many of whom do not file taxes and may participate in the gig economy.

Accordingly, we produce a distribution of growth by shares to examine what share of households are receiving most of this growth. We can then compare our estimates to others, many of which focus on the top. Here, again, we can compare pre-and-post-tax series to each other, noting the same definitional differences that are

19. The fall of top shares in 2012 and subsequent rise in 2013 is primarily due to changes in the reporting on income due to tax law changes. In the March 2020 release, we had smoothed the Census results for chart 3, removing the impact of the redesign. Also, the PSZ methodological change has also lowered the Gini coefficients that we calculate from the microdata, as compared with the previous release.

20. CBO and AS series are not yet available for 2018.

described above. For each series in this table, the unit of observation is equivalized; the series are ranked by the equivalized units and then shares of the total (for example, PI, NI, and so forth) are computed for the top 1 percent.[21]

As expected, the top 1 percent share is more volatile than the Gini (or the top 5 percent share). Consistent with the previous results, BEA PI shares are a few percentage points below those of CBO and PSZ for the pretax series.[22] They are slightly above the AS series. As AS show, the larger shares for PSZ are mainly due to the methods used to allocate some income components not reported in the tax data (see also Piketty, Saez, and Zucman (2019)). Because of the more comparable after-tax-and transfer measures, BEA DPI shares are quite close to the post-tax series of CBO and PSZ, though still somewhat above AS.

These level differences are expected given the additional income components included in CBO and PSZ, whose distribution is skewed toward higher-income households. BEA PI and DPI show the greatest increase in top shares over the period, but this increase is still less than 1 percentage point (0.7 for DPI and 0.9 for PI) from 2007–2017 (that is, before the CPS redesign).[23] Again, considering 2007–2009 separately, we see small 1–2 percentage point decreases in the top shares for all measures, except CBO, which decrease by 5 percentage points. Subsequently, the shares recover 1–2 percentage points for 2009–2013. Unlike medians, which increase from 2013–2017, there is almost no change in top shares over this period for any measure.

However, from 2016–2018, there is some difference in trends. From 2016–2017, CBO shares show a large increase of 1 percentage point (both pre- and post-tax), unlike PSZ and BEA. AS show a modest increase as well. However, as previously stated, BEA PI top shares increase from 2017–2018, owing largely to the CPS redesign, while DPI remains unchanged.[24] Conversely, PSZ has little change in its pretax top share, but a 0.4 percentage point increase in the post-tax-and-transfer top share. As the 2017 Tax Act is projected to decrease tax rates for those at the top of the distribution, while also decreasing eligibility for means-tested transfers for those at the bottom, we might expect an increase in the inequality of disposable income. However, the share of taxes distributed to the top decile increases by 4 percentage points from 2017–2018 and the proportion of income taxes paid by tax units with AGI of at least $500,000 (roughly the top 1 percent of households) increases by 1 percentage point from 2017–2018 in the SOI data. Accordingly, we do not see an increase in the top 1 percent share of DPI. The 2017 Tax Act also has implications for corporate income, most of which would be captured by PSZ estimates of NI, rather than BEA estimates of PI.

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21. In table 3, we show income shares for both equivalized PI/DPI and total PI/DPI. Here, we compare the series for total PI/DPI for consistency with other estimates.

22. The PSZ top 1 percent shares are significantly lower than those cited in our March 2020 release due to their methodological revision and subsequent series updates.

23. A significant portion of the difference in top shares in the latter half of the period is due to the revised treatment of business income in BEA computations. See section 8 of the technical document for details.

24. Since the top 1 percent share uses approximately 700 households in the CPS, it can be subject to measurement error. In annual Census reports of money income inequality for households, the margin of error for the top 5 percent shares is 0.4 (see Census Table A-4). Also, in Table A-5, we can see that in the absence of the redesign, the Gini for money income would not have increased (and actually decreased) from 2017–2018.

Inequality and Growth

Examining the distribution of the national accounts informs the relationship between economic growth and inequality in society. Simon Kuznets discussed this in his American Economic Association Presidential Address by asking, "Does inequality in the distribution of income increase or decrease in the course of a country's economic growth?" The hypothesis that inequality rises and then falls with growth has been examined in many countries.[25] The relationship between macroeconomic growth and income inequality has also been the focus of many recent studies (Boushey and Clemens 2018; OECD 2014; Ostry 2014), with no consensus on the relationship. In fact, an OECD report (OECD 2012) suggested that "...no general consensus has emerged and the empirical evidence is rather inconclusive."

Led by the creation of the World Inequality Database and PSZ, new efforts around the world have started to develop internationally consistent distributional measures that are also consistent with measures of economic growth in the national accounts. Interest in the relationship between growth in GDP and the changes in household income is highlighted by the fact that growth in GDP per capita outpaces the changes in median household income. For example, the annual Census release of real median household income (Semega et al. 2019) shows an increase of 15 percent between 1979 and 2018, compared to an increase of 89 percent for real per capital GDP (and real per capita PI increased slightly more at 103 percent).

However, some of the difference in inequality trends can be accounted for by the different price indexes used, the use of household or per capita measures, and the use of the mean versus the median. Since per capita PI is more like a mean (or average) than a median, it would be more appropriate to compare mean household income adjusted by the PCE price index to average PI per household (instead of per person). This yields more similar increases, yet the measures are far apart. The remaining difference is in the definition of income, as PI contains much more income.

Regarding the trend in inequality, there is considerable agreement that there has been an increase in inequality in the United States during the past 30 years (CBO 2018; Johnson and Smeeding 2014). There is, however, considerable disagreement regarding the size of the increase (PSZ; AS; CBO; Johnson and Smeeding 2014). For example, researchers and the public focus on the annual release of inequality estimates by the Census Bureau (Semega et al. 2019). However, the regular release of income distribution statistics from CBO (2018) shows larger increases in inequality. Finally, the recent results from PSZ show an even larger increase in inequality.[26] As with all comparisons of inequality measures, we keep in mind that all of these measures use different definitions of income. While the levels and trends of NI and PI are similar, slight differences in definitions and methods can yield different distributional properties.

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25. See Gallo (2002) and de Dominicis, Floras, and DeGroot (2008) for discussions of the empirical research examining the inverted U-shaped inequality hypothesis.

26. Between 1979 and 2017, the Gini for equivalized money income increased 18 percent; the pretax, pre-transfer CBO measure increased 27 percent; and the PSZ measure increased 30 percent.

The main purpose of the BEA prototype measure is to estimate the distribution of the overall PI, DPI, and the changes over time; hence, the prototype estimates examine the full distribution (by decile, quintile, top 1 percent, and 5 percent) (table 1 and table 3). With these estimates, we can determine how much of the increase in growth accrues to the top and bottom of the distribution (chart 2). Though we can say what percentage of income accrues to what portion of the distribution (that is, share of the top 1 percent, for example), we cannot follow the same individuals over time. Accordingly, though we can say that the share of PI for the top 1 percent was 13.2 percent in 2007 versus 11.7 percent in 2009, we cannot say that the same households had more PI in 2007 than in 2009. To capture whether incomes grew for those in the top 1 percent over time, we would need to have access to detailed panel data in order to follow the same individuals throughout the period.

However, focusing only on the top of the distribution can mask many of the changes that occur at other points in the distribution. Accordingly, we can look at a more comprehensive picture of the distribution of growth in charts 1 and 2. Panels A and B show the growth in PI and DPI, respectively. Charts 1 and 2 show that real PI and DPI grew 21.8 percent and 22.3 percent, respectively, from 2007–2018. PI and DPI increased for each quintile from the beginning to the end of the period. However, it is evident that the income in some quintiles grew more than others.

Chart 2 shows the decomposition of growth across quintiles (and for the top 1 percent) for each year. One immediate observation is that DPI is less volatile than PI, particularly as tied to business cycles. For example, PI fell 3 percent from 2008–2009, while DPI fell 0.2 percent over that same period. The trends are very similar post-recession for PI and DPI. Both DPI and PI grew annually just under 3 percent on average after 2009. The last few years showed strong growth (3–4 percent) for both PI and DPI (except 2015–2016).

However, this growth was not experienced equally throughout the distribution. Over half of the growth in PI and DPI (60.3 percent for PI and 54.9 percent for DPI) accrued to the top quintile. Though we cannot know that those in the top quintile in 2007 were the same as those in 2018, we can say that their share of the distribution went up from 50.9 percent in 2007 to 52.8 percent in 2018. This represents a real average increase of $52,139 for those households in the top quintile. Even though it appears that the top quintile experienced a large share of the growth, it was in fact driven primarily by the growth of the top 5 percent for both PI and DPI. Though the top 1 percent contributed about one-third of the growth in the top quintile for PI (and one-fourth for DPI), the top 5 percent overall accrued a significant share of the growth for PI (86 percent) and DPI (72 percent).[27]

The bottom four quintiles all lost share over the period. In fact, the bottom two quintiles only had 11 percent of the growth in PI and 13 percent in DPI. While taxes significantly decrease inequality, the effect is on the smaller side. The ratio of the top 1 percent of PI to the top 1 percent of DPI remains fairly constant over the period for most of the distribution, but rises from 1.15 to 1.20 for the top 1 percent (this is driven largely by the effect of the Census redesign in 2018).

27. The share of the top 5% in PI and DPI increased by 1.9pp and 1.1pp, respectively.

Conclusion

The what, who, where, when, why, and how of inequality measurement demonstrates the importance of measurement choices. For BEA, the purpose (or the why) is to distribute the aggregate PI, and hence, many of these measurement choices are predetermined. Even though the prototype estimates use a different income measure and method than other estimates (for example, Census, AS, PSZ, and CBO), many of the trends in inequality are similar for this short 12-year period, and fairly close once the definitions are reconciled as much as possible. The levels and trends in the shares of disposable income are very similar to those of PSZ, CBO, and AS for the period overall. Finally, the trends in the Gini coefficient for the prototype measure are similar to the trends for the CBO and PSZ measures.

Table 1. Major Components of Personal Income and Disposable Personal Income by Decile (2018)

Line	Income component	Total ($)	PI: 0-10%	PI: 10%-20%	PI: 20%-30%	PI: 30%-40%	PI: 40%-50%	PI: 50%-60%	PI: 60%-70%	PI: 70%-80%	PI: 80%-90%	PI: 90%-100%	DPI: 0-10%	DPI: 10%-20%	DPI: 20%-30%	DPI: 30%-40%	DPI: 40%-50%	DPI: 50%-60%	DPI: 60%-70%	DPI: 70%-80%	DPI: 80%-90%	DPI: 90%-100%
1	Compensation of employees	$10,950	1.2%	2.3%	3.1%	4.2%	5.8%	7.8%	10.4%	13.7%	18.4%	33.0%	1.2%	2.5%	3.4%	4.5%	5.9%	8.1%	10.5%	13.8%	18.0%	32.1%
2	Proprietors' income with inventory valuation	$1,586	−0.1%	0.2%	0.4%	0.7%	1.0%	1.7%	3.2%	4.5%	9.3%	79.0%	0.0%	0.2%	0.4%	0.7%	1.1%	1.7%	3.3%	5.0%	9.6%	78.0%
3	Rental income of households with capital consumption adjustment	$747	1.8%	3.5%	4.7%	5.6%	6.3%	7.3%	8.7%	10.3%	13.4%	38.5%	1.8%	3.5%	4.8%	5.5%	6.2%	7.4%	8.7%	10.3%	13.7%	38.0%
4	Household income receipts on assets	$2,886	0.6%	0.8%	1.2%	1.6%	2.3%	3.5%	5.3%	7.6%	12.7%	64.4%	0.7%	0.9%	1.3%	1.7%	2.4%	3.5%	5.3%	7.9%	13.0%	63.4%
5	Household interest income	$1,617	0.9%	1.2%	1.7%	2.3%	3.2%	4.6%	6.7%	9.3%	15.0%	55.2%	1.0%	1.4%	1.8%	2.5%	3.2%	4.6%	6.6%	9.6%	15.2%	54.1%
6	Household dividend income	$1,268	0.1%	0.3%	0.5%	0.8%	1.2%	2.1%	3.6%	5.4%	9.8%	76.1%	0.2%	0.4%	0.6%	0.8%	1.3%	2.1%	3.6%	5.7%	10.1%	75.2%
7	Household current transfer receipts	$3,031	7.2%	10.1%	11.7%	12.8%	12.8%	11.4%	10.2%	8.1%	7.8%	7.9%	7.1%	9.8%	11.1%	12.2%	12.5%	11.7%	10.3%	8.6%	8.2%	8.5%
8	Government social benefits	$2,899	6.6%	10.2%	11.8%	13.1%	13.0%	11.6%	10.2%	8.1%	7.6%	7.8%	6.5%	9.8%	11.3%	12.4%	12.8%	11.9%	10.3%	8.6%	8.0%	8.4%
9	From business (net)	$21	8.4%	8.9%	9.2%	9.7%	10.1%	10.5%	10.8%	10.7%	10.7%	11.0%	8.4%	8.9%	9.2%	9.8%	10.1%	10.7%	10.8%	10.8%	10.6%	10.6%
10	From nonprofit institutions	$111	23.2%	7.1%	8.5%	5.7%	6.0%	6.7%	10.4%	9.9%	12.4%	10.2%	23.7%	8.5%	7.5%	6.4%	6.4%	6.8%	10.6%	9.0%	11.6%	9.6%
11	Less: Contributions for government social insurance, domestic	$1,360	1.1%	2.2%	3.1%	4.3%	5.9%	8.1%	10.9%	14.2%	18.9%	31.3%	1.2%	2.7%	3.5%	4.9%	6.4%	8.8%	11.4%	14.5%	18.3%	28.3%
12	Household income	$17,839	2.0%	3.3%	4.1%	5.0%	6.0%	7.1%	8.8%	10.8%	14.6%	38.3%	2.1%	3.3%	4.1%	5.1%	6.0%	7.3%	8.8%	10.9%	14.6%	37.7%
13	**Personal income**	**$17,852**	**1.9%**	**3.3%**	**4.1%**	**5.0%**	**6.0%**	**7.2%**	**8.8%**	**10.8%**	**14.6%**	**38.3%**	**2.0%**	**3.3%**	**4.1%**	**5.1%**	**6.1%**	**7.3%**	**8.8%**	**11.0%**	**14.6%**	**37.7%**
14	Less: Taxes	$2,085	0.2%	0.4%	0.7%	1.1%	1.9%	3.1%	5.1%	8.3%	14.3%	64.9%	0.6%	0.7%	1.1%	1.6%	2.2%	3.8%	5.7%	9.0%	14.6%	60.9%
15	**Disposable personal income**	**$15,767**	**2.2%**	**3.7%**	**4.6%**	**5.5%**	**6.6%**	**7.7%**	**9.3%**	**11.1%**	**14.6%**	**34.7%**	**2.1%**	**3.7%**	**4.5%**	**5.5%**	**6.6%**	**7.8%**	**9.3%**	**11.2%**	**14.6%**	**34.7%**

Note. This table represents the breakdown of household income by component as in NIPA Table 2.9 (lines 22-33). Personal income (line 13) = Household income (line 12) – Household current transfer receipts from nonprofits + Nonprofit institution income – Nonprofit institution transfer receipts from households. Disposable personal Income = Personal income - Taxes. In the first 10 columns households have been ranked by equivalized personal income and correspondingly assigned to deciles in the distribution (total = 100%). In the second 10 columns, households have been ranked by equivalized disposable personal income and correspondingly assigned to deciles in the distribution (total = 100%).

Table 2. Decomposition of Personal Income for Households (2018)

Line	Income concept	Totals (Billions)	Household average (equivalized)	Real household average (equivalized) (2012=100)
1	Money income (Census)	$11,575	$58,967	$54,527
2	Adjusted money income	$12,516	$63,444	$58,667
3	*Transfers*	$1,408	$7,938	$7,340
4	Plus: Financial	$2,829	$14,192	$13,123
5	Plus: Health	$2,141	$11,092	$10,257
6	*Transfers*	$1,346	$7,161	$6,621
7	Plus: Other transfers (net)	$353	$1,799	$1,664
8	**Equals: Household Income**	**$17,839**	**$90,527**	**$83,711**
	Plus: NPISH (net)			
9	**Equals: Personal Income**	**$17,852**	**$90,606**	**$83,783**
10	Less: Taxes	$2,085	$10,194	$9,427
11	**Equals: Disposable Personal Income**	**$15,767**	**$80,411**	**$74,356**

NPISH Nonprofit institutions serving households

Note. This table represents the steps to the construction of Personal income (and Disposable personal income) as described in the Methodology document, with totals and averages by household for each category. Personal income (line 9) = Household income (line 8) – Household current transfer receipts from nonprofits + nonprofit institution income – nonprofit institution transfer receipts from households. Household income (line 8) = Adjusted money income (line 2) + financial sources of income (line 4) + health sources of income (line 5) + other transfers (net) (line 7). Disposable personal income (line 11) = Personal income (line 9) - taxes. "Other transfers (net)" includes the net of all transfers that are not already included as cash transfers (line 3) in adjusted money income and in-kind transfers (line 6) in health. Households have been ranked by equivalized personal income. NPISH (net) represents a statistical aggregate used to move from household income to personal income. Real numbers are in 2012 dollars.

Table 3. Inequality Metrics (2018)

Line	Inequality metric	Household income	Personal Income	Disposable Personal Income
1	Eq. total: mean (2018)	$90,527	$90,606	$80,411
2	Eq. total: mean (2012)	$83,711	$83,783	$74,356
3	Eq. total: median (2018)	$59,985	$60,148	$57,471
4	Eq. total: median (2012)	$55,469	$55,619	$53,144
5	Eq. total: 0–20% share	5.6%	5.6%	6.2%
6	Eq. total: 20–40% share	9.4%	9.5%	10.4%
7	Eq. total: 40–60% share	13.1%	13.1%	14.2%
8	Eq. total: 60–80% share	19.1%	19.1%	19.7%
9	Eq. total: 80–100% share	52.8%	52.7%	49.5%
10	Eq. total: 80–99% share	38.1%	38.0%	36.9%
11	Eq. total: Top 1% share	14.7%	14.7%	12.5%
12	Eq. total: Top 5% share	28.2%	28.2%	25.2%
13	Eq. total: 90/10	5.61	5.54	4.92
14	Eq. total: Gini index	0.455	0.453	0.416
15	Total: mean (2018)	$138,636	$138,736	$122,530
16	Total: mean (2012)	$128,197	$128,290	$113,304
17	Total: median (2018)	$90,599	$90,983	$86,936
18	Total: median (2012)	$83,777	$84,132	$80,390
19	Total: 0–20% share	5.2%	5.2%	5.8%
20	Total: 20–40% share	9.1%	9.1%	10.1%
21	Total: 40–60% share	13.2%	13.2%	14.4%
22	Total: 60–80% share	19.6%	19.6%	20.5%
23	Total: 80–100% share	53.0%	52.8%	49.3%
24	Total: 80–99% share	38.5%	38.4%	37.2%
25	Total: Top 1% share	14.4%	14.4%	12.1%
26	Total: Top 5% share	28.0%	27.9%	24.6%

Note. All income shares and inequality metrics are calculated from households ranked by equivalized income and are identical for nominal and real measures. Real numbers are in 2012 dollars. Rows 1-14 are metrics for equivalized income for each relevant income concept (household income, PI, DPI). For example, row 5 is the sum of equivalized income for households in the bottom quintile divided by total equivalized income for households., Conversely, row 19 is the sum of income for households in the bottom quintile divided by total income for households. Accordingly, the means and medians in rows 1-4 are significantly smaller than those in rows 15-18. The 90/10 ratio and Gini index have only been calculated for equivalized income.

Table 4. Comparison of Income Concepts

Source	Personal income (BEA)	Disposable personal income (BEA)	Money income (Census)	Pretax/ transfer (CBO)	Post-tax/ transfer national income (PSZ; AS)	Pretax national income (PSZ; AS)[1]
Employment income	Yes	Yes	Yes	Yes	Yes	Yes
Employer contribution to social security	No[2]	No[2]	No	Yes	No[3] ; Yes	No[3] ; Yes
Employee contribution to social security	No[2]	No[2]	Yes	Yes	No[3] ; Yes	No[3] ; Yes
Employer-provided benefits	Yes	Yes	No	Yes	Yes	Yes
Business income (including self-employment)	Yes	Yes	Yes	Yes	Yes	Yes
Investment income	Yes	Yes	Yes	Yes	Yes	Yes
Imputed interest on investments	Yes	Yes	No	No	No	No
Corporate profits (retained earnings and taxes)	No	No	No	No	Yes	Yes
Government cash transfers	Yes	Yes	Yes	Yes[4]	Yes; No[5]	Yes; No[5]
Social security disbursements	Yes	Yes	Yes	Yes	Yes; No[6]	Yes; No[6]
In-kind government transfers	Yes	Yes	No	Yes[4]	No	No
Retirement income disbursements	No	No	Yes	Yes	No	No
Interest on retirement income	Yes	Yes	No	No	No	No
Cash assistance from others	No	No	Yes	Yes	No[7]	No[7]
Realized capital gains	No	No	No	Yes	No	No
Imputed rent	Yes	Yes	No	No	Yes	Yes

1. This is the pretax and transfer measure. AS and PSZ also produce post-tax and transfer national income, which includes in-kind government transfers.
2. Since employer and employee contributions are both added and subtracted they are effectively absent.
3. PSZ exclude social security contributions.
4. CBO pretax/transfer measure includes Medicare and social insurance programs, and creates a post tax/transfer measure that includes means-tested cash and in-kind transfers.
5. AS exclude all cash transfers; PSZ include social insurance programs similar to CBO.
6. AS exclude social security disbursements.
7. AS deduct alimony paid and include alimony received.

Table 5. Percent Changes in Real Equivalized Median for Various Measures, 2007–2018

	BEA Personal Income		Census money income		CBO Household Income		PSZ National Income	
	PI	DPI	Pre-tax	Post-tax	Pre-tax & Transfer	Post-tax & Transfer	Pre-tax & Transfer	Post-tax & Transfer
2007	$50,489	$47,395	$36,637	$33,501	$45,101	$40,195	$37,293	$44,074
2008	$50,840	$47,627	$35,680	$32,832	$43,780	$40,383	$36,207	$43,109
2009	$49,752	$47,971	$35,098	$32,989	$42,837	$40,100	$35,709	$41,554
2010	$51,126	$49,103	$34,578	$32,518	$42,742	$39,912	$35,526	$42,213
2011	$50,293	$47,943	$34,211	$31,737	$42,365	$39,817	$35,667	$42,392
2012	$50,189	$48,005	$34,641	$31,992	$42,365	$39,629	$35,800	$42,800
2013	$50,644	$48,274	$34,751	$32,368	$43,214	$39,817	$35,621	$43,021
2014	$51,002	$48,441	$35,262	$32,680	$43,686	$40,667	$35,884	$43,567
2015	$53,299	$50,410	$37,088	$33,790	$45,479	$42,365	$36,878	$45,030
2016	$53,664	$50,938	$38,429	$35,478	$45,762	$42,742	$37,168	$45,332
2017	$54,563	$51,635	$38,936	$35,961	$46,422	$43,308	$38,496	$46,705
2018	$55,619	$53,144	$39,782	$37,105	-	-	$39,173	$47,303
% change 2007–09	-1.46%	1.22%	-4.20%	-1.53%	-5.02%	-0.23%	-4.25%	-5.72%
% change 2009–13	1.79%	0.63%	-0.99%	-1.88%	0.88%	-0.71%	-0.25%	3.53%
% change 2013–17	7.74%	6.96%	12.04%	11.10%	7.42%	8.77%	8.07%	8.56%
% change 2007–18	10.16%	12.13%	8.58%	10.76%	-	-	5.04%	7.33%

Note. Equivalized census money income pretax is calculated from the CPS using the variable for money income (*htotval*) and dividing by the square root of household size. Equivalized census money income post-tax is calculated by using the pretax metric and deducting federal and state taxes. These numbers are then deflated to $2012 using PCE. PSZ and CBO numbers are first reinflated, and then deflated to $2012 using PCE.

Table 6. Top 1 Percent Shares for Various Measures, 2007–2018

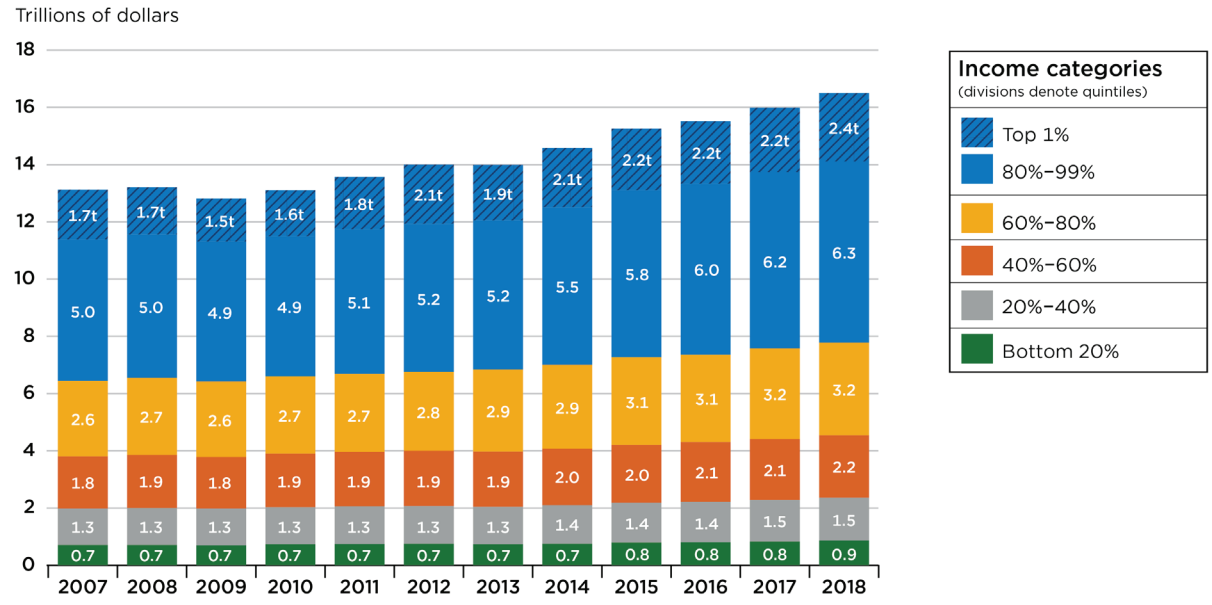
	BEA Personal Income		CBO Household Income		PSZ National Income		A&S National Income	
	PI	DPI	Pre-Tax & Transfer	Post-Tax & Transfer	Pre-Tax & Transfer	Post-Tax & Transfer	Pre-Tax & Post-Transfer	Post-Tax & Transfer
2007	13.2%	11.4%	19.1%	16.6%	18.4%	13.9%	12.9%	9.5%
2008	12.5%	11.0%	16.4%	13.9%	18.0%	13.7%	12.1%	8.5%
2009	11.7%	10.3%	13.7%	11.3%	16.7%	13.0%	11.3%	7.8%
2010	12.3%	10.7%	15.3%	12.6%	17.7%	14.0%	12.2%	8.6%
2011	13.5%	11.7%	15.1%	12.5%	18.2%	14.6%	11.9%	8.1%
2012	14.8%	13.0%	17.8%	14.9%	19.3%	15.3%	13.2%	9.3%
2013	13.9%	11.8%	15.4%	12.2%	18.3%	14.3%	12.1%	8.3%
2014	14.2%	12.3%	16.7%	13.3%	18.9%	14.7%	12.4%	8.6%
2015	14.1%	12.0%	16.6%	13.2%	18.8%	14.4%	12.2%	8.5%
2016	14.1%	11.8%	15.8%	12.5%	18.6%	14.3%	11.8%	8.2%
2017	14.1%	12.1%	16.7%	13.5%	18.8%	14.3%	12.30%	8.7%
2018	14.4%	12.1%	-	-	18.9%	14.7%	-	-
Change 2007–09	–1.5%	–1.2%	–5.4%	–5.3%	–1.8%	–0.9%	–1.7%	–1.7%
Change 2009–13	2.1%	1.5%	1.7%	0.9%	1.7%	1.3%	0.8%	0.5%
Change 2013–17	0.2%	0.3%	1.3%	1.3%	0.4%	0.1%	-	-
Change 2007–18	1.2%	0.7%	-	-	0.5%	0.8%	-	-

- Indicates not available

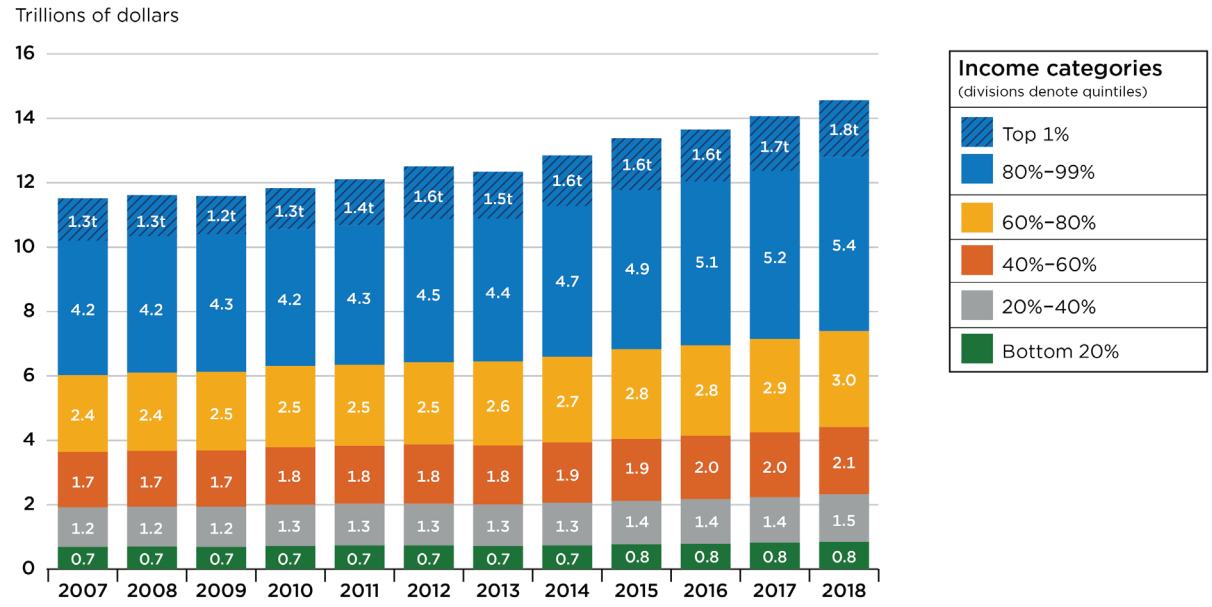
Note. Each unit of observation for each series has been ranked by equivalent income.

Chart 1. Real Personal Income and Real Disposable Personal Income by Income Category (2012=100)

Panel A. Real Personal Income



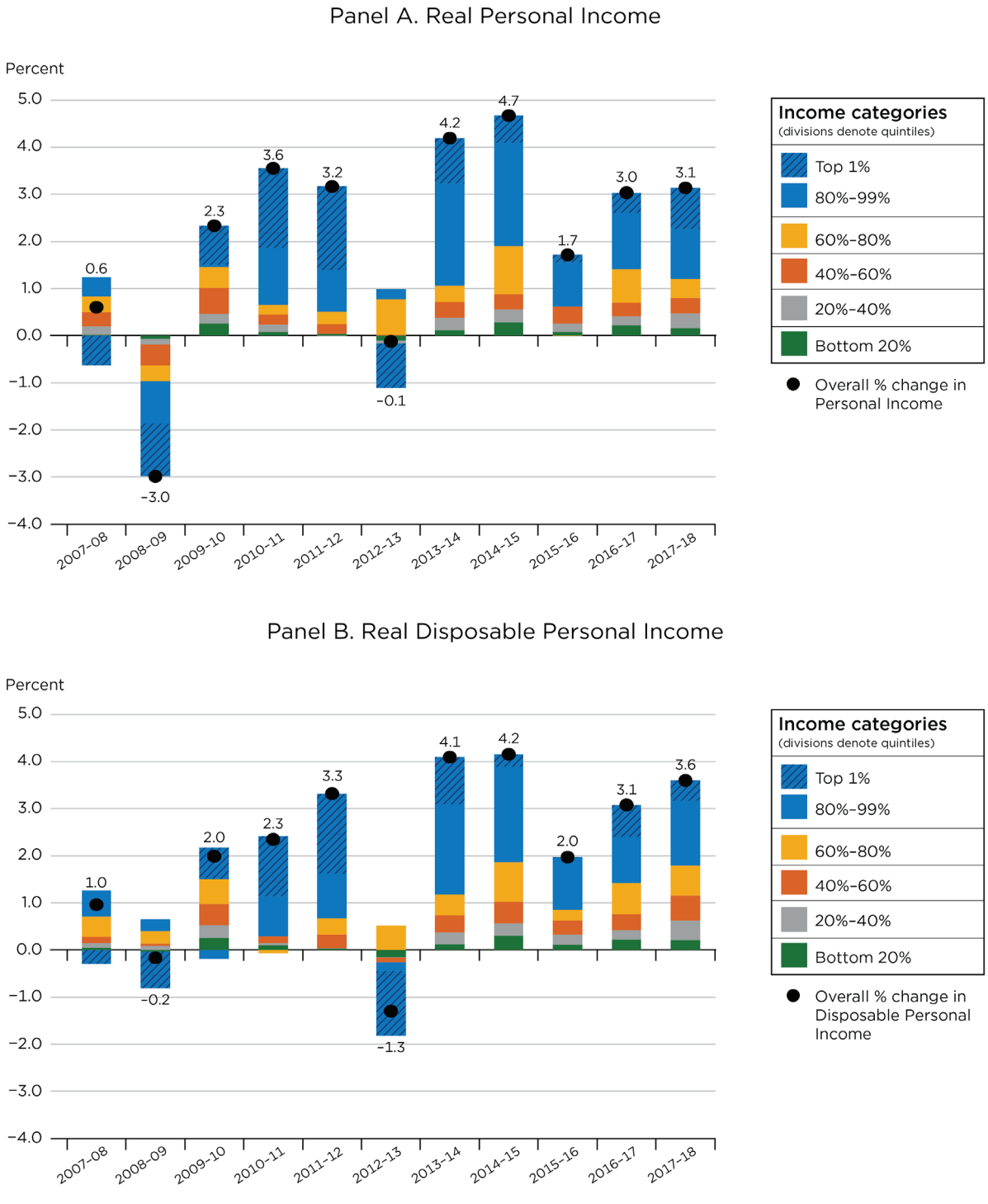
Panel B. Real Disposable Personal Income



U.S. Bureau of Economic Analysis

Note. In panels A and B, this chart shows real ($2012) personal income and disposable personal income, respectively, allocated to each income category for each year in 2007–2016. The income categories corresponds to the share of income held by each income category and are as follows: 0–20 percent (first quintile), 20–40 percent (second quintile), 40–60 percent (third quintile), 60–80 percent (fourth quintile), 80–99 percent and top 1 percent (together these two make up the fifth quintile).

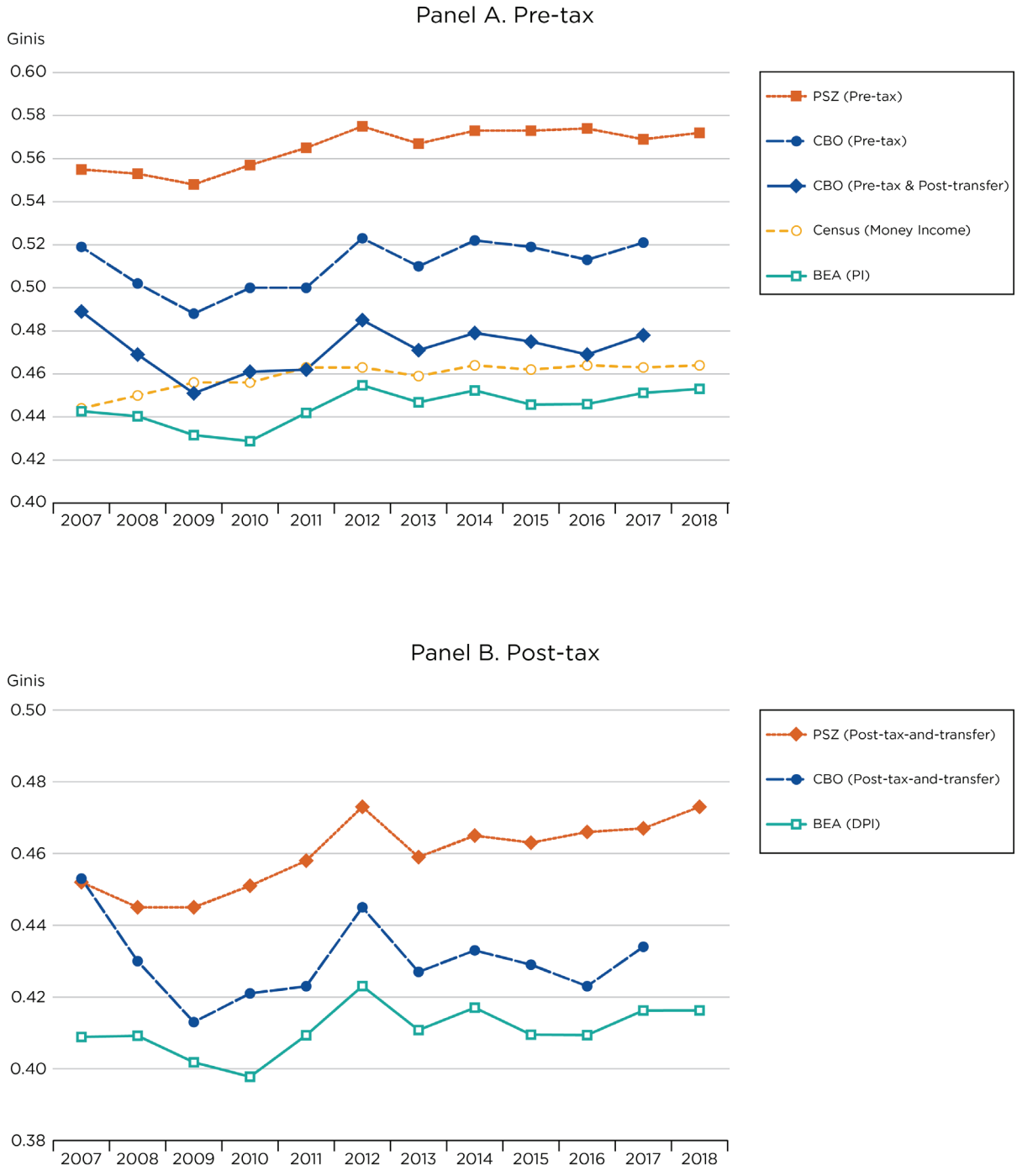
Chart 2. Contribution to Annual Growth in Real Personal Income and Real Disposable Personal Income by Income Category (2012=100)



U.S. Bureau of Economic Analysis

Note. In panels A and B, this chart shows the annual growth in personal income and disposable personal income, respectively, for each quintile. The markers and labels represent total growth in personal income (and disposable personal income) over the year (i.e., the height of the bar, including the negative portion). For example, from 2008-2009, though Personal Income fell by 3 percent overall, one third of that fall (1.1 percentage points) was a decline in the incomes of the top 1 percent. Note: the fall of top shares in 2012 and subsequent rise in 2013 is primarily due to changes in the reporting on income due to tax law changes.

Chart 3. Gini Coefficients Using Various Measures,[1] 2007–2018



1. PSZ series Gini is calculated using their Distributional National Accounts micro-files.

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