Appendix

1 Survey variables

Table A.I shows PNAD and PNADC variables used. The job's income includes revenues from the primary, secondary, and tertiary jobs. In order to define the nature of the job income, the variables of employment status are used. For workers, this income is defined as wages, and for the self-employed, as mixed income. In the employers' case, the income variable is divided between a wage compensation equal to the exemption limit of the personal income tax and capital gains equal to the remaining amount.

In the PNAD, there is no variable specifically for financial income. There is only a variable that jointly asks for all uncovered sources of income (V1273). To disentangle the different income sources that it might include, simplifying assumptions is needed. Values below one minimum wage are coded as social assistance income. Between one and two minimum wages, they are coded as unemployment benefits. For values higher than two minimum wages, they are coded as financial income. PNADC has a different question for each one of these incomes. It also includes a question about income from residential leasing. Consequently, there is a better picture of these items after 2015. Finally, to determine the total capital income of an individual, financial income with the capital part of employers' gains is added.

In other to estimate the social contributions, the variables on employment and social security status are used. Concretely, the rates vary only from 8% to 11%, so what makes the most difference is if the worker contributes to social security. PNAD only has this information for the primary job, so it is only possible to account for contributions from the primary job. Although not ideal, this lack is less problematic as secondary and tertiary jobs tend to be rarer, less paid, and more informal than primary ones. PNADC has contribution status for all jobs. Finally, both surveys include questions about pension income.

Table A.I: PNAD and PNADC variables

	PNADC variable	**PNAD variable**
Job income	V403312, V405012, V405812	V9532, V9982, V1022
Financial income	V5007A2, V5008A2	V1273
Pensions	V5004A2	V1252, V1255, V1258, V1261
Unemployment benefits	V5005A2	V1273
Employment status	V4012, V4043	V4706, V9092
Formality status	V4029, V4048	V9042
Social security status	V4032, V4049, V4057	V9059

2   Methodology details

This section provides a step-by-step schematic guide to the methodology, offering additional support for the explanations provided in the Methodology section. It also further explains the technical details of survey correction using tax data.

The first step of the methodology is to construct an income variable for each individual, i, using the survey data. The previous section provides the survey codes of these variables.

$$\text{income survey}_i = \text{income jobs}_i + \text{income financial}_i + \text{income pension}_i \tag{1}$$

The second step involves correcting the survey weights using tax data. The Methodology section explains the intuition and steps of the correction proposed by Blanchet et al. (2018). This appendix provides a brief technical overview.

Define $f_Y(y)$ as the true density function at the income level y, and $f_X(y)$ as the survey density function at the income level y. Define $\theta(y) = \frac{f_X(y)}{f_Y(y)}$, the ratio of the survey density to the true density. As explained in the methodology section, the survey density tends to underestimate the number of individuals with high incomes. Since the total sum of weights must represent the total population, the underrepresentation at the top of the distribution in the survey has a counterpart in the overrepresentation at the bottom of the distribution. Define $\bar{y}$ as the merging point between the tax and survey data, and assume that below $\bar{y}$, the survey captures the distribution equally well. In other words, the distribution is equally overrepresented below $\bar{y}$. Then, it is possible to define $\theta(y)$ as follows:

$$\theta(y) = \begin{cases} \bar{\theta} & \text{if } y < \bar{y} \\ \frac{f_X(y)}{f_Y(y)} & \text{if } y \geq \bar{y} \end{cases}$$

The main choice is $\bar{y}$, in other words, when to start relying on the tax distribution. The method chooses $\bar{y}$ such that it guarantees the continuity of $\theta(y)$. The survey weights are then corrected above that point to reflect the top of the distribution as in the tax data. Below this point, there is a uniform correction in the weights to ensure that the population sizes match. This procedure is performed for each state-year pair.

The second part is to reflect individuals in the tax data with incomes above those present in the survey. In simple terms, the procedure is to duplicate observations at the very top, correcting their weight for this duplication, then attribute these observations the average income of their population share in the tax data. This procedure guarantees that the income

distribution matches the tax data at the very top of the distrbution.

The result of these two steps is a survey with corrected weights that reflect top income distribution observed in the tax data.

Once survey weights correction is done, the Fiscal Income can be obtained adding pension exempted income and unemployment benefit income as presented in the survey:

$$\text{income fiscal}_i = \text{income survey tax}_i$$
$$+ \text{income pension exempted}_i + \text{income unemployment benefit}_i \tag{2}$$

Fiscal income, however, still lacks important components of the National Income. The two most notable omissions are undistributed profits (B5n, S11 + S12) and imputed rents (part of B2n, S14). We add these two components, as explained in the Methodology section. Imputed rents are predicted based on observed rents and household characteristics. Undistributed profits are allocated based on the corrected survey's total capital income. Government income (D4, S13; D61 – D621+D622, S14; D2-D3, S1; B5n, S15) and property income paid (D4, S14 received) are also part of the National Income, but they do not impact the final distribution as they are distributed proportionally to final income.

$$\text{income national}_i = \text{income fiscal}_i$$
$$+ \text{income undistributed profits}_i + \text{income imputed rents}_i \tag{3}$$

The final step involves rescaling each income to match the corresponding item in the National Income. The state-level National Accounts are not as detailed as the national-level National Accounts because they do not break down operating surplus plus mixed income (B2 + B3). So we reescale the components of this item first at the national level. Table I in the Income Concept section presents these National Income items. Imputed rents (part of B2n, S14), Households' undistributed profits (B5n, S11 + S12) and Investment income disbursements (D44, S14) match the National Income by definition given that they are added to the corrected survey. Property income paid (D4, S14 received), NPISH sector income (B5n, S15) and Government capital income (B2n + D4n, S13) do not need rescaling as they are also distributed proportionally do final income. The sum of Households' net leasing income (part of B2n, S14) and Interest and distributed income of corporations (D41 + D42, S14) is matched to total capital income in the corrected survey. Mixed Income, net (B3n, S14) is matched to mixed income in the corrected survey. The survey variables section gives the

definition used for total capital income and mixed income.

$$\sum_i \text{mixed income corrected survey}_{isy} * \text{rescale mixed income}_y$$
$$= \text{national accounts mixed income}_y \tag{4}$$

$$\sum_i \text{capital income corrected survey}_{isy} * \text{rescale capital income}_y$$
$$= \text{national accounts households' net leasing income}_y$$
$$+ \text{national accounts interest and distributed income}$$
$$\text{of corporations}_y \tag{5}$$

Then we reescale for each state the sum of all items in the operating surplus plus mixed income (B2 + B3) to the state-level national accounts. The rescaling ensures that the sum of mixed and capital income (operating surplus plus mixed income (B2 + B3)) of all individuals in state s and year y matches the total in the state-level national accounts:

$$\sum_i \text{income national mixed and capital}_{isy} * \text{rescale mixed and capital}_{sy}$$
$$= \text{national accounts mixed and capital income}_{sy} \tag{6}$$

Wages and salaries (D11, S14) are directly matched at the state-level as this item is available in the state-level national accounts.

$$\sum_i \text{income national wages}_{isy} * \text{rescale wages}_{sy} = \text{national accounts wages income}_{sy} \tag{7}$$

The final income variable is:

$$\text{income national final}_{isy} = \text{rescale wages}_{sy} * \text{income national wages}_{isy}$$
$$+ \text{rescale mixed and capital}_{sy}*$$
$$\text{income national mixed and capital}_{isy} \tag{8}$$

4

3 GDP to NNI

3.1 Net Foreign Income

The intuition behind adding the NFI is that it affects the actual income available for country residents. The NFI subdivides between the net compensation of employees from abroad (D1, S2) and the net property income from abroad (D4, S2). The first is usually very small in Brazil, representing an average inflow of 0.02% of GDP between 2007 and 2018. The second tends to be more significant and negative, accounting for an average outflow of 2.3% of GDP in the same period. These two components are not in the state-level national accounts. Hence, an assumption to attribute the national figures across the states is necessary. The estimations assume that states' net compensation of employees from abroad (D1, S2) are proportional to their shares in salaries and wages (D1, S1), and the net property income from abroad (D4, S2) is proportional to the item that sums the operating surplus and mixed income (B2+B3, S1).

3.2 Consumption of Fixed Capital

The CFC is the amount necessary to replace capital stock depreciation, which means no one can consume or accumulate it. In practice, not subtracting the CFC would artificially inflate the income of capital owners as it would account for the cost of replacing the depreciated stock as part of their incomes. The CFC can be subdivided according to the capital type. There are two main groups: residential and non-residential, which combine infrastructure, machinery, and other forms of non-residential assets. Between 2007 and 2018, the residential CFC corresponded on average to 2.3% of GDP and the non-residential CFC to 9.9%.

The procedure is subtracting the residential CFC from the operating surplus of the household sector (B2, S14) since this item sums imputed rents and households' incomes from leased residences. The residential CFC corresponded to approximately 33% of this item in the period. The division of the CFC between the two subcomponents, imputed rents, and leasing income, is proportional to their share in the household operating surplus (B2, S14). Concretely, imputed rent is the major part, accounting on average for 88% of the item.

In the case of the non-residential CFC, the procedure is subtracting it proportionately across the gross national income of firms (B5, S11 + S12), the government gross operating surplus (B2, S13), and the capital share of mixed income (B3, S14), which are settled as 30%. In practice, the average division of non-residential CFC between the three previous items is, respectively, 86%, 5%, and 9%. By subtracting the CFC, it obtains values net of

depreciation costs for these three items. The net national income of firms (B5n, S13), which are the undistributed profits, corresponded to approximately 4.7% of the NNI in the period, the government net operating surplus (B2n, S13) to 1.1% and the net mixed income (B3n, S14) to 9.4%.

4   Additional tables and figures

Figure A.1 presents the Lorenz curves for all states in 2018. Table A.II, Table A.III, Table A.IV and Table A.V present, respectively, the values of the top 1%, top 10%, middle 40% and bottom 50% income shares displayed in the figures in the results section.

Figure A.2 and Figure A.3 present the comparison of the top 1% and top 10% income shares between the survey and the DINA methodology for the years of 2006, 2009, 2012 and 2015. Thetse Figures complement the analysis of Figure 7: Comparison of top income shares between survey and DINA, 2018. The x-axis represents the top income share using survey data, while the y-axis represents the new estimations for top income shares. The y-axis has been adjusted upward by the average increase in top income shares in the DINA estimations compared to the survey estimations. This way the diagonal line divides states according to their increase in top income shares when passing from the survey-based to the DINA estimations. States above the diagonal line had an increase in the top income share above the average national increase, while states below the diagonal line had an average increase below the average national increase.

5   Compatibilize national accounts

The state-level national accounts not being as complete as the national ones pose a methodological issue. On the one hand, the results must match the state-level accounts for consistency. On the other hand, the operating surplus plus mixed income (B2 + B3, S1) groups several incomes that ideally should be attributed to individuals separately. For example, it is plausible to attribute the undistributed profits according to the survey's capital income, but the same is not true for the government's capital income.

In the main results, the procedure is to first attribute and match the items at the national level, then rescale the sum so they match the state-level national accounts. This approach is equivalent to initially attributing to the states the capital income shares observed in the survey. The fundamental assumption is that the survey data capture better the distribution

of capital incomes between the states. Concretely, the most significant difference comes from São Paulo (SP). The state concentrates about 32% of Brazil's operating surplus plus mixed income, but it has around 45% of the financial income in the corrected survey. Then, in our approach, the São Paulo inhabitants initially receive 45% of the national incomes attributed according to financial income.[1]

An alternative approach to overcome this limitation is to define the state-level value of each subitem grouped in operating surplus plus mixed income in proportion to the state share of this item. For example, Rio de Janeiro (RJ) has roughly 10% of the national operating surplus plus mixed income. Hence, the procedure would assume that Rio de Janeiro has 10% of the national imputed rents, 10% of the national mixed income, 10% of the national government capital income, and all items grouped in operating surplus plus mixed income. Then each income item can be appropriately attributed to individuals within states. This method assumes no variation in the composition of the operating surplus plus mixed income between the states. In practice, it is implausible that there is no such variation. However, it is not possible to say much about its magnitude. If the magnitude of the variations is small, this approach should be a good approximation. If not, it would distort the estimations.

To sum up, one approach assumes that there is no variation in the composition of the operating surplus plus mixed-income across the states. The other approach assumes that the survey is a better proxy of the actual composition across states. However, it has the disadvantage of being less straightforward. Despite its flaws, the second method is the benchmark because there are reasons to believe that the corrected survey gives a better approximation than simply assuming the composition of capital incomes is equal in all states. Mixed income, in particular, seems to be well represented as the survey almost entirely captures it vis-à-vis the national accounts.

As a complement, Figure A.4 presents the results using the other method. The main difference comes from the Northeast and the North, in which the top 1% income share increases to 26%. In this alternative approach, financial incomes such as distributed and undistributed profits implicitly have higher participation in the composition of capital incomes in these regions. The reason is that their share in Brazil's operating surplus plus mixed income is higher than their share of capital incomes in the corrected survey. Mixed income participation decreases to compensate.

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[1]In this case, to avoid that the rescaling distorts the distribution of items one would like to distribute proportionally across states and individuals, some items are treated separately. The procedure assumes that the states' property incomes paid, national income from the NPISH sector, and government capital income are proportional to the state's gross income. The logic is that it is preferable to distribute these incomes proportional to final income within states and between them.

Figure A.1: Lorenz curve of Brazilian states, 2018
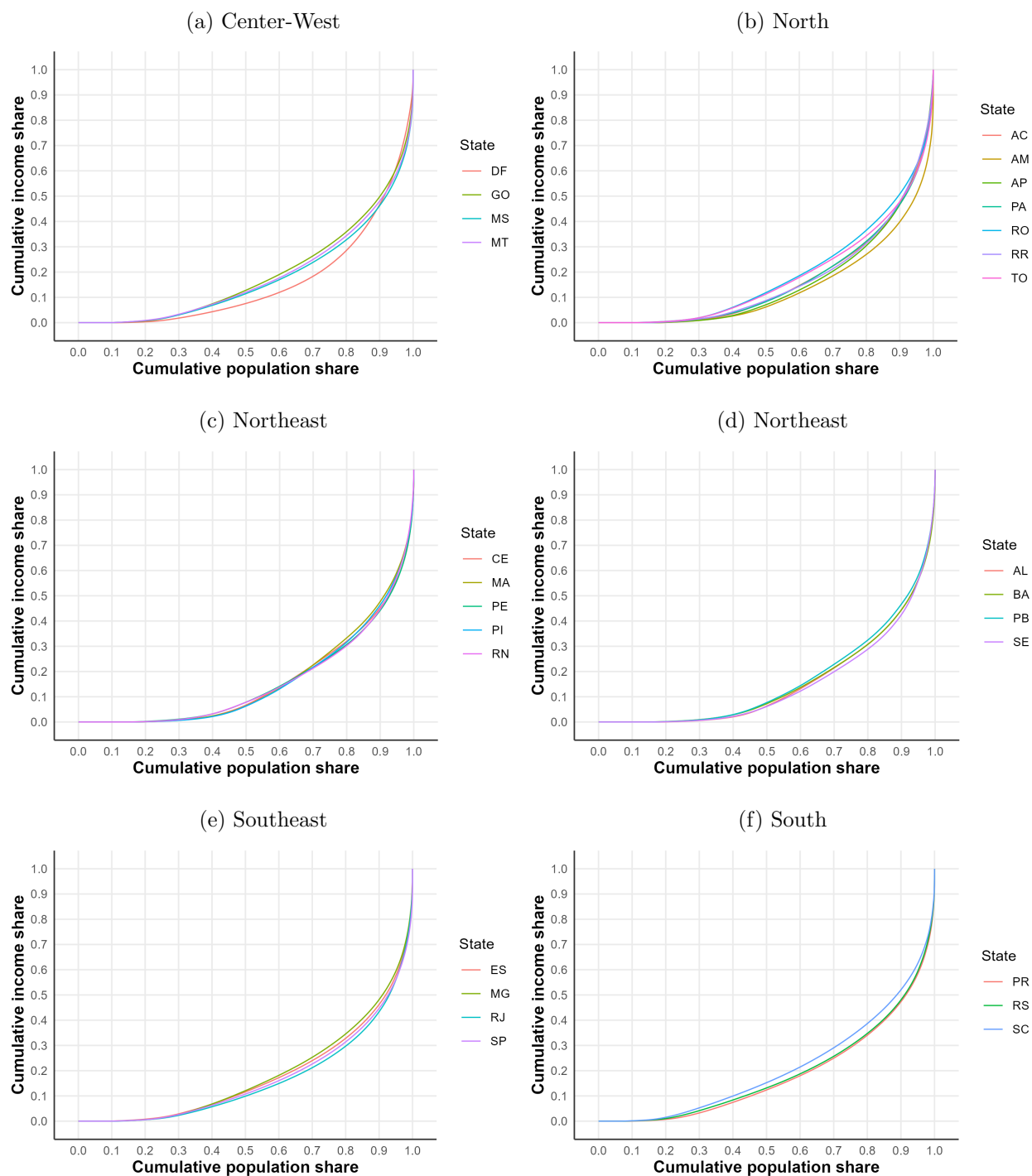
(a) Center-West

(b) North

(c) Northeast

(d) Northeast

(e) Southeast

(f) South

Source: Authors' computations combining surveys, tax data and national accounts. The figure divides Northeast states into two panels for better visualization.

Figure A.2: Comparison of top income shares between survey and DINA, 2006 and 2009
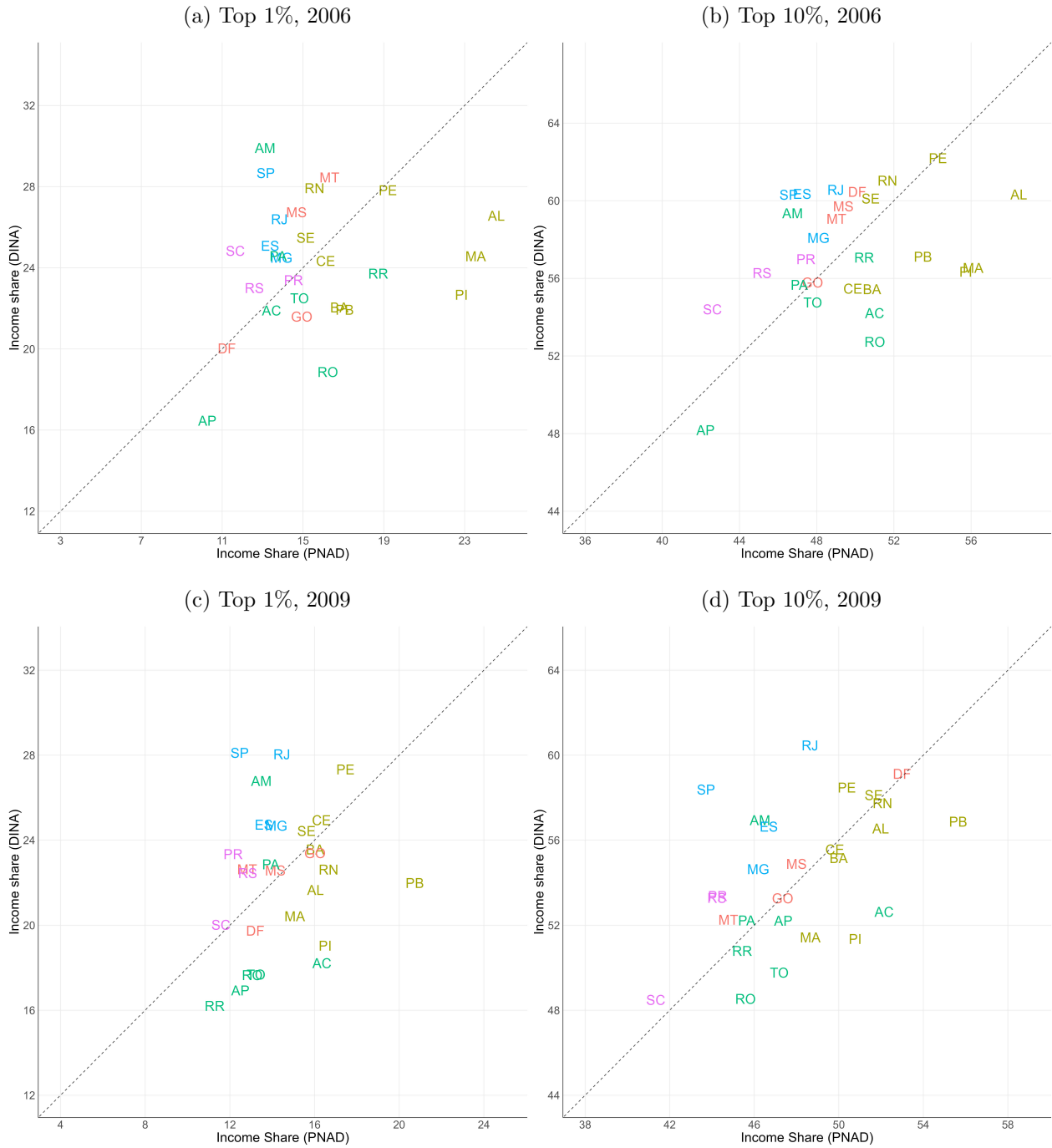
(a) Top 1%, 2006

(b) Top 10%, 2006

(c) Top 1%, 2009

(d) Top 10%, 2009

Source: Authors' computations combining surveys, tax data and national accounts. The figure divides Northeast states into two panels for better visualization.

Figure A.3: Comparison of top income shares between survey and DINA, 2012 and 2015
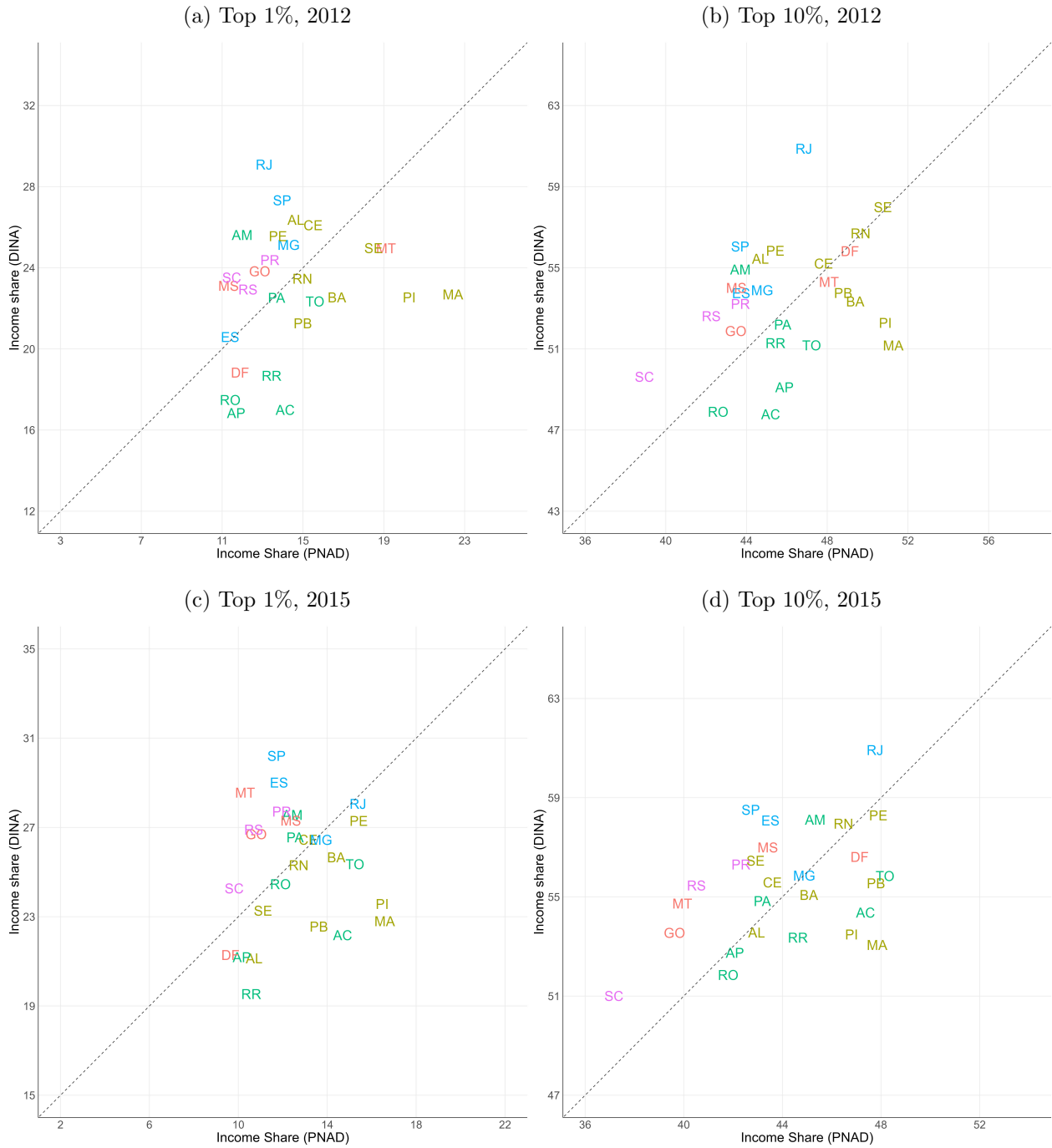
(a) Top 1%, 2012

(b) Top 10%, 2012

(c) Top 1%, 2015

(d) Top 10%, 2015

Source: Authors' computations combining surveys, tax data and national accounts. The figure divides Northeast states into two panels for better visualization.

Figure A.4: Income distribution of Brazilian regions: Alternative method, 2018
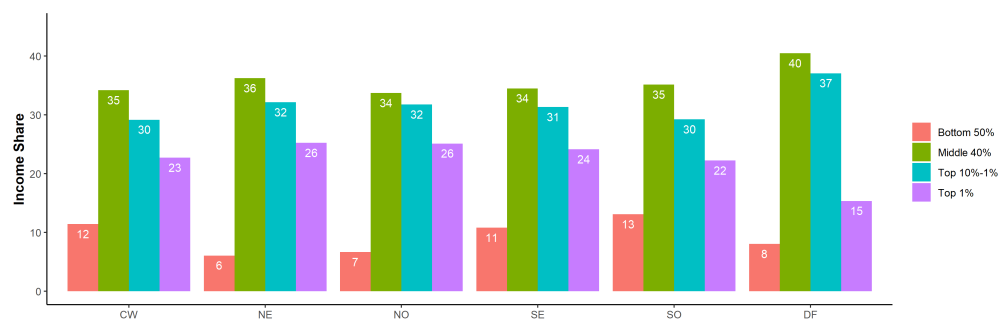
Source: Authors' computations combining surveys, tax data, and national accounts. *Interpretation:* In 2018, the 50% poorer individuals living in the Southeast received 11% of the region's national income.

Table A.II: Top 1% income share of Brazilian state, 2006-2019

State	2006	2007	2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019
Center-West	26.7	23.2	24.4	24.9	26.2	24.1	23.5	23.3	26.7	24.0	23.1	22.1	21.1
DF	20.0	17.3	19.1	19.7	20.9	18.8	17.4	19.5	21.3	18.8	18.9	16.6	15.9
GO	21.6	22.0	23.1	23.4	26.2	23.8	23.8	21.5	26.7	24.4	22.4	21.1	20.6
MS	26.7	20.9	21.9	22.6	24.3	23.1	24.3	25.6	27.3	25.9	21.4	24.1	22.4
MT	28.4	19.2	20.3	22.6	24.1	25.0	25.0	24.0	28.6	23.5	25.6	23.5	24.2
Northeast	24.8	23.1	23.6	23.9	25.7	24.1	23.4	24.5	25.2	23.8	23.7	22.9	21.5
AL	26.6	23.7	23.9	21.7	27.4	26.4	24.8	23.0	21.1	23.6	24.1	22.5	20.8
BA	22.0	23.4	23.5	23.6	24.8	22.5	22.9	23.7	25.7	24.8	24.5	23.4	20.0
CE	24.3	22.0	24.3	24.9	27.8	26.1	26.1	28.1	26.4	25.8	24.3	23.7	23.2
MA	24.6	20.4	20.6	20.4	22.3	22.7	22.3	21.5	22.8	22.2	23.4	21.6	20.9
PB	21.9	21.1	21.8	22.0	22.7	21.3	22.6	22.8	22.6	22.4	21.3	20.9	21.1
PE	27.8	25.7	26.5	27.3	28.0	25.6	22.6	25.2	27.3	25.1	24.6	23.7	23.0
PI	22.7	21.0	19.5	19.0	22.2	22.5	19.0	21.0	23.6	20.9	21.3	21.9	22.2
RN	27.9	22.6	22.0	22.6	23.0	23.5	21.8	26.6	25.3	19.1	21.0	21.0	20.1
SE	25.5	20.9	21.8	24.4	27.9	25.0	24.3	24.5	23.3	18.3	22.8	21.0	22.5
North	25.0	20.4	20.0	22.5	22.9	22.3	21.3	21.7	26.0	20.6	23.7	22.6	21.6
AC	21.9	16.0	15.0	18.2	17.9	17.0	14.7	17.2	22.2	17.6	18.0	18.2	17.1
AM	29.9	27.2	19.6	26.8	25.8	25.6	22.2	24.1	27.6	18.4	27.5	30.4	25.7
AP	16.5	13.4	17.3	16.9	17.2	16.8	14.2	14.0	21.2	12.4	19.7	15.7	17.6
PA	24.6	19.8	20.9	22.9	22.5	22.5	22.8	20.9	26.6	22.0	23.7	20.6	21.0
RO	18.9	9.6	17.8	17.6	18.5	17.5	16.9	20.6	24.5	19.2	21.5	19.8	19.1
RR	23.7	18.0	19.2	16.2	16.5	18.7	19.1	19.5	19.5	18.3	19.5	16.5	18.7
TO	22.5	19.3	19.6	17.7	22.2	22.3	21.4	24.0	25.4	23.5	20.7	20.9	20.3
Southeast	27.6	26.3	27.7	27.7	29.9	27.3	26.4	28.6	29.3	25.2	25.3	24.3	24.2
ES	25.1	21.7	21.2	24.7	29.6	20.6	27.5	27.6	29.0	23.3	22.5	23.0	22.9
MG	24.5	23.4	25.0	24.7	27.3	25.1	24.4	24.4	26.4	23.1	22.9	21.6	21.8
RJ	26.4	27.3	27.2	28.0	31.4	29.1	27.7	28.3	28.1	21.7	23.3	23.3	22.9
SP	28.7	26.7	28.4	28.1	29.7	27.3	26.0	29.7	30.2	27.0	26.7	25.3	25.1
South	23.6	21.1	22.4	22.2	25.2	23.6	23.5	24.2	26.6	22.4	22.0	22.2	22.1
PR	23.4	20.5	22.9	23.3	25.6	24.4	24.9	25.9	27.7	24.0	23.6	23.5	23.8
RS	23.0	22.5	23.0	22.4	25.7	22.9	23.1	24.0	26.9	22.7	21.4	22.0	21.1
SC	24.8	19.6	20.8	20.0	23.7	23.5	22.0	21.9	24.3	19.3	20.5	20.6	21.3

Source: Authors' computations combining surveys, tax data and national accounts.

Table A.III: Top 10% income share of Brazilian state, 2006-2019

State	2006	2007	2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019
Center-West	63.7	60.1	61.5	61.4	60.6	58.6	57.8	57.5	59.5	58.6	57.9	56.5	55.3
DF	60.5	57.8	58.7	59.1	59.2	55.8	54.7	55.5	56.6	54.5	55.2	53.3	51.2
GO	55.8	52.1	54.5	53.3	53.3	51.9	51.1	50.6	53.5	52.7	51.9	50.2	50.3
MS	59.7	54.8	55.8	54.9	55.4	54.0	54.5	54.4	57.0	55.1	52.9	53.8	52.3
MT	59.1	51.6	52.6	52.3	53.7	54.3	54.6	52.9	54.7	53.7	54.0	52.0	51.8
Northeast	57.9	54.8	55.3	56.0	56.2	54.6	54.3	54.4	55.8	55.1	55.4	55.0	54.2
AL	60.3	57.5	56.7	56.5	56.4	55.4	55.2	55.1	53.6	54.6	56.1	55.6	53.9
BA	55.4	54.4	54.6	55.2	54.9	53.3	53.4	53.1	55.1	55.6	56.3	55.5	52.7
CE	55.5	53.9	54.6	55.6	56.0	55.2	55.1	55.4	55.6	56.1	54.8	54.7	54.2
MA	56.5	50.2	50.6	51.4	51.6	51.2	51.2	50.5	53.1	51.3	52.4	52.3	52.5
PB	57.1	55.6	56.5	56.9	56.0	53.8	54.0	54.9	55.5	54.4	53.7	53.3	53.8
PE	62.2	56.4	57.6	58.5	59.0	55.8	55.0	55.9	58.3	56.6	56.5	55.7	56.1
PI	56.3	54.2	52.7	51.4	51.4	52.3	51.3	49.9	53.5	52.0	52.6	53.6	53.7
RN	61.0	56.7	56.9	57.7	58.7	56.7	56.1	57.9	58.0	54.4	55.6	55.3	55.8
SE	60.1	55.4	55.5	58.1	60.4	58.0	57.5	57.1	56.5	54.1	57.2	57.5	58.3
North	56.4	52.0	51.6	53.3	53.3	52.4	51.8	51.9	55.7	52.2	54.4	54.5	53.4
AC	54.2	53.1	48.5	52.6	49.6	47.8	46.0	48.5	54.4	51.1	52.6	53.4	53.1
AM	59.4	56.1	51.9	56.9	55.7	54.9	53.6	53.6	58.1	52.1	58.9	60.2	56.8
AP	48.2	46.6	47.3	52.2	50.5	49.1	46.1	45.5	52.7	47.4	54.2	53.3	52.7
PA	55.7	51.6	51.0	52.2	52.8	52.2	52.2	51.8	54.8	52.4	53.6	53.2	52.8
RO	52.7	41.4	48.7	48.5	47.8	47.9	47.0	48.3	51.9	49.3	50.1	49.2	48.4
RR	57.1	52.5	53.4	50.8	53.0	51.3	52.1	50.7	53.4	52.7	53.5	52.2	54.4
TO	54.8	52.6	51.5	49.8	53.0	51.2	50.8	53.0	55.8	52.8	50.9	52.2	52.2
Southeast	60.4	56.8	58.2	58.5	59.2	56.9	56.3	58.0	58.9	56.6	56.3	55.3	54.5
ES	60.4	55.4	55.8	56.6	59.6	53.7	56.5	57.0	58.1	54.3	53.7	53.8	53.6
MG	58.1	54.2	54.8	54.6	56.4	53.9	53.0	53.6	55.9	53.7	53.2	51.8	51.5
RJ	60.6	59.6	59.3	60.5	62.8	60.9	60.1	60.3	60.9	55.4	57.2	56.6	55.5
SP	60.3	56.0	58.2	58.4	58.1	56.0	55.3	57.8	58.5	57.5	56.6	55.3	54.5
South	56.1	51.5	52.3	52.2	54.2	52.1	51.9	52.7	54.7	52.1	51.6	51.3	50.6
PR	57.0	51.8	53.2	53.4	54.9	53.2	53.7	54.1	56.3	53.9	53.8	52.7	52.2
RS	56.3	52.7	53.4	53.3	55.3	52.6	52.1	53.5	55.5	52.6	51.7	52.0	50.5
SC	54.4	48.9	49.2	48.5	51.4	49.6	48.9	49.5	51.0	48.5	48.0	48.0	48.4

Source: Authors' computations combining surveys, tax data and national accounts.

Table A.IV: Middle 40% income share of Brazilian state, 2006-2019

State	2006	2007	2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019
Center-West	29.2	31.1	30.1	29.8	29.7	31.3	31.9	31.8	30.6	31.9	32.3	33.5	34.3
DF	33.9	35.7	35.1	34.7	33.8	37.0	37.6	36.4	36.0	38.2	37.4	39.1	41.0
GO	34.8	36.2	34.5	34.9	34.1	34.9	35.5	35.6	33.9	35.2	35.8	37.0	36.7
MS	31.4	34.3	33.2	34.0	33.1	33.8	33.7	33.7	32.2	33.7	35.2	34.8	35.6
MT	32.8	37.3	36.2	36.1	34.2	34.0	33.9	34.4	33.2	34.6	34.3	36.0	35.4
Northeast	35.7	37.7	36.6	36.2	35.4	36.7	36.7	36.1	35.4	37.5	37.8	37.9	38.4
AL	34.8	36.7	36.9	36.5	36.6	36.6	36.2	36.9	37.3	37.6	37.7	38.1	38.8
BA	37.0	37.5	36.6	36.2	35.6	37.2	37.0	36.6	35.2	36.9	37.2	37.2	38.5
CE	37.3	37.9	36.4	36.0	35.3	36.7	36.3	35.4	35.7	37.3	37.5	38.6	38.3
MA	38.0	42.1	41.2	41.3	41.5	40.9	41.1	40.0	38.8	41.5	41.6	41.3	41.5
PB	35.8	37.4	35.9	35.2	35.7	37.0	37.7	36.1	36.0	37.8	38.8	39.0	39.7
PE	32.6	36.8	35.2	34.6	33.1	35.2	35.5	34.8	33.3	35.9	36.4	36.4	37.2
PI	38.7	39.5	39.7	40.6	40.1	39.5	40.4	39.9	37.8	41.1	41.1	40.1	39.9
RN	32.2	35.8	34.6	33.8	33.2	34.6	34.7	33.8	34.1	36.9	36.9	36.9	37.0
SE	32.2	36.2	35.5	33.5	31.2	33.0	33.3	33.4	34.0	37.2	36.1	36.4	35.0
North	35.7	38.7	38.3	37.1	36.9	37.4	37.7	37.2	34.9	38.3	37.2	37.3	38.2
AC	37.2	37.8	39.9	37.4	39.7	41.0	41.0	39.5	35.9	39.1	39.8	38.2	39.6
AM	33.2	35.7	38.3	34.3	35.0	35.5	36.4	35.8	33.7	38.3	34.5	33.7	35.9
AP	41.9	42.3	41.3	38.7	39.9	40.7	43.4	42.0	37.6	44.0	38.7	39.6	39.5
PA	36.0	38.9	38.7	38.0	37.3	37.5	37.6	37.7	35.4	38.6	37.8	38.5	39.0
RO	37.9	45.2	40.7	39.8	39.2	40.1	40.6	38.6	36.7	38.3	37.9	39.0	39.6
RR	35.6	37.0	36.4	38.7	36.8	37.9	37.2	37.2	36.0	37.7	37.5	39.0	36.9
TO	36.6	37.8	37.4	38.9	36.2	37.4	37.0	35.1	34.1	36.1	37.8	36.6	37.1
Southeast	31.2	33.4	32.0	31.7	30.8	32.3	32.8	31.5	31.0	33.0	33.3	34.1	34.4
ES	31.1	34.2	33.7	32.9	30.7	34.9	32.8	31.9	31.7	35.2	35.9	34.6	34.8
MG	32.7	34.8	33.9	34.1	32.1	33.7	34.3	33.9	32.6	34.6	35.2	36.1	36.2
RJ	31.4	31.7	31.7	30.5	28.7	30.1	30.6	30.1	29.9	34.1	32.8	33.5	34.1
SP	31.1	33.7	31.7	31.6	31.6	32.8	33.5	31.6	31.2	32.2	33.1	33.9	34.1
South	34.0	36.6	35.6	35.7	33.6	34.6	34.7	34.0	33.0	35.0	35.4	35.4	35.5
PR	33.7	36.6	35.1	35.0	33.2	34.2	33.5	33.3	32.0	34.2	34.1	34.9	35.1
RS	34.0	35.7	34.8	35.0	32.8	34.3	34.6	33.5	32.4	34.6	35.4	34.9	35.6
SC	34.4	37.9	37.3	37.7	35.0	35.5	36.3	35.5	35.0	36.4	37.0	36.8	35.9

Source: Authors' computations combining surveys, tax data and national accounts.

Table A.V: Bottom 50% income share of Brazilian state, 2006-2019

State	2006	2007	2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019
Center-West	7.0	8.7	8.4	8.7	9.7	10.1	10.3	10.6	9.9	9.5	9.8	9.9	10.4
DF	5.6	6.5	6.2	6.1	7.1	7.2	7.7	8.1	7.3	7.3	7.4	7.6	7.8
GO	9.4	11.7	11.1	11.9	12.6	13.2	13.4	13.7	12.6	12.1	12.2	12.8	12.9
MS	8.9	10.9	10.9	11.1	11.5	12.2	11.8	12.0	10.8	11.3	11.9	11.4	12.1
MT	8.2	11.0	11.2	11.6	12.1	11.7	11.5	12.8	12.1	11.7	11.7	12.0	12.7
Northeast	6.4	7.4	8.1	7.8	8.3	8.7	9.0	9.5	8.8	7.4	6.8	7.1	7.4
AL	4.9	5.9	6.4	6.9	7.1	7.9	8.6	8.1	9.1	7.8	6.2	6.3	7.3
BA	7.5	8.1	8.8	8.6	9.4	9.4	9.6	10.3	9.7	7.5	6.5	7.2	8.8
CE	7.2	8.2	9.0	8.4	8.7	8.1	8.6	9.2	8.7	6.6	7.7	6.7	7.5
MA	5.5	7.7	8.3	7.3	6.9	7.9	7.8	9.5	8.2	7.2	6.0	6.4	6.0
PB	7.1	7.1	7.6	7.9	8.4	9.2	8.3	9.0	8.4	7.7	7.6	7.7	6.4
PE	5.3	6.8	7.2	6.9	7.9	9.0	9.6	9.4	8.4	7.5	7.1	7.9	6.8
PI	4.9	6.3	7.6	8.1	8.5	8.2	8.4	10.2	8.7	7.0	6.3	6.3	6.5
RN	6.7	7.5	8.5	8.5	8.1	8.7	9.2	8.4	7.9	8.7	7.5	7.8	7.2
SE	7.6	8.4	8.9	8.3	8.4	9.0	9.2	9.5	9.5	8.7	6.7	6.1	6.7
North	7.9	9.3	10.1	9.6	9.8	10.3	10.5	11.0	9.5	9.5	8.5	8.2	8.4
AC	8.6	9.1	11.6	10.0	10.7	11.2	13.0	12.0	9.7	9.7	7.5	8.4	7.2
AM	7.4	8.2	9.8	8.8	9.3	9.6	10.0	10.6	8.2	9.6	6.6	6.2	7.3
AP	10.0	11.1	11.4	9.1	9.6	10.2	10.5	12.5	9.6	8.6	7.1	7.1	7.7
PA	8.3	9.5	10.3	9.8	9.9	10.4	10.3	10.5	9.7	9.0	8.6	8.2	8.3
RO	9.4	13.5	10.6	11.7	13.1	12.0	12.4	13.1	11.5	12.4	12.0	11.9	12.0
RR	7.3	10.4	10.2	10.5	10.2	10.9	10.7	12.1	10.7	9.6	9.1	8.7	8.7
TO	8.6	9.6	11.1	11.3	10.8	11.4	12.2	11.8	10.1	11.0	11.3	11.3	10.7
Southeast	8.4	9.8	9.8	9.8	9.9	10.7	10.8	10.5	10.1	10.5	10.3	10.6	11.1
ES	8.5	10.4	10.5	10.5	9.7	11.4	10.7	11.0	10.2	10.5	10.4	11.6	11.6
MG	9.2	11.0	11.3	11.3	11.5	12.4	12.7	12.4	11.6	11.7	11.6	12.1	12.4
RJ	8.1	8.7	9.0	9.0	8.5	9.1	9.3	9.6	9.2	10.5	10.0	9.9	10.4
SP	8.6	10.3	10.1	10.0	10.3	11.1	11.3	10.6	10.3	10.3	10.3	10.7	11.3
South	9.9	11.9	12.1	12.1	12.2	13.3	13.4	13.2	12.3	12.9	13.1	13.3	13.9
PR	9.3	11.6	11.8	11.6	11.9	12.6	12.8	12.6	11.7	11.9	12.1	12.4	12.8
RS	9.8	11.6	11.8	11.7	11.9	13.1	13.3	13.1	12.1	12.8	12.8	13.1	13.9
SC	11.2	13.2	13.5	13.8	13.6	14.9	14.8	15.0	14.0	15.1	15.1	15.2	15.6