# Improving income measurement in household surveys

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Motivation
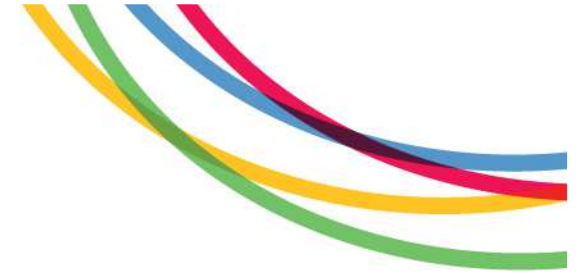
- Income under-reported in surveys (Hurst *et al.,* 2014; Meyer and Sullivan , 2003, 2011; Lynn *et al*., 2012; Brewer *et al*., 2013)

- High item non-response in income questions

- Difficulties in the 4 cognitive stages of answering a survey question (Tourangeau, 1984):

  – Comprehension (e.g. not sure what counts as a source of income),

  – Retrieval (e.g. don't remember some sources of income),

  – Judgement (e.g. under-reporting due to social desirability),

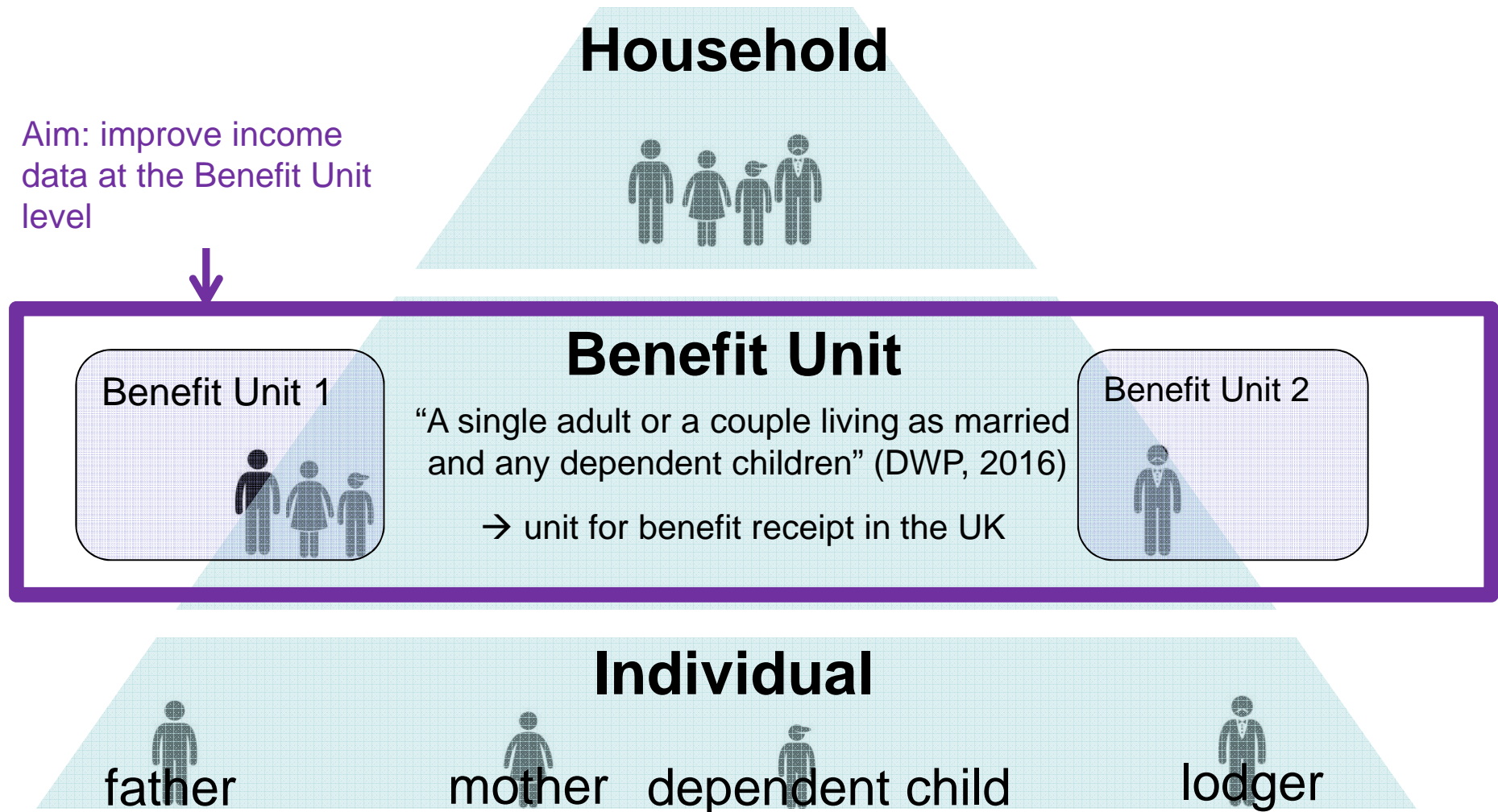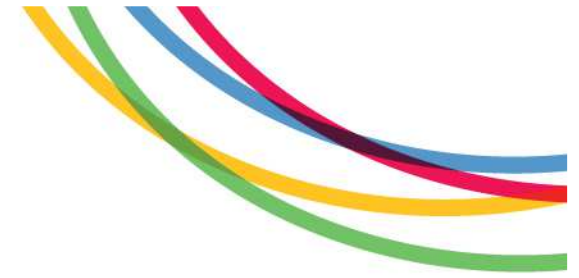 – Reporting (e.g. reporting 4 weeks income instead of monthly).

Idea
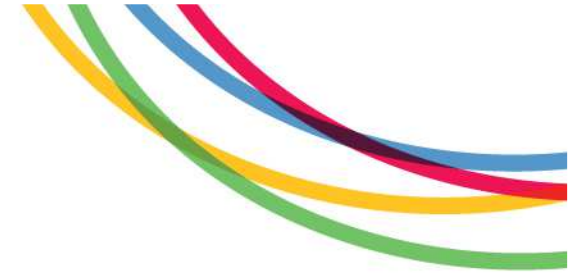
Editable summary of their income reports during data collection, to:

- identify and correct outliers (at the data collection phase)

- reduce recall difficulties

Use of editable summary screens for spending measurement (e.g. Hurd and Rohwedder, 2012; Crossley *et al.* 2014) but never for income.

Unit of response

Household

Aim: improve income data at the Benefit Unit level

Benefit Unit

Benefit Unit 1

Benefit Unit 2

"A single adult or a couple living as married and any dependent children" (DWP, 2016)

→ unit for benefit receipt in the UK

Individual

father   mother   dependent child   lodger

Research questions
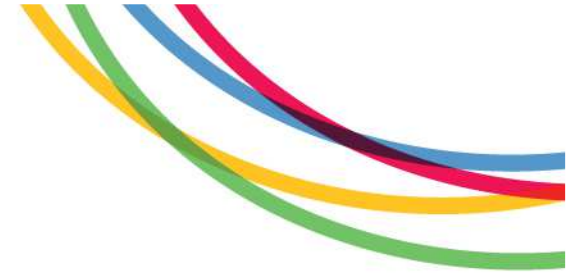
Editable Summary Screens:

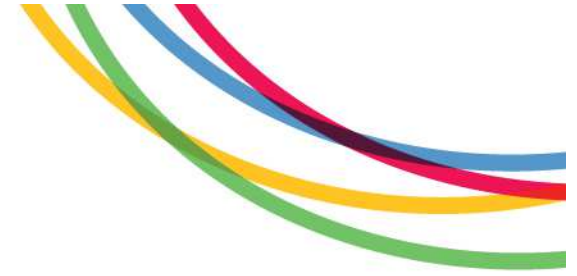1. Are respondents willing to review and revise their reports? If so, who are the "correctors"?

2. Which sources of income are revised and in which direction?

3. At what level (individual or BU) is the summary screen most effective?

4. Are there benefits from implementing both individual and BU summary screens jointly?
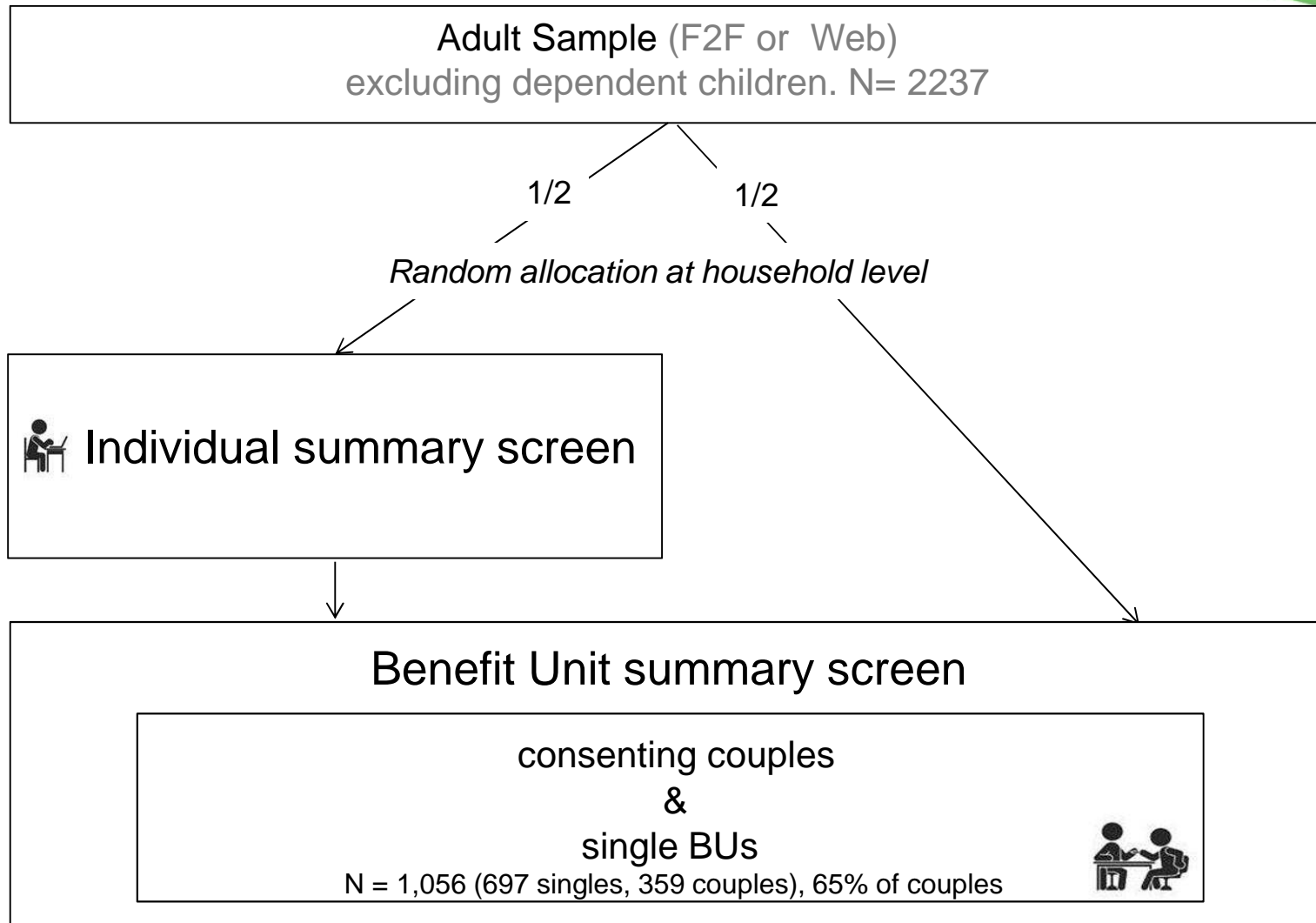
Data

Understanding Society Innovation Panel:

- Testbed for experimenting with new methods of data collection

- Sample of households in Great Britain (IP9: 2016)

- Individual level questions on income receipt
  - Detailed and regarded of high quality
  - We supplement them with additional checks

- Mixed-mode: Web, F2F, and Tel

The Experiment

Adult Sample (F2F or Web)
excluding dependent children. N= 2237

1/2   1/2

Random allocation at household level

Individual summary screen

Benefit Unit summary screen

consenting couples
&
single BUs
N = 1,056 (697 singles, 359 couples), 65% of couples

Individual summary screen 1/2

Test - v38

Thank you for telling us about these types of income. Here is a summary of what you have told us you received last month after tax and deductions. Please take a look and select, whether this summary is accurate. If not, you will have an opportunity to update the amounts in the boxes.

HELP

Employment income: Main job	£	1500	per	month
Employment income: Second job	£		per	month
Income from self-employment	£		per	month
Total:	About £	1500	per	month

Does this summary seem correct?

◯ Yes

◯ No

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Individual summary screen 2/2

Test - v38

Thinking about your income after taxes and deductions, please correct the monthly amounts below.

Employment income: Main job	£	1500	per	month
Employment income: Second job	£		per	month
Income from self-employment	£		per	month
Benefit and Pensions				
Any other benefits	£		per	month
Any other income	£		per	month

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Benefit Unit summary screen 1/2
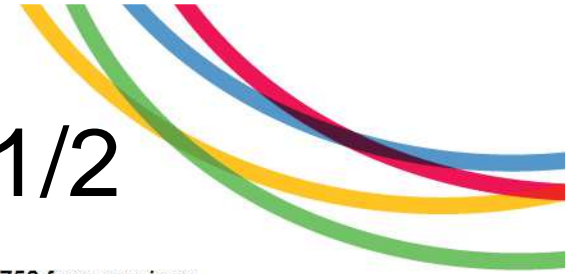
Below is a summary of the income you have reported for the last month. You reported a total of £2750 from earnings, benefits, and other income sources after taxes and deductions. Thinking about the money coming in, that is after any tax or deductions, does this seem correct? If not, you will have an opportunity to update the amounts in the boxes.
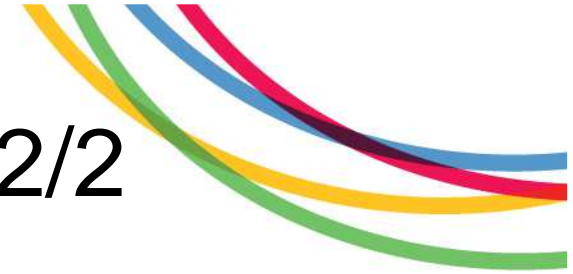
HELP

Employment income: Main job			
Matt	About £	1300	per month
Nicky	About £	1100	per month
Employment income: Second job			
Matt	About £	200	per month
Nicky	About £		per month
Income from self-employment			
Matt	About £		per month
Nicky	About £		per month
Benefit and Pensions			
Child Benefit (including Lone-Parent Child Benefit payments)	About £	150	per month
Child Tax Credit	About £		per month
Total net disposable income:	**About £**	2750	per month

Does this seem correct?

- ◉ Yes
- ○ No

Benefit Unit summary screen 2/2

Test - v38

Thinking about your total income after taxes and deductions, please correct the summary below.

HELP

Employment income: Main job			
Katy	£	1100	per month
Matt	£	1300	per month
Employment income: Second job			
Katy	£	0	per month
Matt	£	200	per month
Income from self-employment			
Katy	£	0	per month
Matt	£	0	per month
Benefit and Pensions			
Child Benefit (including Lone-Parent Child Benefit payments)	£	150	per month
Child Tax Credit	£	0	per month
Any other benefits	£	0	per month
Any other income	£	0	per month

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The Analysis

Adult Sample (F2F or Web)
excluding dependent children. N= 2237

1/2   1/2

Random allocation at household level

Individual summary screen

Analysis 1

Benefit Unit summary screen

Analysis 2   consenting couples   Analysis1
                              &   Analysis 2
                       single BUs
N = 1,056 (697 singles, 359 couples), 65% of couples

Results

Individual

versus

BU summary screen

Individual *vs.* BU summary screen
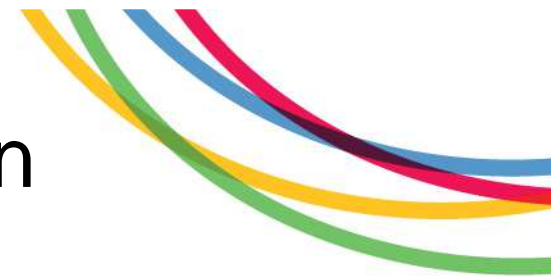
	Individual	BU
Summary incorrect (%)	12.6	21.2
Ref/DK (%)	(0)	(5.9)
Corrects summary (%)	11.6	16.6
Mean correction	459.22	-1225.0
Share positive	48.28	45.2
Share negative	51.72	54.76
Mean positive	1285.07	696.4
Mean negative	-311.58	-2925.2
N	500	505

Ratio of total income quintile
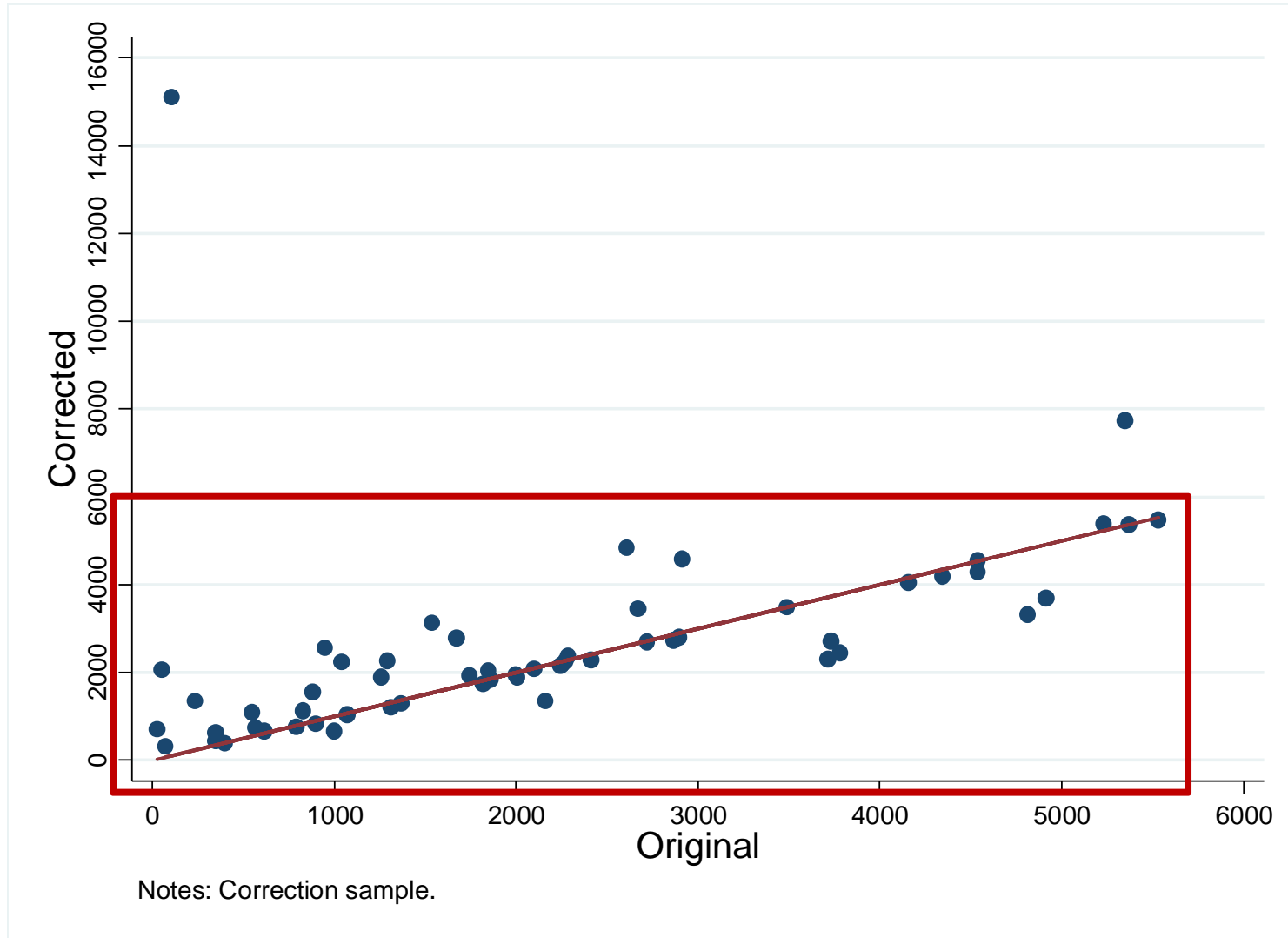total quintile income "corrected"/total quintile income original
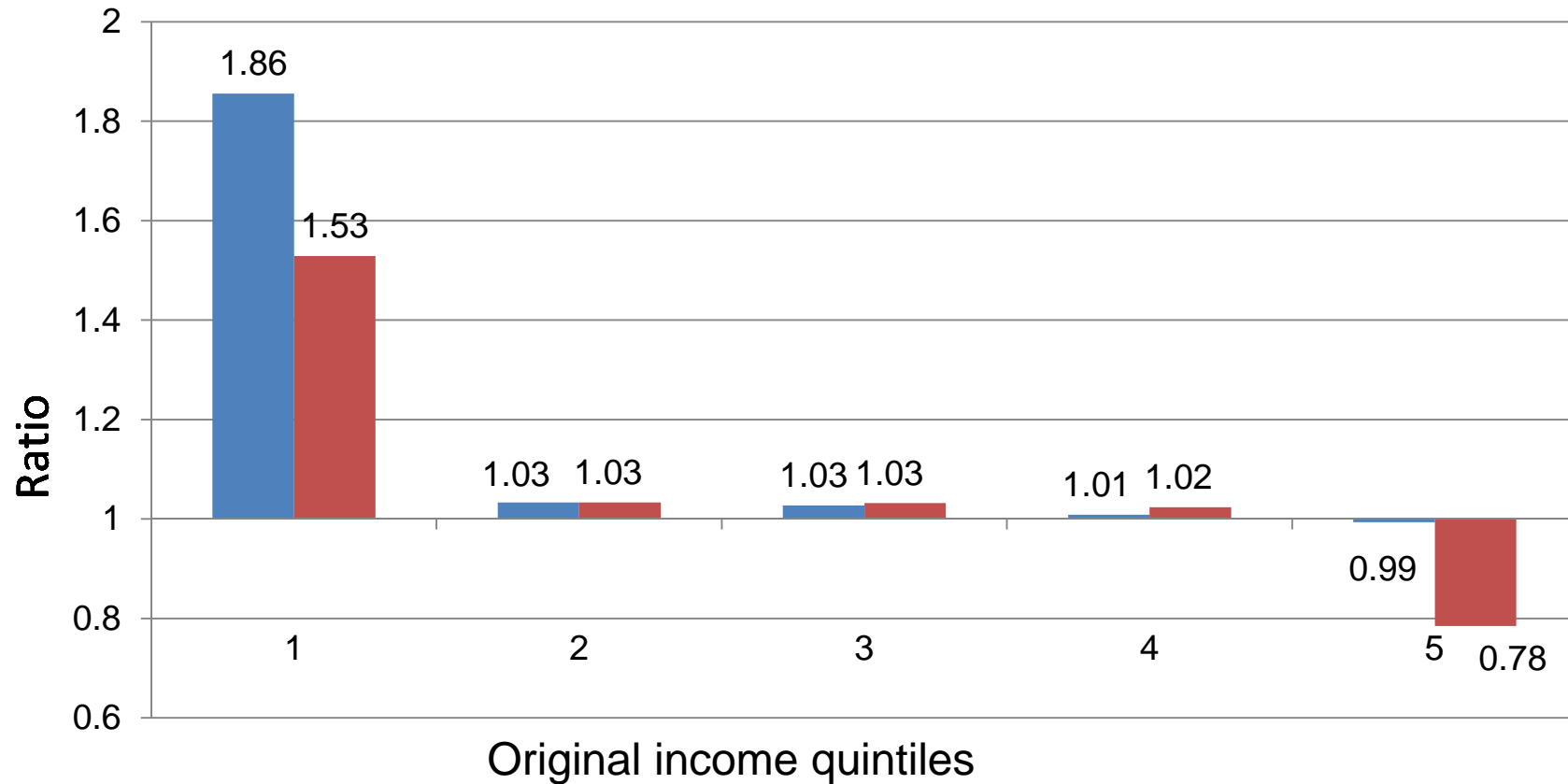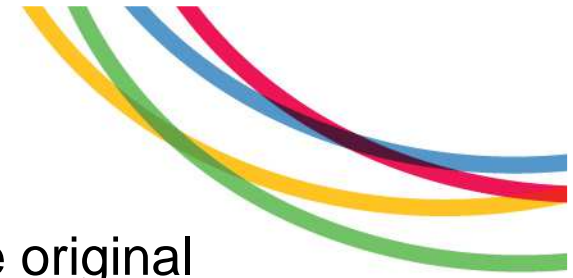
Note: N individual summary=500
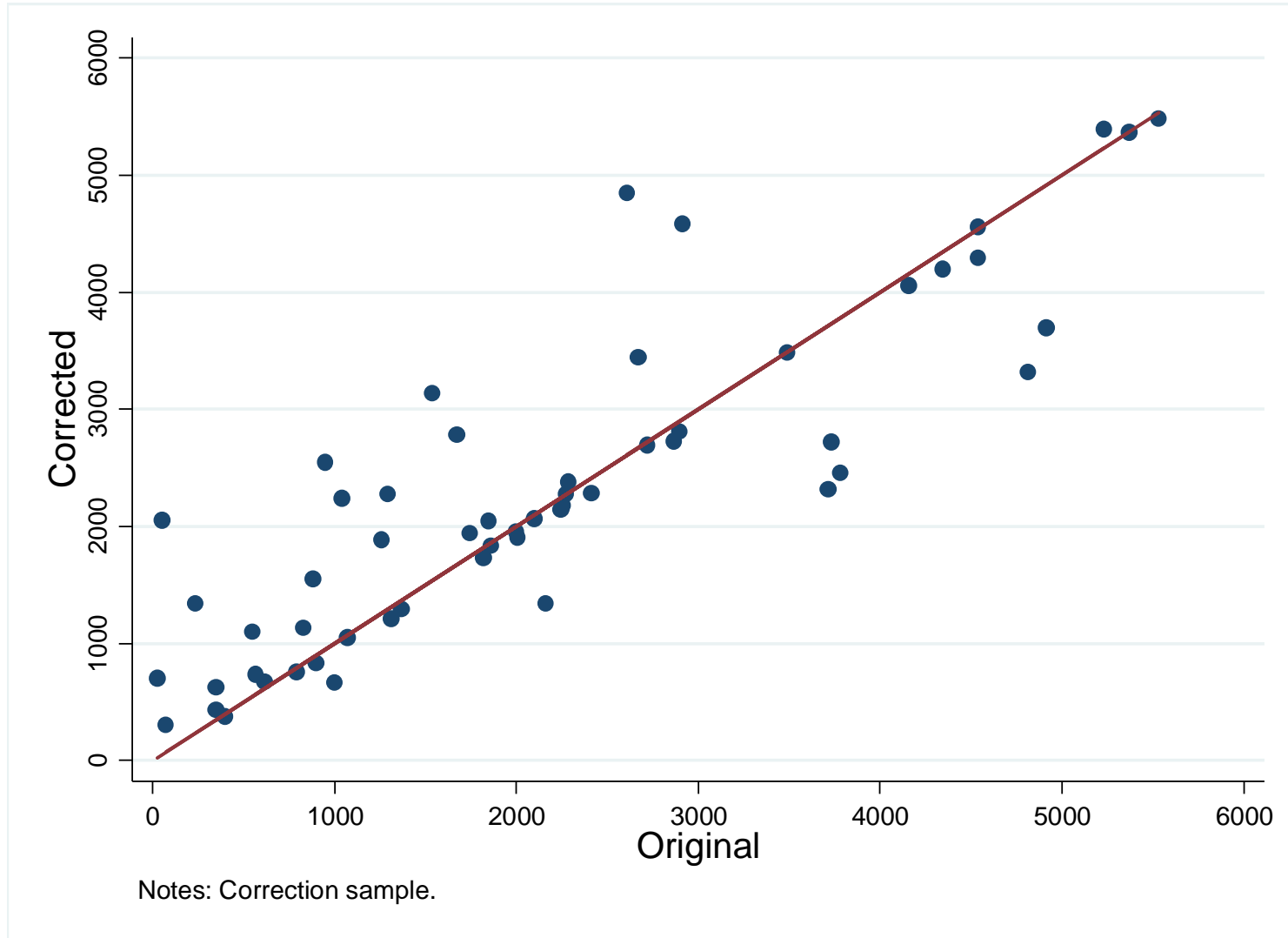   N Bu summary= 505

Individual summary screens

Notes: Correction sample.
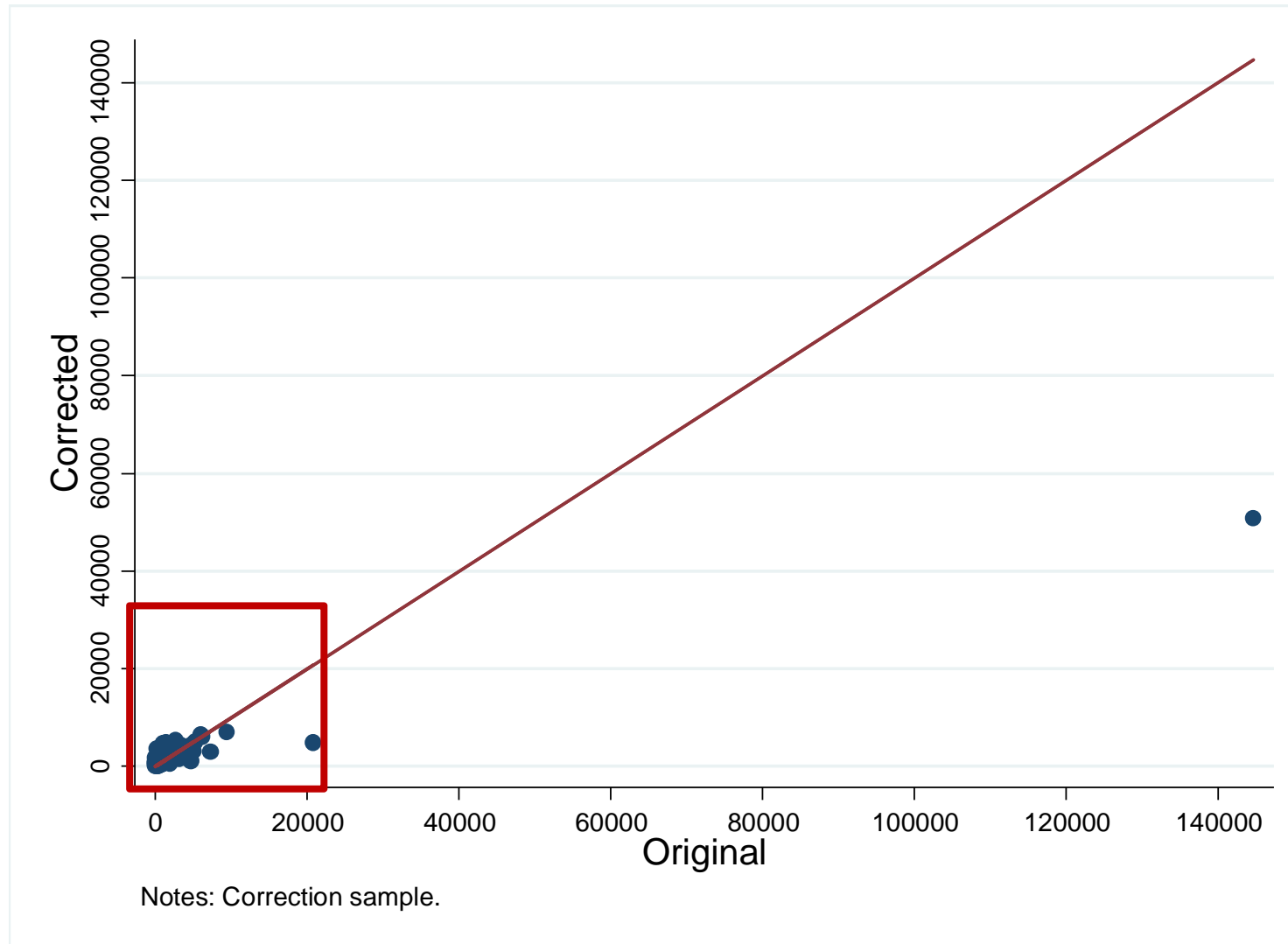
Individual summary screens

Notes: Correction sample.

BU summary screens

Notes: Correction sample.

BU summary screens

Notes: Correction sample.
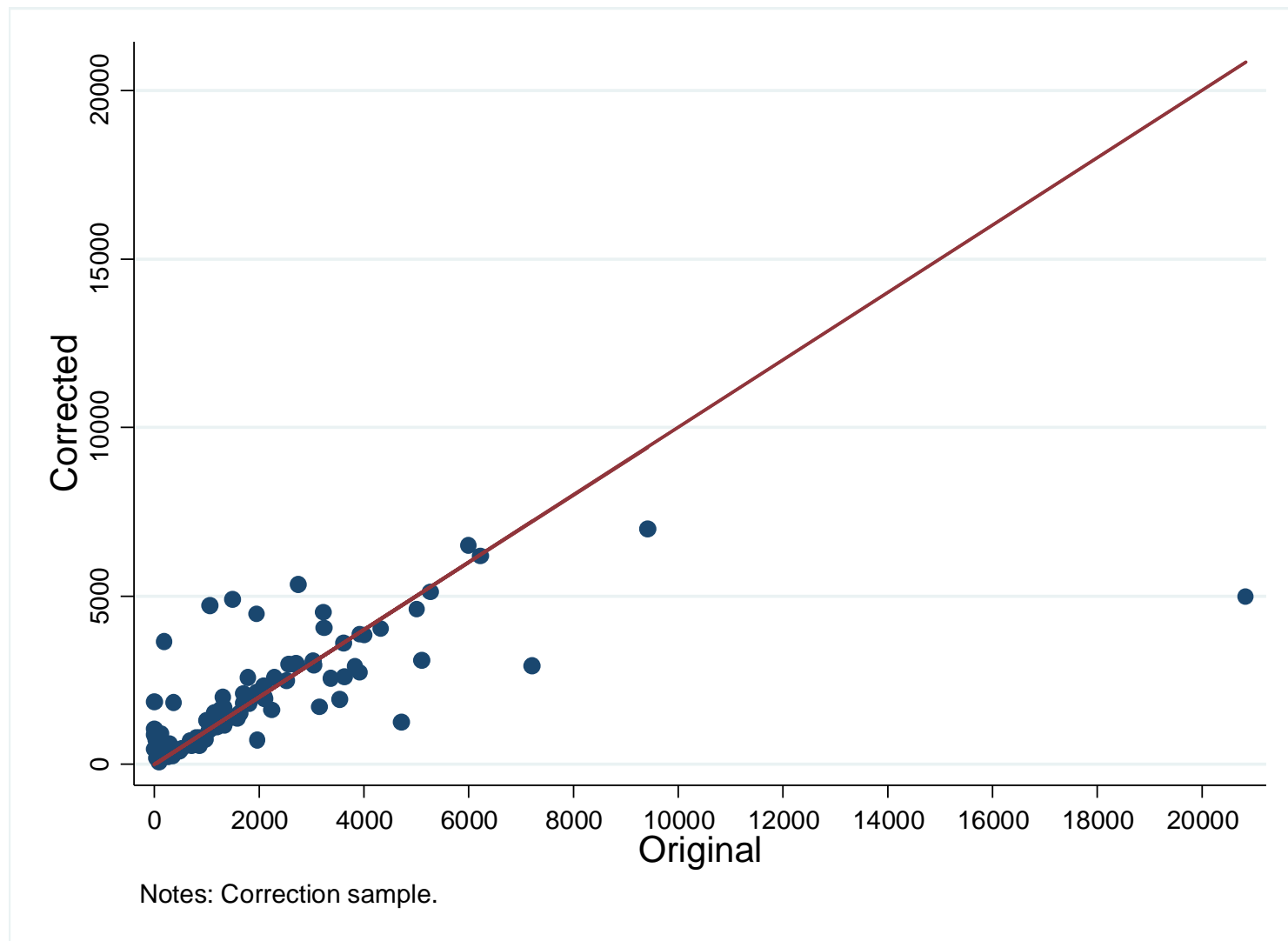
Which sources of income are revised?
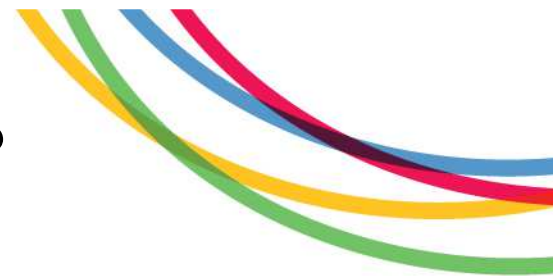
	Individual	BU
Mean correction	459.22	-1637.0
Share of mean:		
Earnings	73.8	-7.6
Self Employment	12.1	9.4
Second Job	-6.0	-0.3
Benefits and unearned	20.1	98.4
N	58	74

in a nutshell
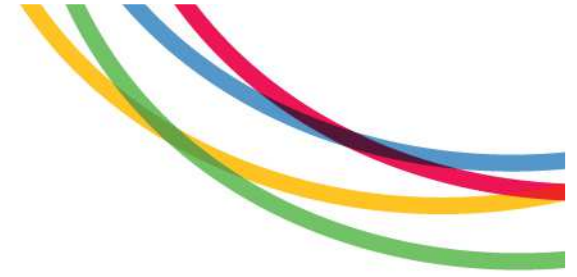
- BU summary screen is effective at getting respondents to confirm and correct their initial reports

- Single BU summary screen seem to work better than independent individual ones
  - 16.6 correct amounts under the former vs. 11.6 for the later
  - Larger corrections (falls) in benefits and unearned income. Suggestive of double counting that the individual screens miss?
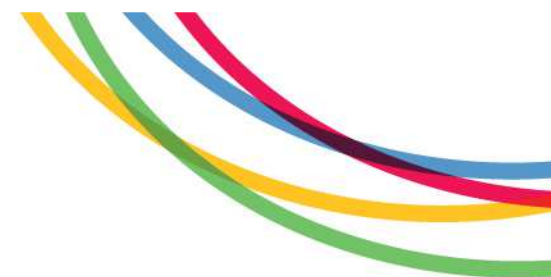
Results

BU summary screens

versus

BU and individual summary screen
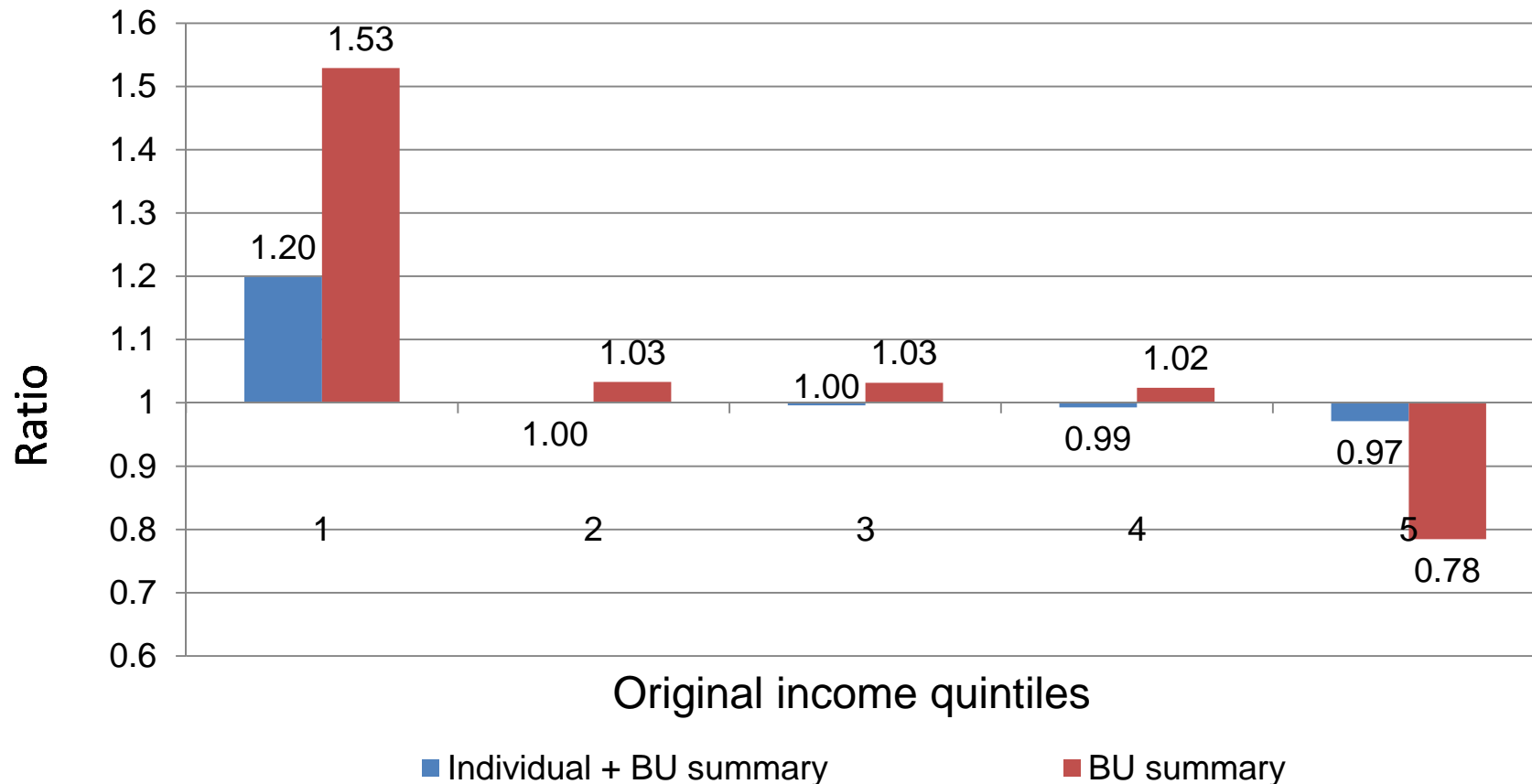
BU *vs.* Individual +BU summary

	Individual	BU	Individual + BU summary
Summary incorrect (%)	12.6	21.2	11.0
Ref/DK (%)	(0)	(5.9)	(6.2)
Corrects summary (%)	11.6	16.6	7.5
Mean correction	459.22	-1225.0	-294.5
Share positive	48.28	45.2	35.9
Share negative	51.72	54.76	64.1
Mean positive	1285.07	696.4	833.0
Mean negative	-311.58	-2925.2	-849.5
N	500	505	519

Ratio of total income quintile
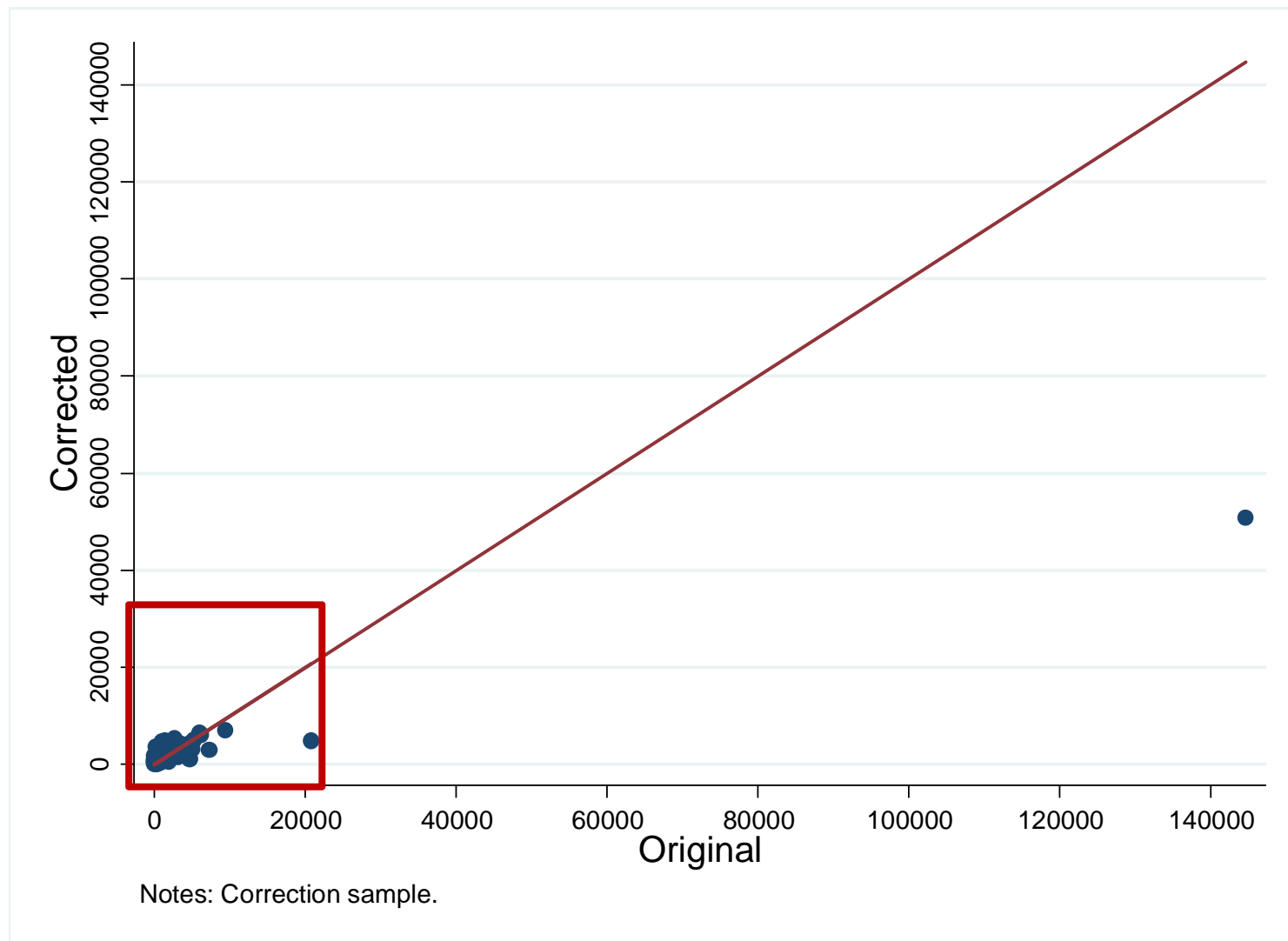## total quintile income "corrected"/total quintile income original

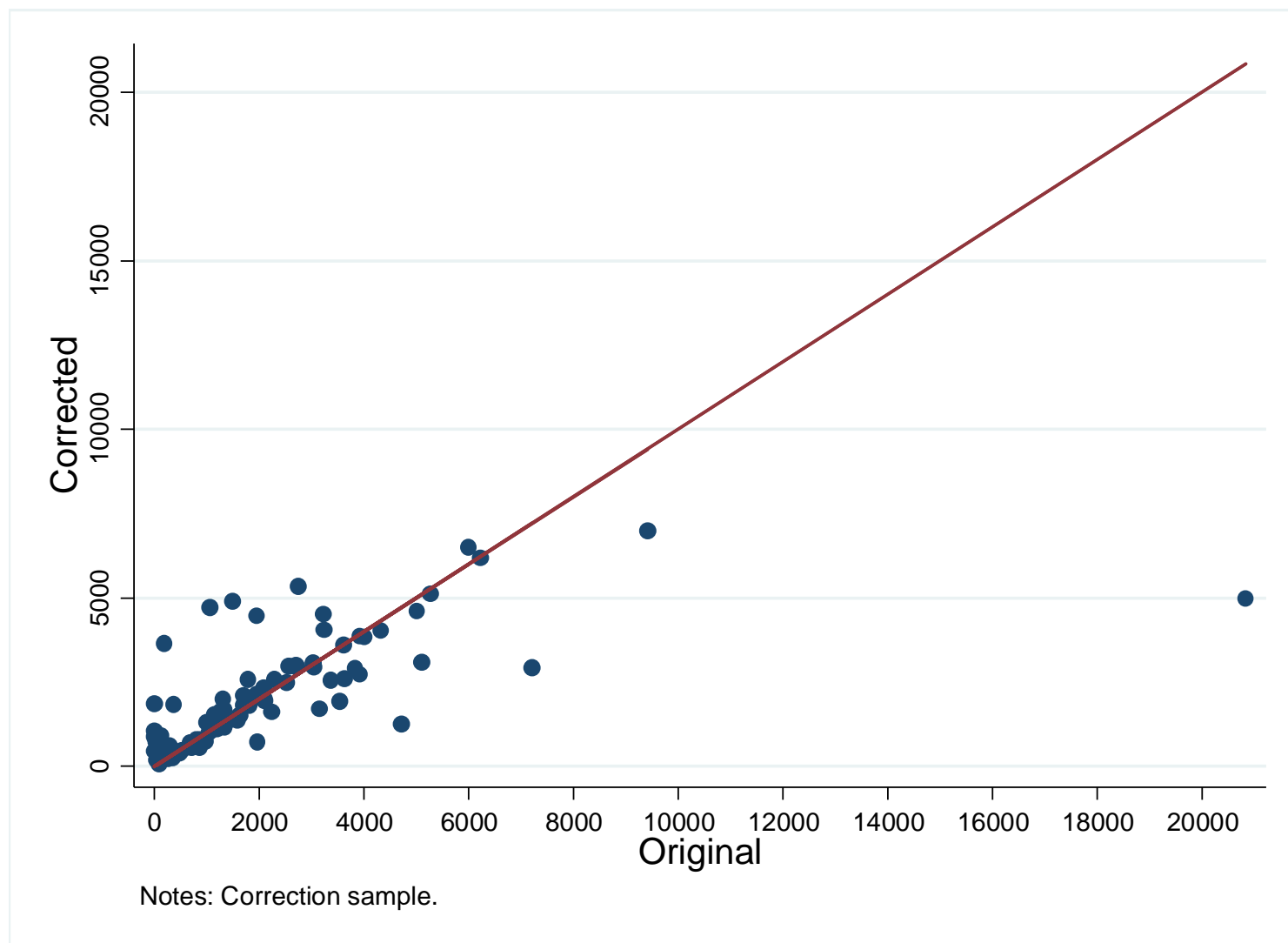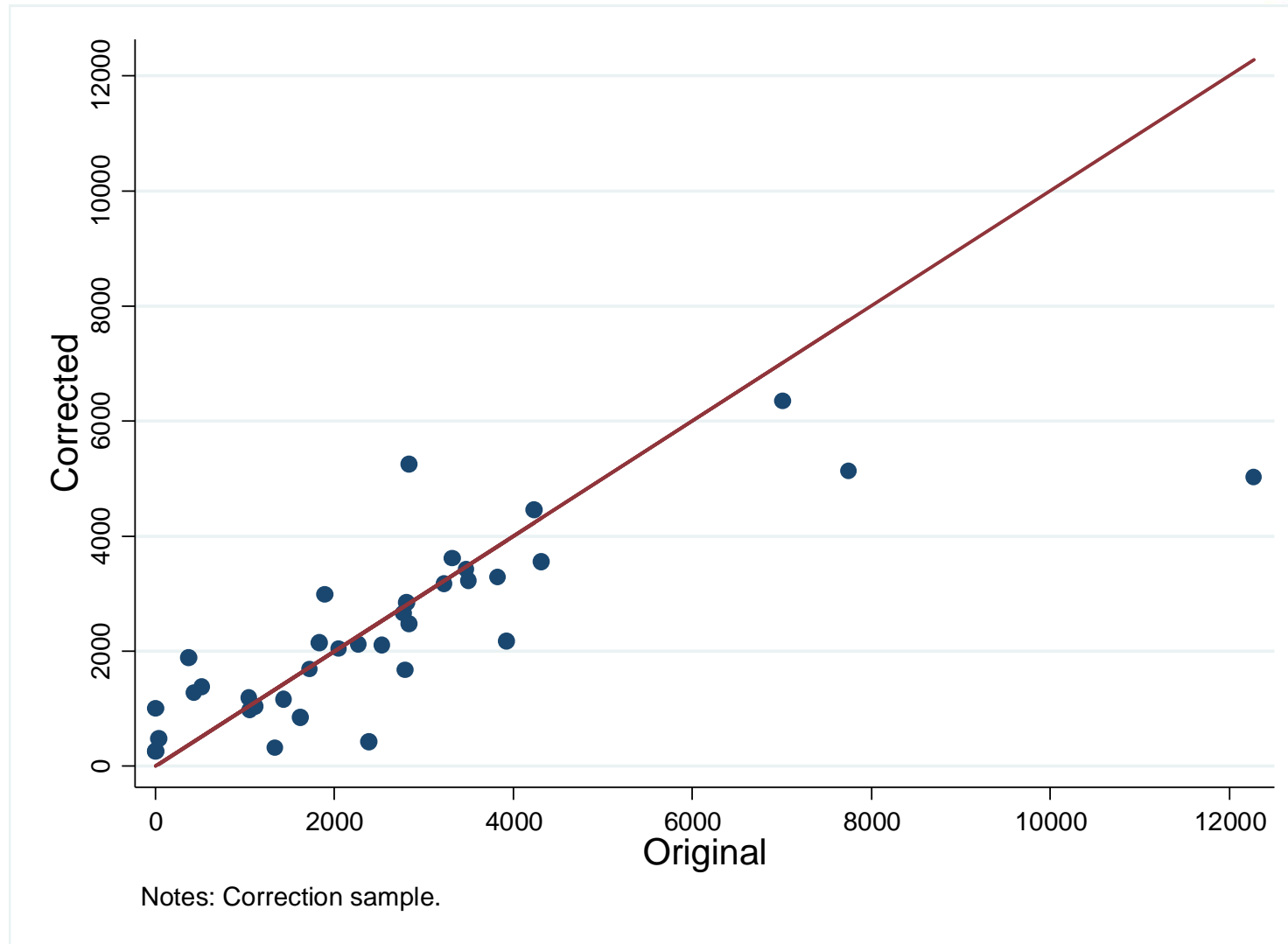

Note: N individual summary=505
N Bu summary= 509

BU summary screens

Notes: Correction sample.

BU summary screens

Notes: Correction sample.

Individual + BU summary screens

Notes: Correction sample.
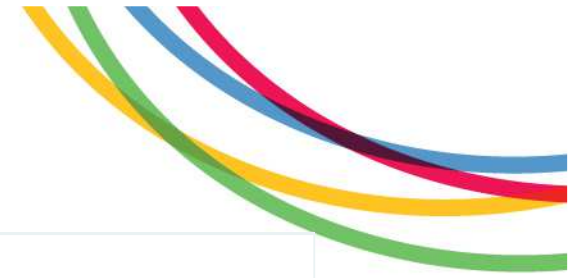
Which sources of income are revised?
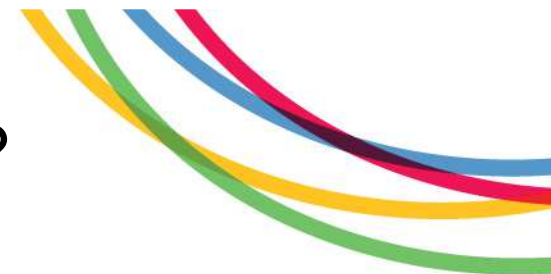
	Individual summary	BU	Individual summary + BU
Mean correction	459.22	-1637.0	-374.6
Share of mean:			
Earnings	73.8	-7.6	-5.2
Self Employment	12.1	9.4	53.0
Second Job	-6.0	-0.3	0.9
Benefits and unearned	20.1	98.4	51.3
N	58	74	37

Summary table

|	Individual summary	BU	BU + Individual summary
Incorrect income			
% correctors			
Correction size			
Correction type	positive	negative	negative
Source mainly corrected	Earnings	Benefit and unearned	Self-employment

Conclusions

- Both versions of summary screen work well and can improve data quality

- Single BU summary works better than independent individual summaries in terms of getting more corrections
  - Seems to better pick up problems in unearned income
  - But trade-off as consent issues means lose couples/representativeness

- Corrections at BU summary screen even when used in conjunction with individual summary screens:
  - again suggests they pick up different types of errors
  - individual mainly captures earnings errors, where as BU seems to capture unearned income as well

Thank you

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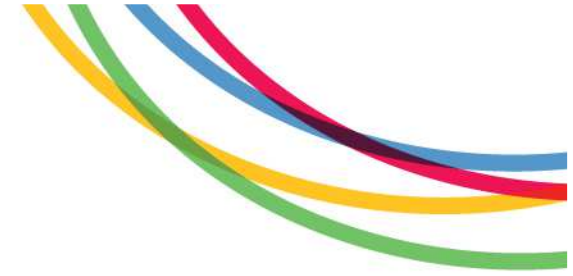
Companion papers

On summary screens:

- Reconciling Household Income and Spending (Brewer *et al.*)

On till receipt scanning:

- Quality of scanned receipts data (Carli Lessof *et al.*)
- Willingness to use different smartphone features for a survey (Alexander Wenz *et al.*)
- Respondent engagement over the month (Brendan Read)

(More broadly) on new technologies to measure finances:

- Literature review new technologies & big data to measure finances of sample members (Annette Jäckle *et al.*)

References

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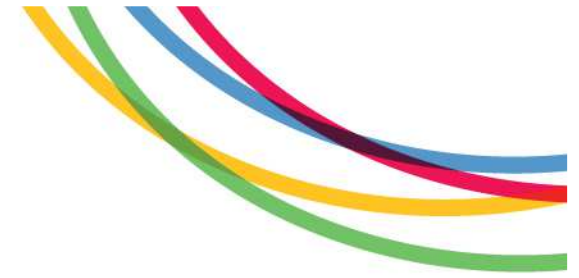
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Lugtig, P., and Jäckle, A. (2014) Can I just check...? Effects of Edit Check Questions on Measurement Error in Survey Estimates. *Journal of Official Statistics*. 30(1):45-62.

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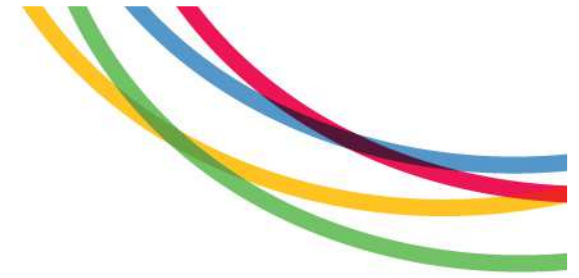
Meyer, B. D. and Sullivan J. X. (2003). Measuring the Well-Being of the Poor Using Income and Consumption, NBER Working Papers 9760, National Bureau of Economic Research, Inc June 2003.