# Appendix 1: Evaluation Measures for Income Components

***Guide to Figures in Appendix 1***

| *Variable* | *Cross-sectional measures* | *Longitudinal measures* |
|---|---|---|
| *Respondents* | | |
| Wages and salaries | Figure A1-9 | Figure A10-17 |
| Australian government pensions | Figure B1-9 | Figure B10-17 |
| Business income | Figure C1-7 | Figure C8-15 |
| Interest income | Figure D1-10 | Figure D11-18 |
| Dividends and royalties | Figure E1-10 | Figure E11-18 |
| Rent income | Figure F1-10 | Figure F11-18 |
| Private transfers | Figure G1-7 | Figure G8-15 |
| Total FY income | Figure H1-7 | Figure H8-16 |
| *Non-respondents* | | |
| Wages and salaries | Figure I1-9 | Figure I10-17 |
| Australian government pensions | Figure J1-9 | Figure J10-17 |
| Business income | Figure K1-7 | Figure K8-15 |
| Interest income | Figure L1-10 | Figure L11-18 |
| Dividends and royalties | Figure M1-10 | Figure M11-18 |
| Rent income | Figure N1-10 | Figure N11-18 |
| Private transfers | Figure O1-7 | Figure O8-15 |
| Total FY income | Figure P1-7 | Figure P8-16 |

***Guide to Methods listed in Figures in Appendix 1***

| *Method* | *Number* |
|---|---|
| NNRM: NNRM Longitudinal | 1 |
| NNRM: Basic Little & Su | 2 |
| NNRM: Little & Su w Imp Classes | 3 |
| NNRM: Little & Su Key Var | 4 |
| NNRM: Little & Su Distance | 5 |
| NNRM: LVCF | 6 |
| NNRM: Random Carryover | 7 |
| NNRM: Population Carryover | 8 |
| HD: Hotdeck Longitudinal | 9 |
| HD: Basic Little & Su | 10 |
| HD: Little & Su w Imp Classes | 11 |
| HD: Little & Su Key Var | 12 |
| HD: Little & Su Distance | 13 |
| HD: LVCF | 14 |
| HD: Random Carryover | 15 |
| HD: Population Carryover | 16 |

Notes on the following box plots

- The red (dark) horizontal line in the following box plots show the value of the criteria that a good imputation method should be closest to. For criteria 4, the best imputation method will have a value closest to zero (as zero is rarely shown, the horizontal line will be absent).
- The evaluation measures calculated for the 30 simulations and 5 waves are data points contributing to the box plots.
- Not all of the criteria apply in all situations, so box plots have only been provided for the applicable criteria.

***Figures A1-9 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for wages and salaries for respondents***

*Figure A1 Predictive accuracy: criteria 1*

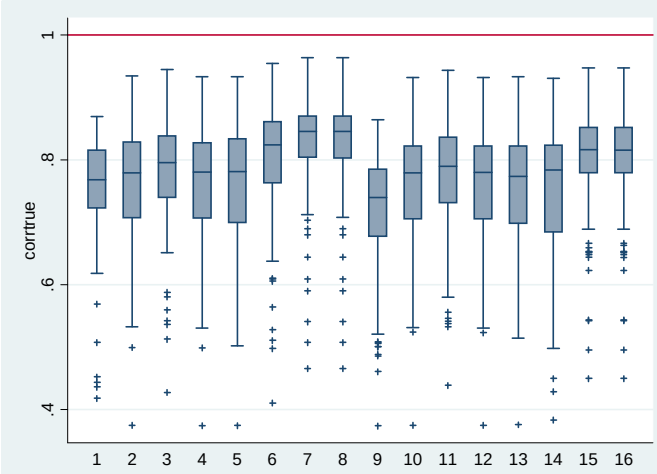



*Figure A2 Predictive accuracy: criteria 2*

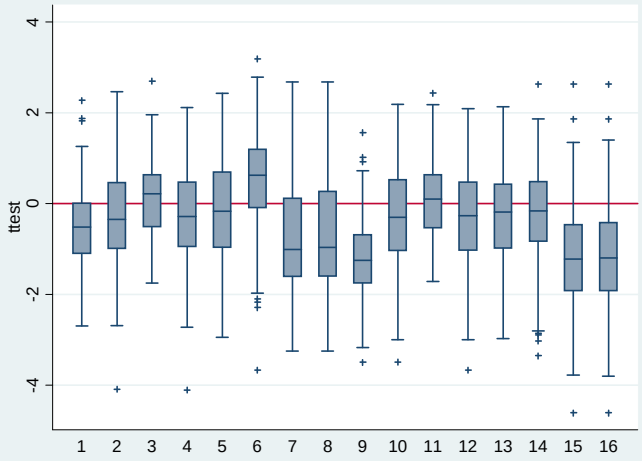



*Figure A3 Predictive accuracy: criteria 4*

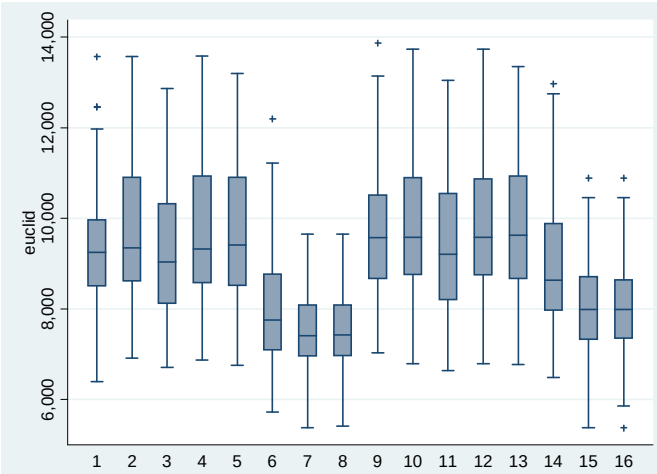



*Figure A4 Predictive accuracy: criteria 5*

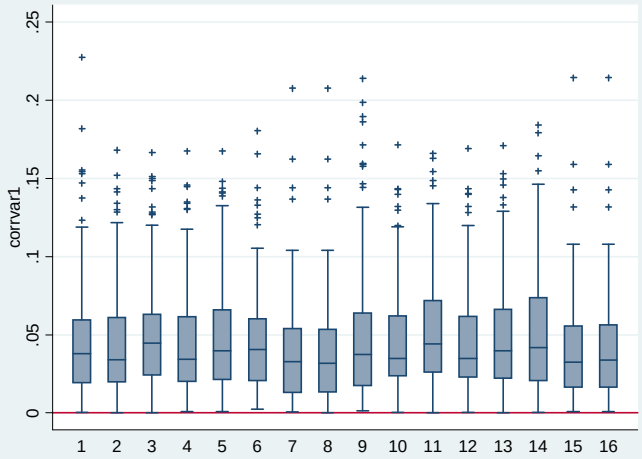



*Figure A5 Distributional accuracy: criteria 6*

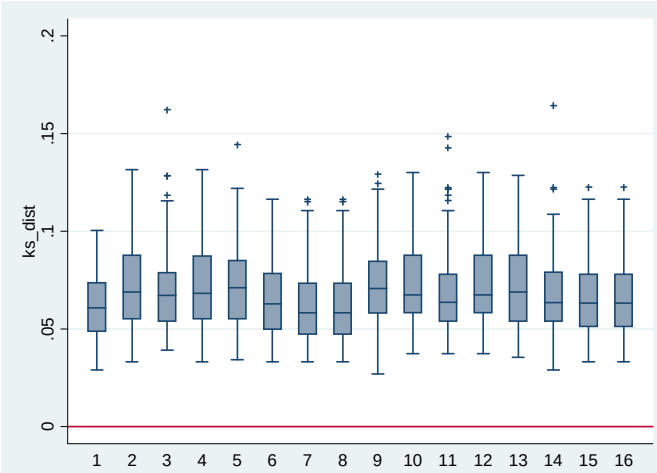



*Figure A6 Estimation accuracy: criteria 8*

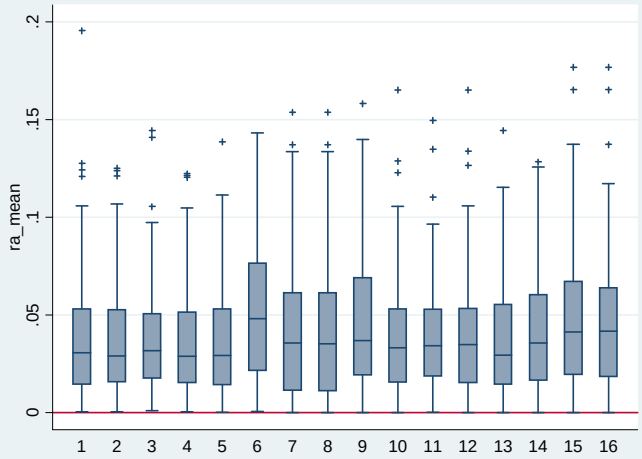


*Figure A7 Estimation accuracy: criteria 9*

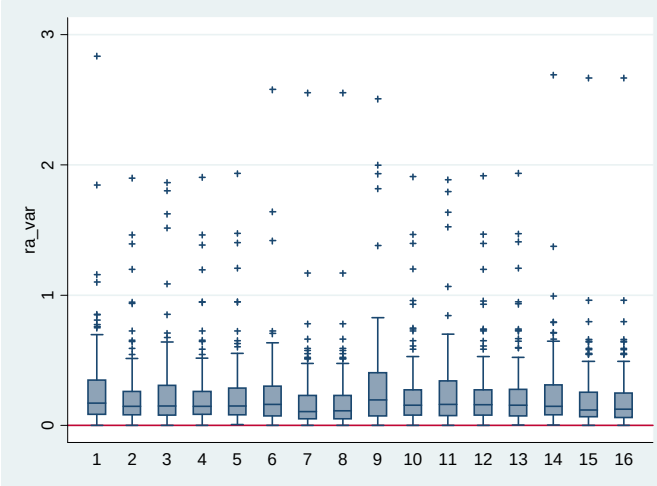



*Figure A8 Estimation accuracy: criteria 10*

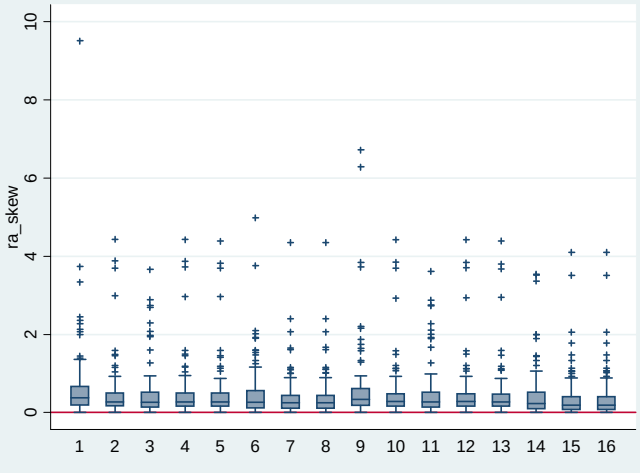



*Figure A9 Estimation accuracy: criteria 11*

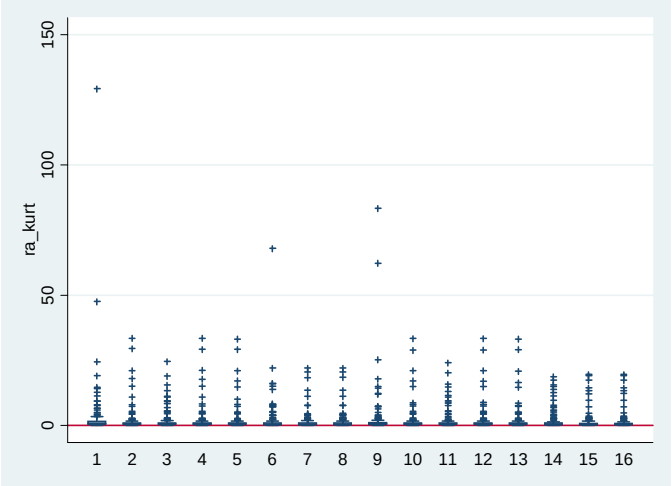


***Figure A10-17 Box plots of longitudinal predictive, distributional and estimation evaluation measures for wages and salaries for respondents***

*Figure A10 Predictive accuracy: criteria 1*

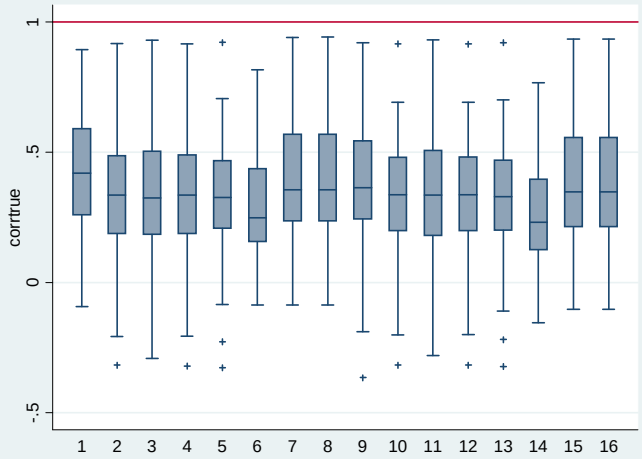



*Figure A11 Predictive accuracy: criteria 2*

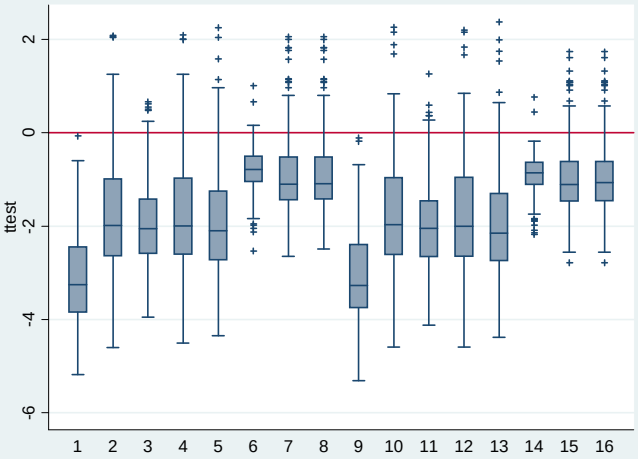



*Figure A12 Predictive accuracy: criteria 3*

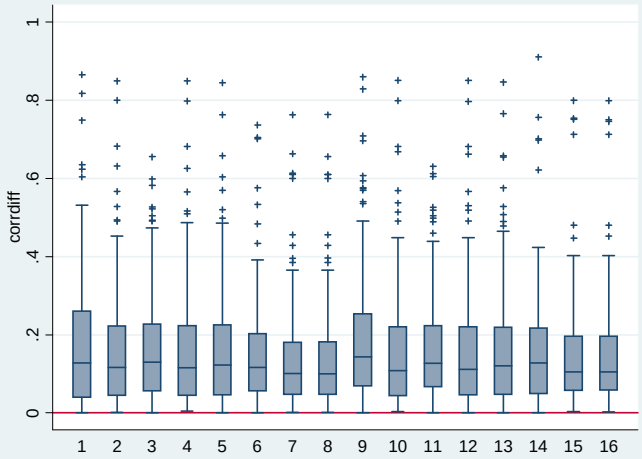



*Figure A13 Distributional accuracy: criteria 6*

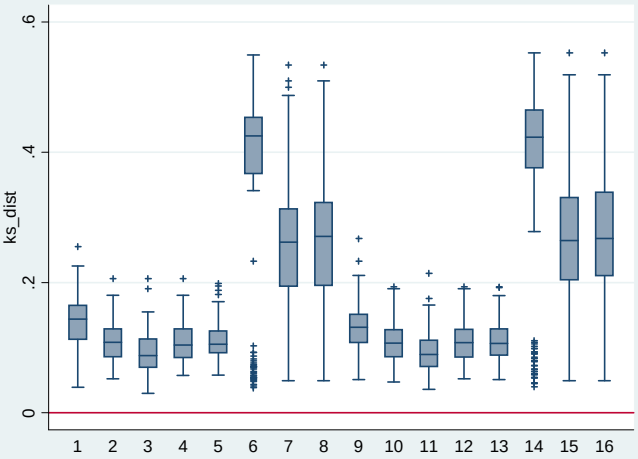



*Figure A14 Estimation accuracy: criteria 8*

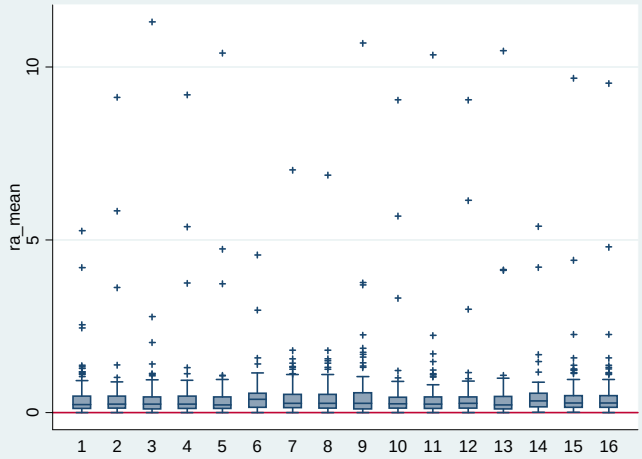



*Figure A15 Estimation accuracy: criteria 9*

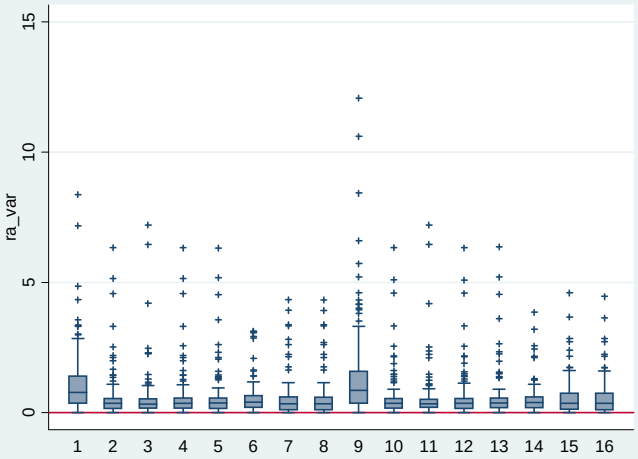


*Figure A16 Estimation accuracy: criteria 10*

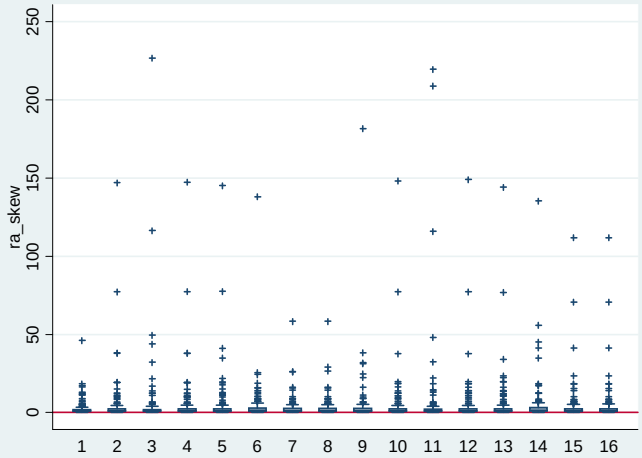
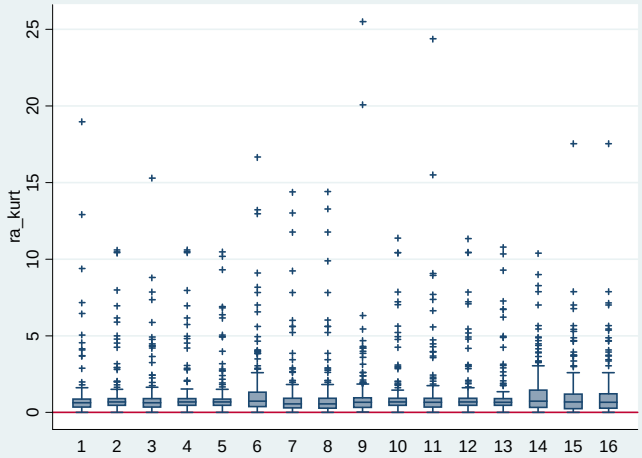



*Figure A17 Estimation accuracy: criteria 11*



***Figures B1-9 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for Australian Government pensions for respondents***

*Figure B1 Predictive accuracy: criteria 1*

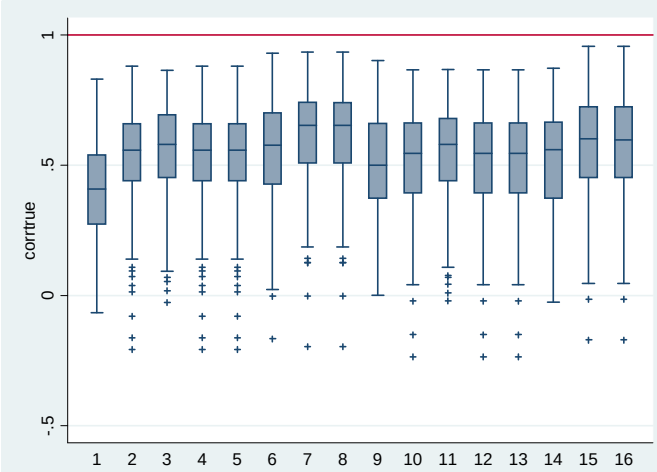



*Figure B2 Predictive accuracy: criteria 2*

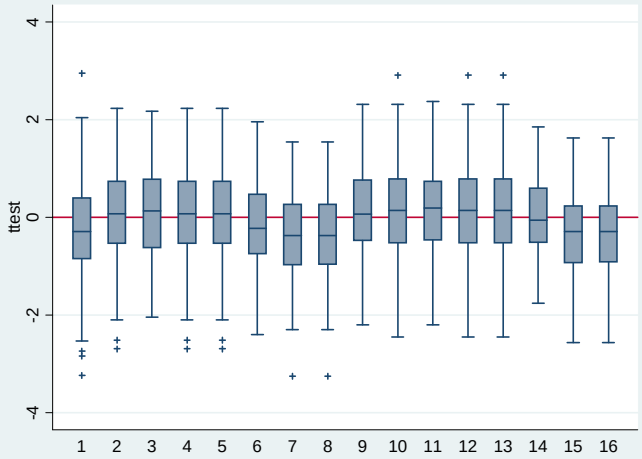



*Figure B3 Predictive accuracy: criteria 4*

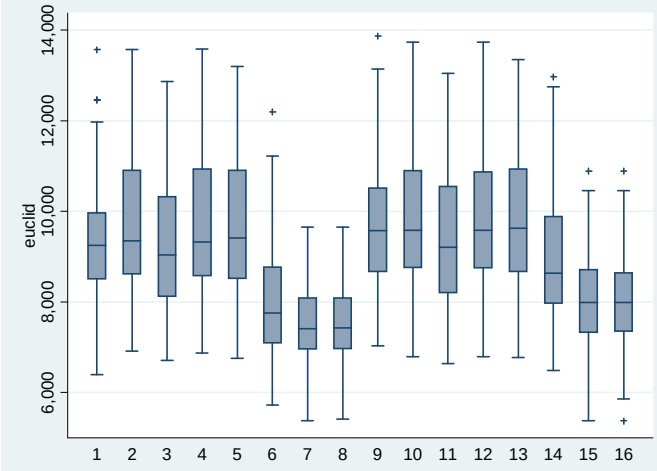



*Figure B4 Predictive accuracy: criteria 5*

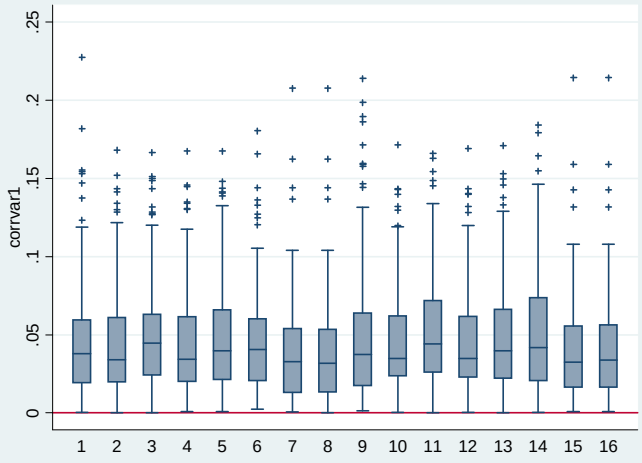



*Figure B5 Distributional accuracy: criteria 6*

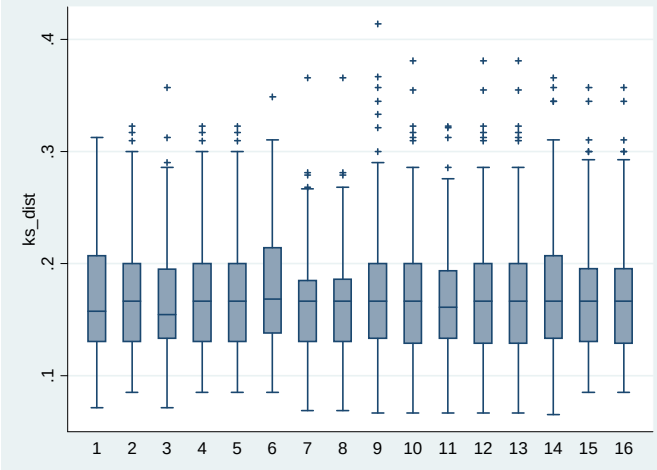



*Figure B6 Estimation accuracy: criteria 8*

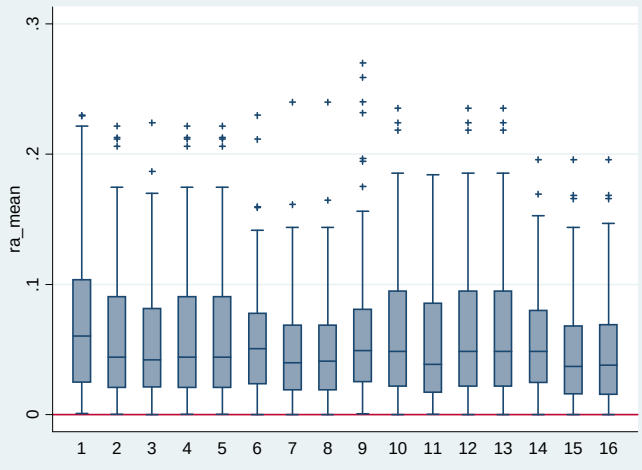


*Figure B7 Estimation accuracy: criteria 9*

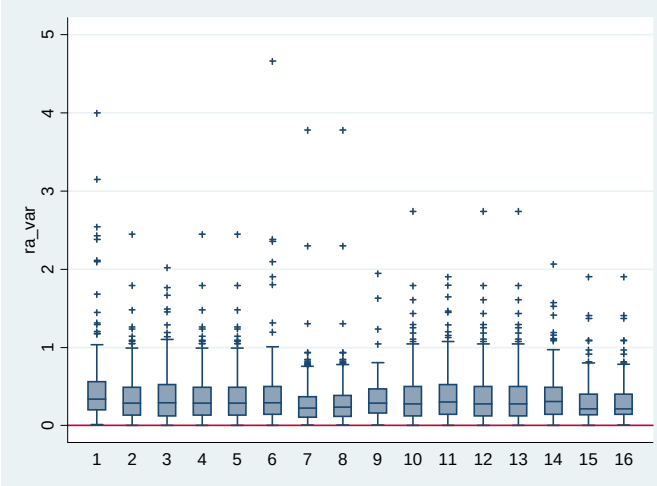



*Figure B8 Estimation accuracy: criteria 10*

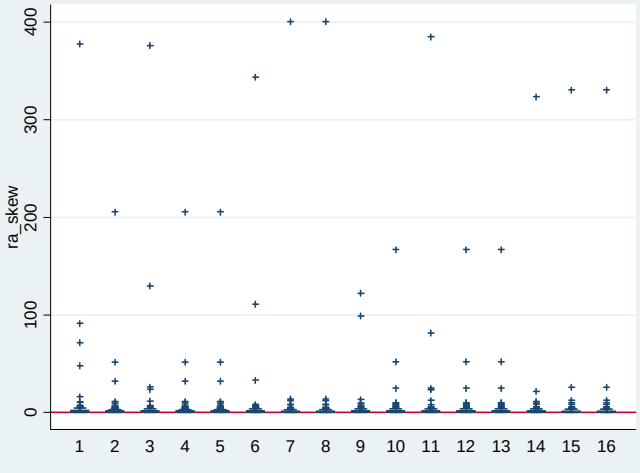



*Figure B9 Estimation accuracy: criteria 11*

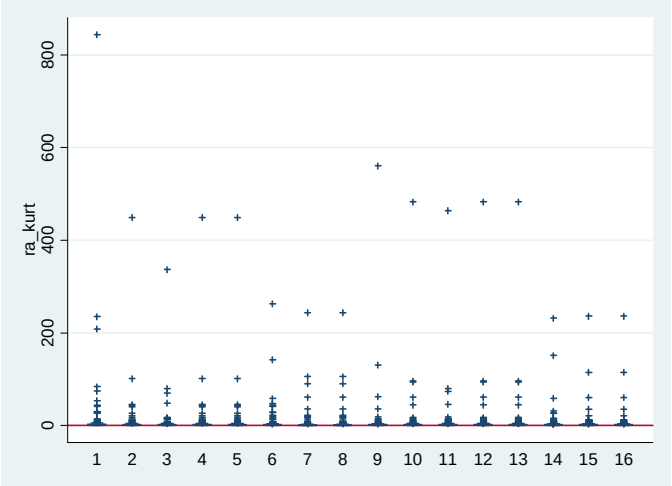


***Figure B10-17 Box plots of longitudinal predictive, distributional and estimation evaluation measures for Australian Government pensions for respondents***

*Figure B10 Predictive accuracy: criteria 1*

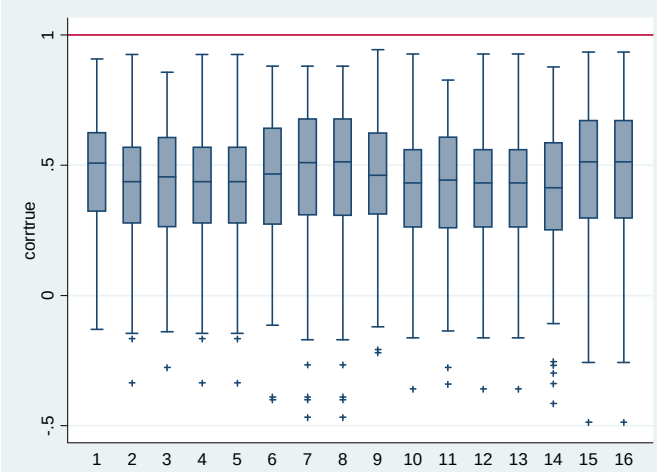



*Figure B11 Predictive accuracy: criteria 2*

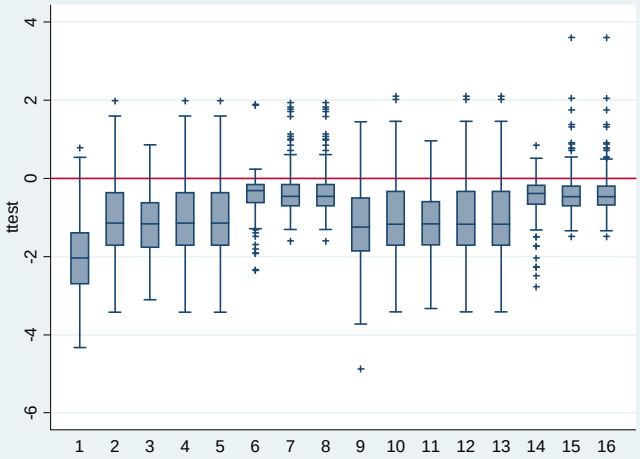



*Figure B12 Predictive accuracy: criteria 3*

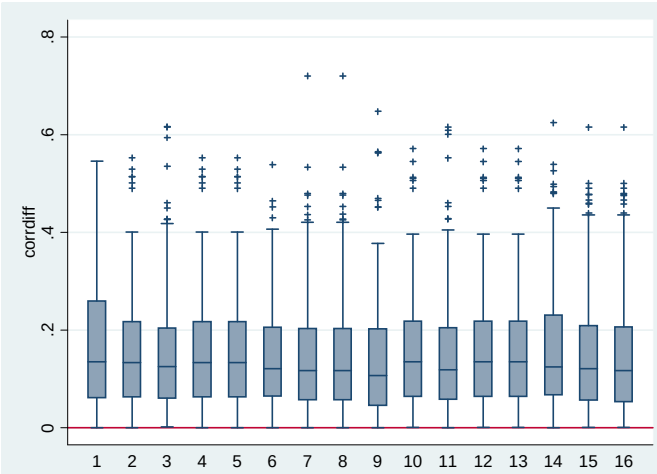



*Figure B13 Distributional accuracy: criteria 6*

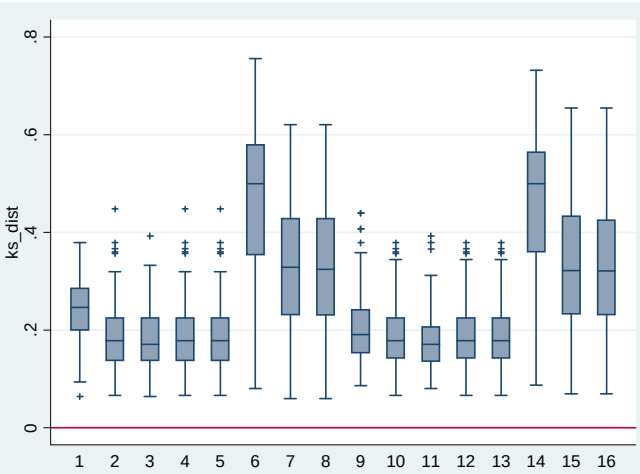



*Figure B14 Estimation accuracy: criteria 8*

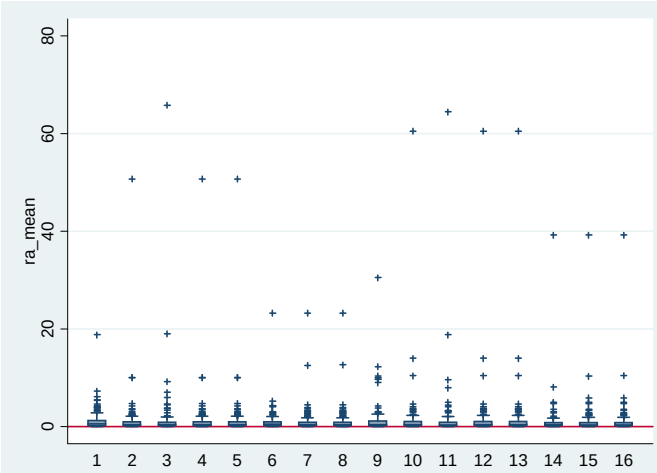



*Figure B15 Estimation accuracy: criteria 9*

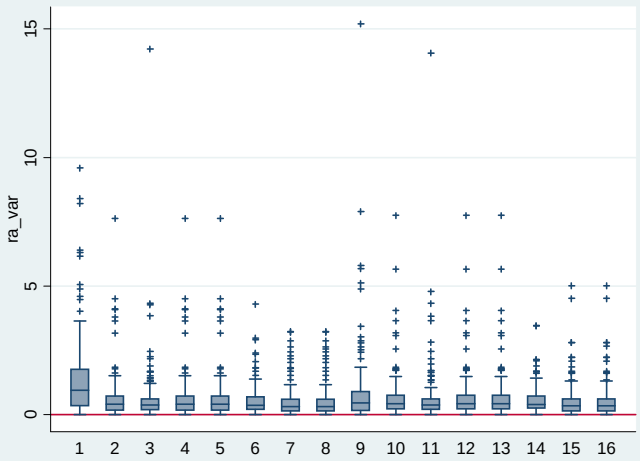


*Figure B16 Estimation accuracy: criteria 10*

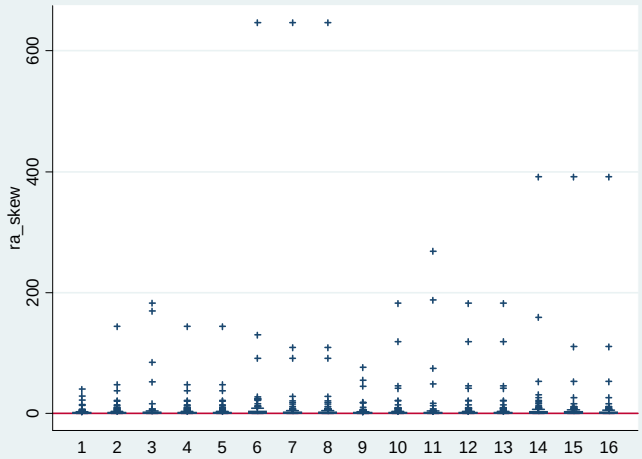



*Figure B17 Estimation accuracy: criteria 11*

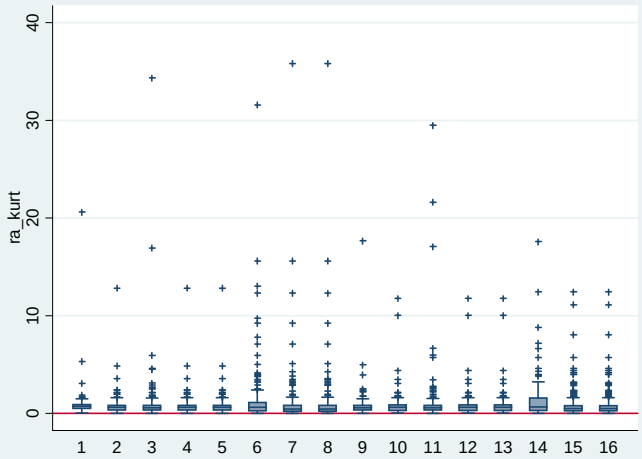


***Figure C1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for business income for respondents***

*Figure C1 Predictive accuracy: criteria 1*

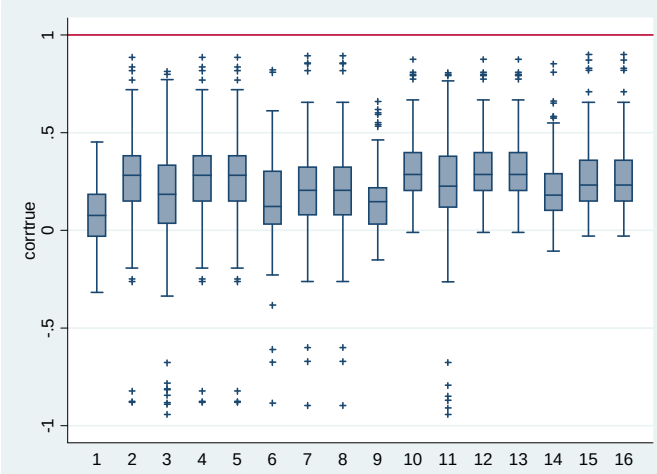



*Figure C2 Predictive accuracy: criteria 2*

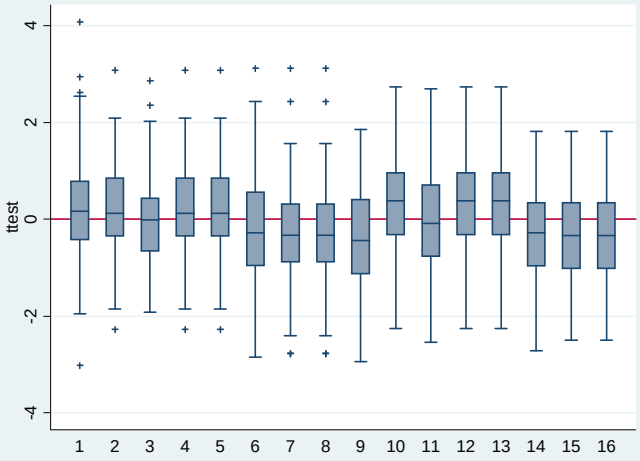



*Figure C3 Distributional accuracy: criteria 6*

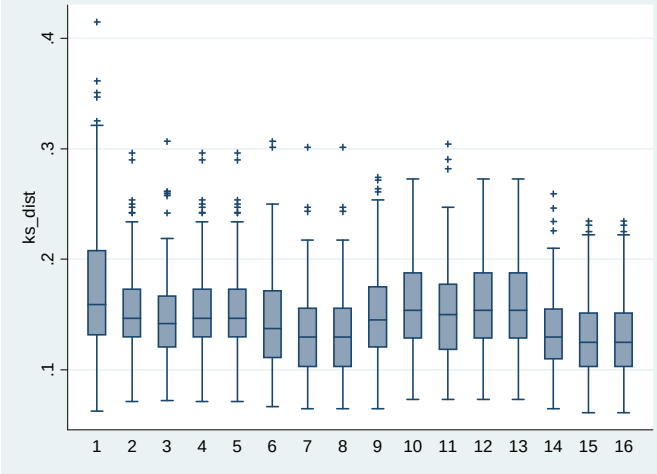



*Figure C4 Estimation accuracy: criteria 8*

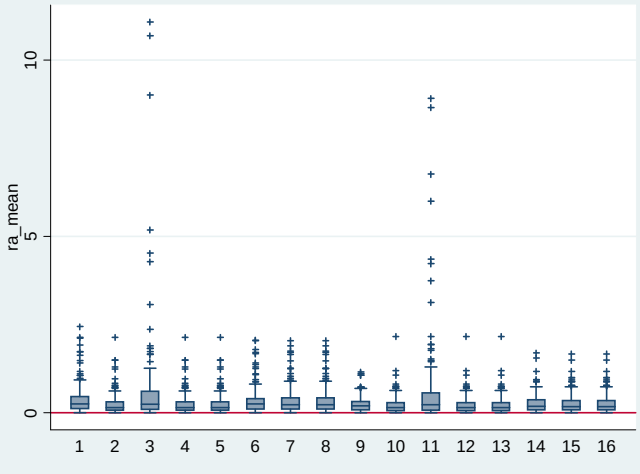



*Figure C5 Estimation accuracy: criteria 9*

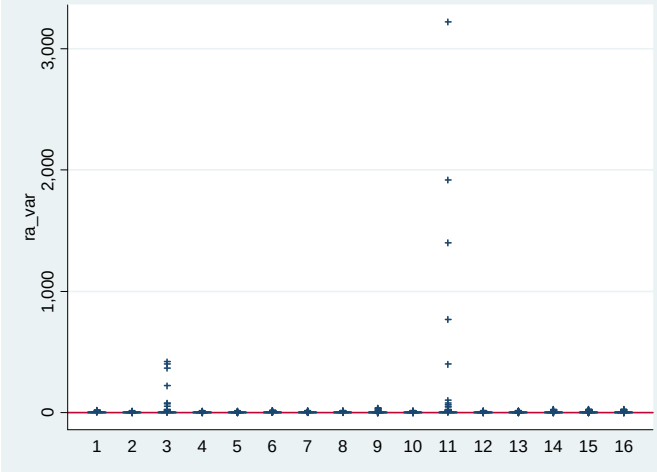



*Figure C6 Estimation accuracy: criteria 10*

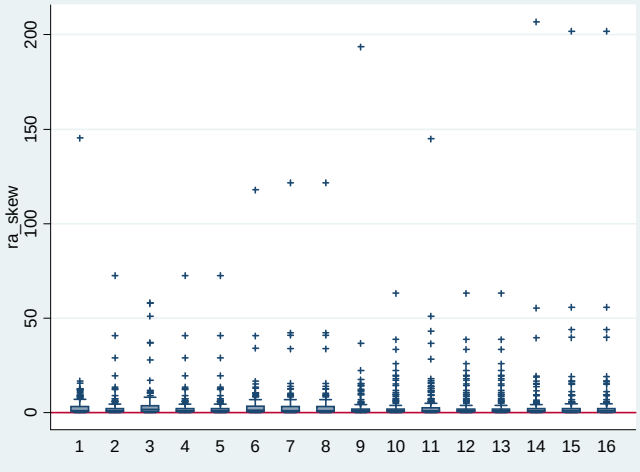


*Figure C7 Estimation accuracy: criteria 11*

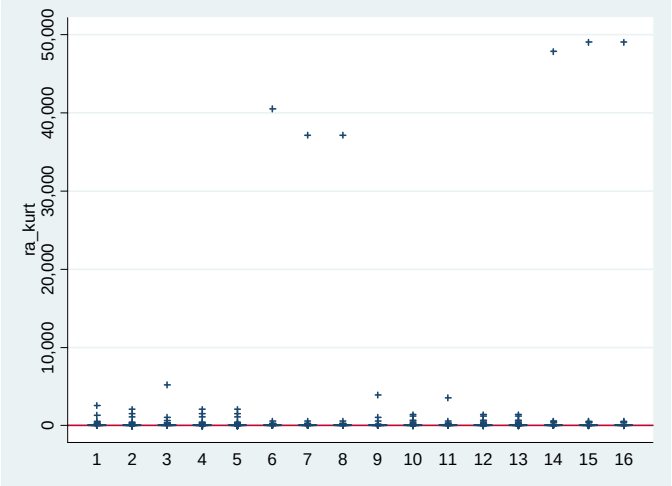


***Figure C8-15 Box plots of longitudinal predictive, distributional and estimation evaluation measures for business income for respondents***

*Figure C8 Predictive accuracy: criteria 1*

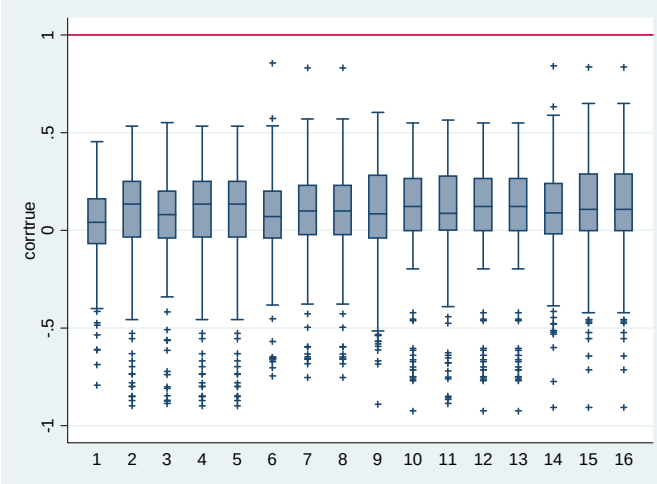



*Figure C9 Predictive accuracy: criteria 2*

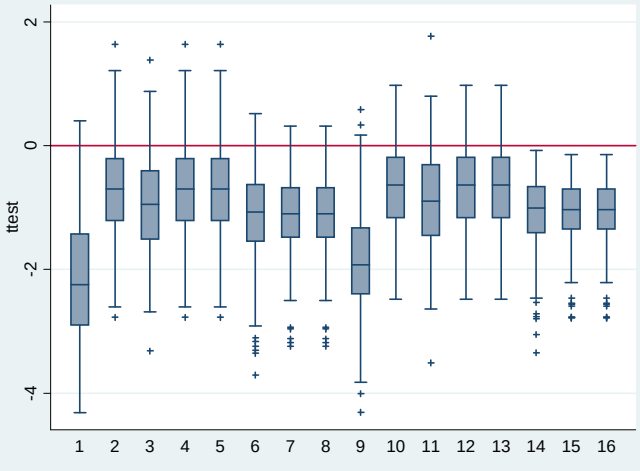



*Figure C10 Predictive accuracy: criteria 3*

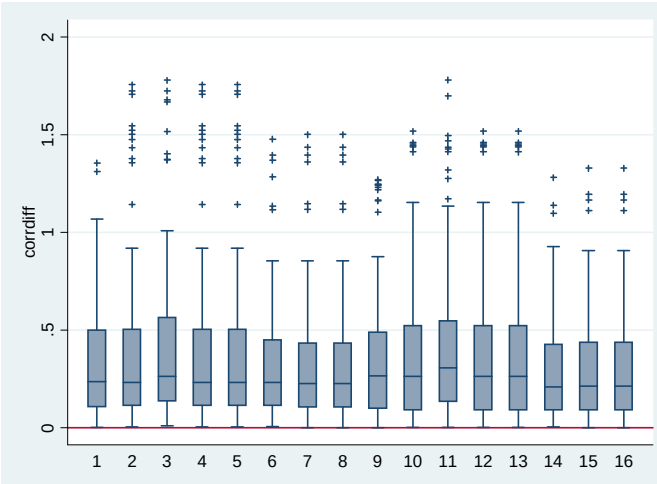



*Figure C11 Distributional accuracy: criteria 6*

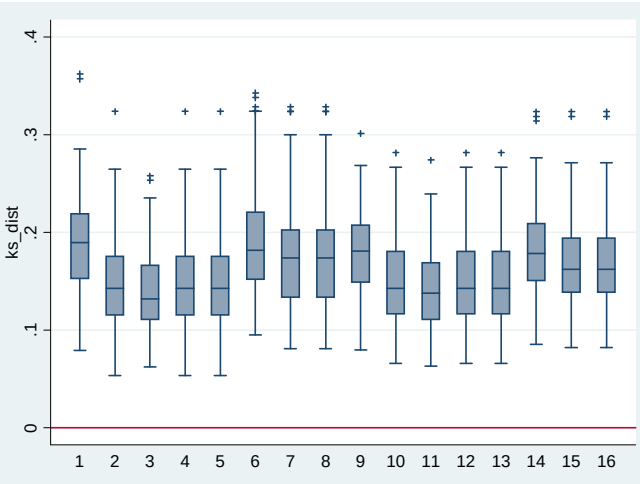



*Figure C12 Estimation accuracy: criteria 8*

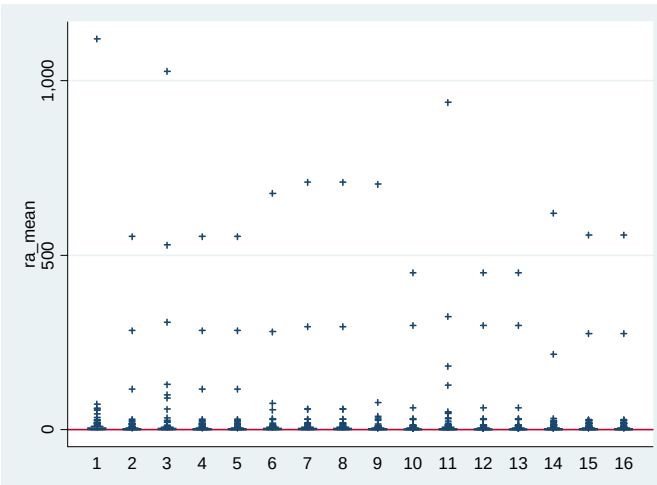



*Figure C13 Estimation accuracy: criteria 9*

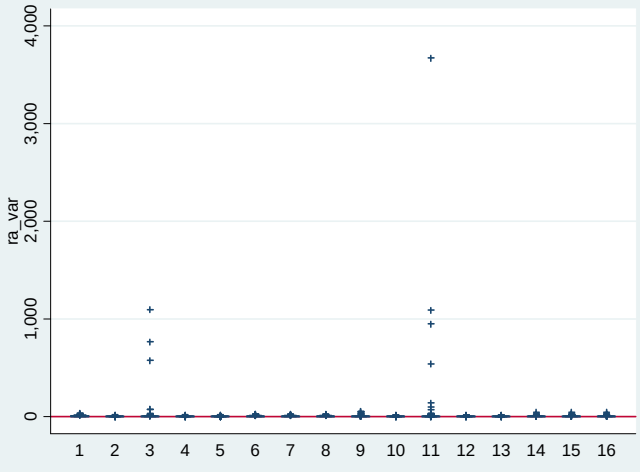


*Figure C14 Estimation accuracy: criteria 10*

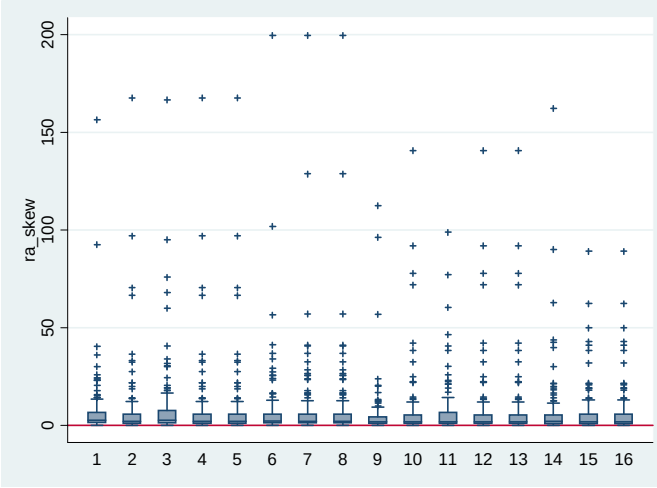



*Figure C15 Estimation accuracy: criteria 11*

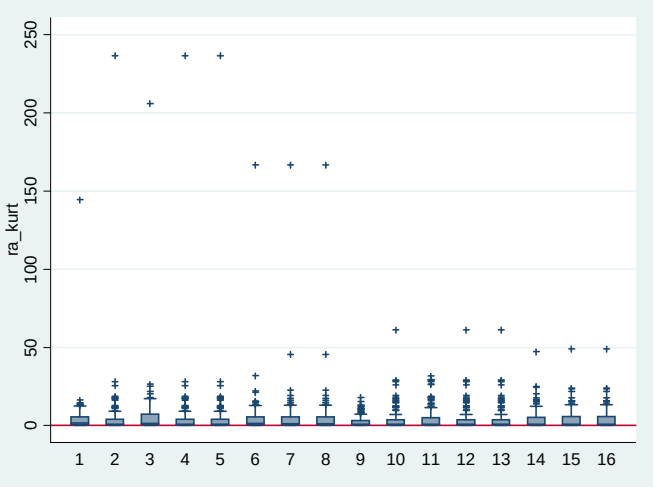


***Figure D1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for interest income for respondents***

*Figure D1 Predictive accuracy: criteria 1*

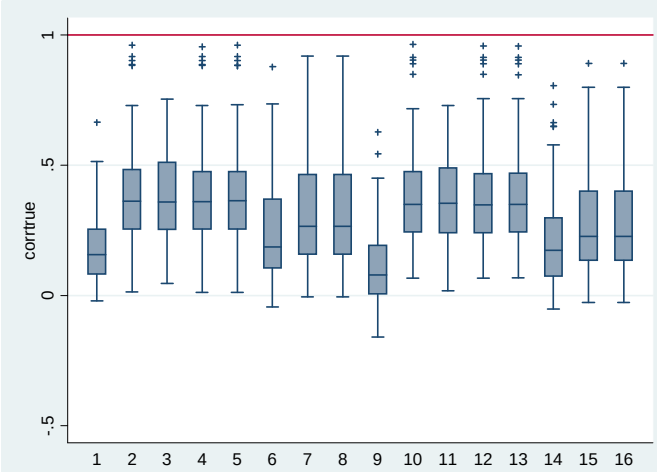



*Figure D2 Predictive accuracy: criteria 2*

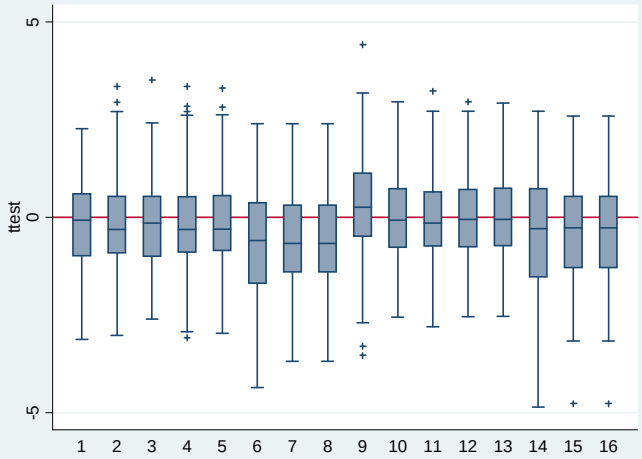



*Figure D3 Predictive accuracy: criteria 4*

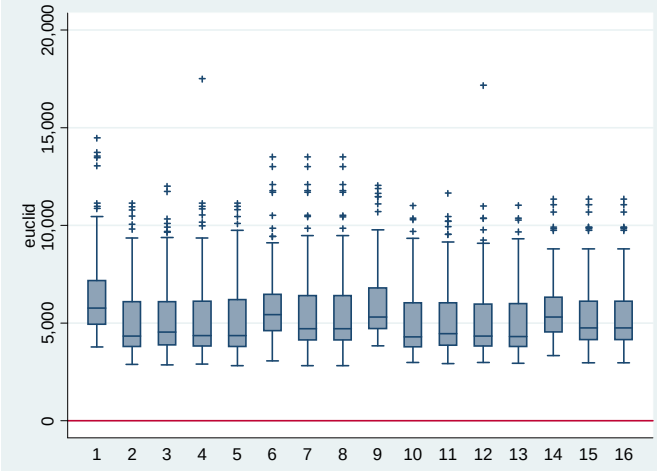



*Figure D4 Predictive accuracy: criteria 5A*

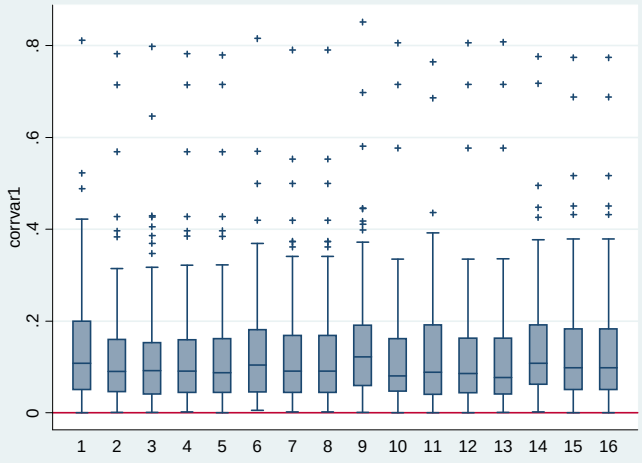



*Figure D5 Predictive accuracy: criteria 5B*

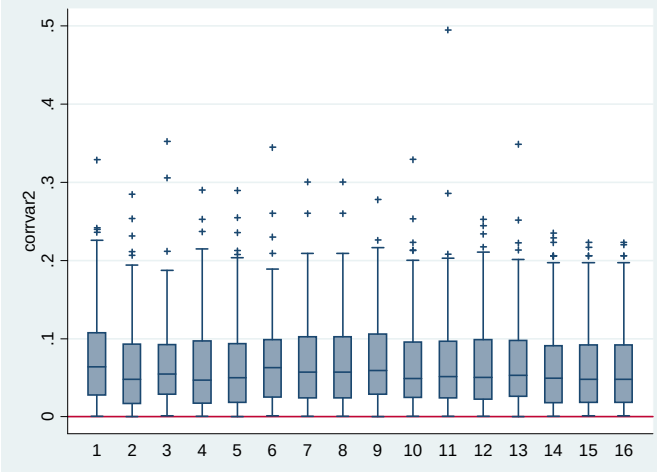



*Figure D6 Distributional accuracy: criteria 6*

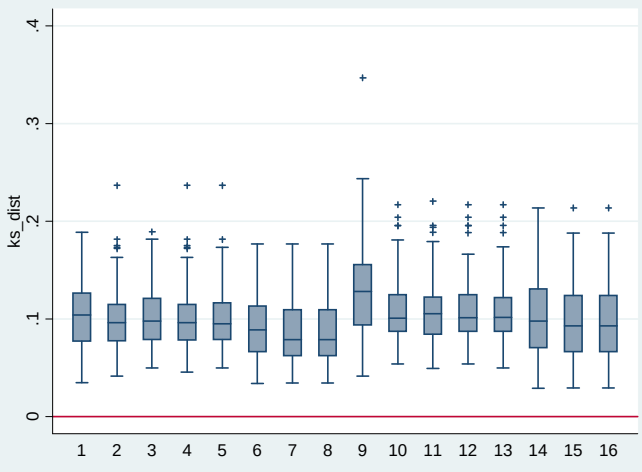


*Figure D7 Estimation accuracy: criteria 8*

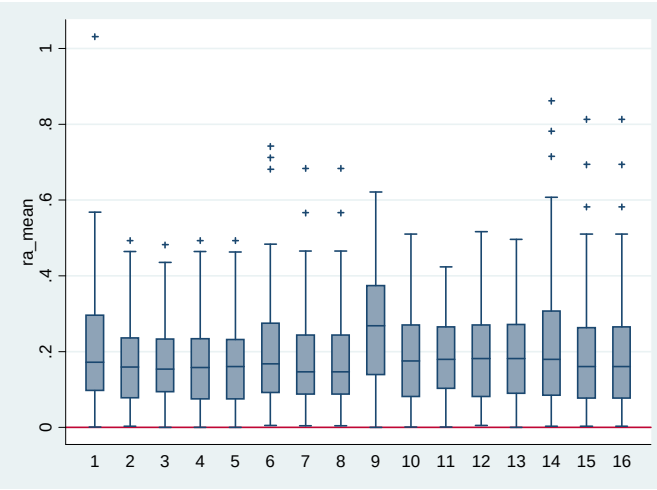



*Figure D8 Estimation accuracy: criteria 9*

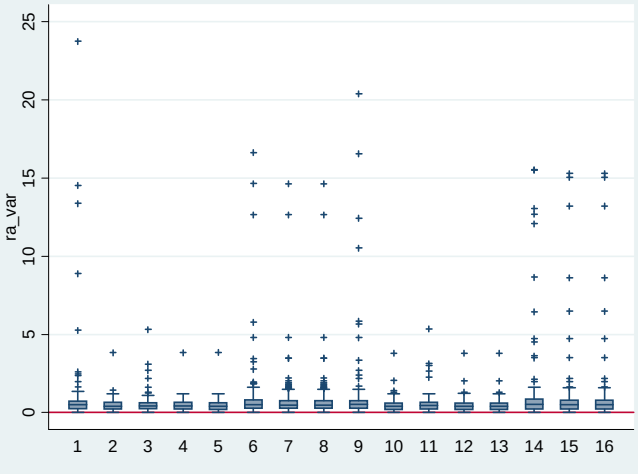



*Figure D9 Estimation accuracy: criteria 10*

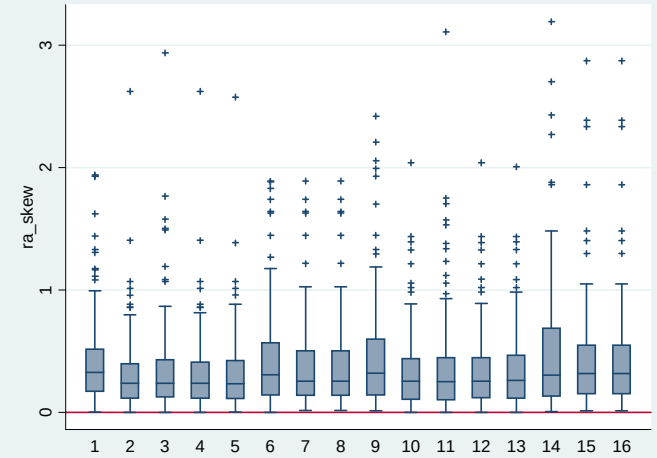



*Figure D10 Estimation accuracy: criteria 11*

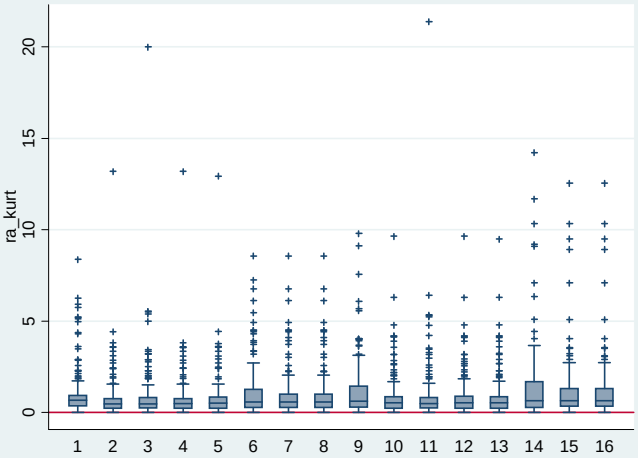


***Figure D11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for interest income for respondents***

*Figure D11 Predictive accuracy: criteria 1*

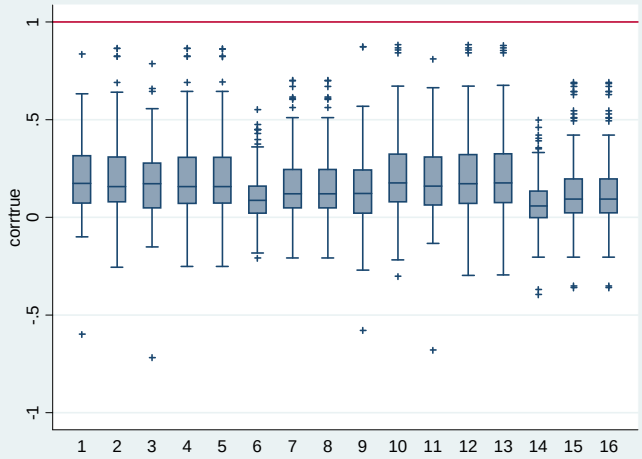



*Figure D12 Predictive accuracy: criteria 2*

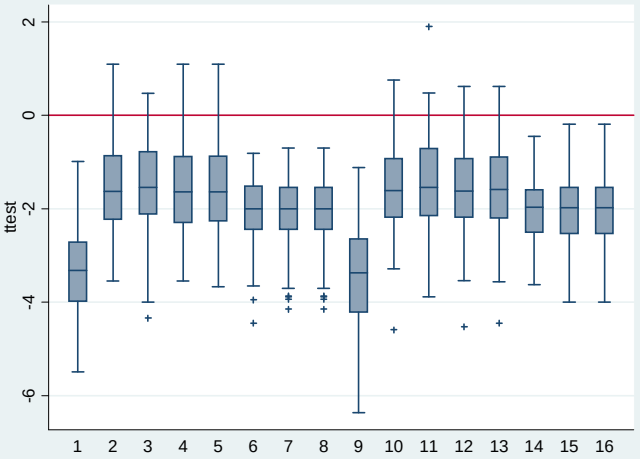



*Figure D13 Predictive accuracy: criteria 3*

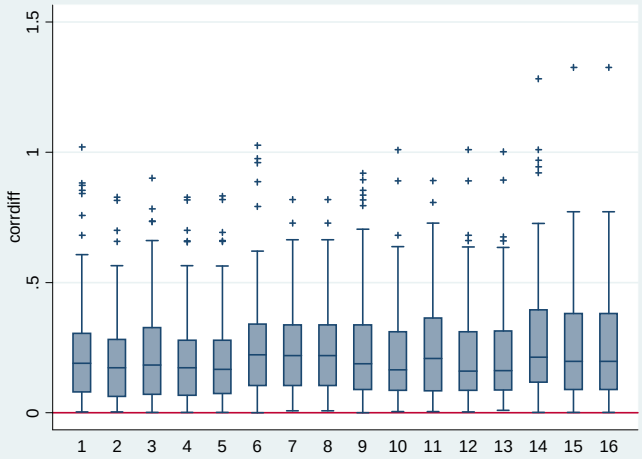



*Figure D14 Distributional accuracy: criteria 6*

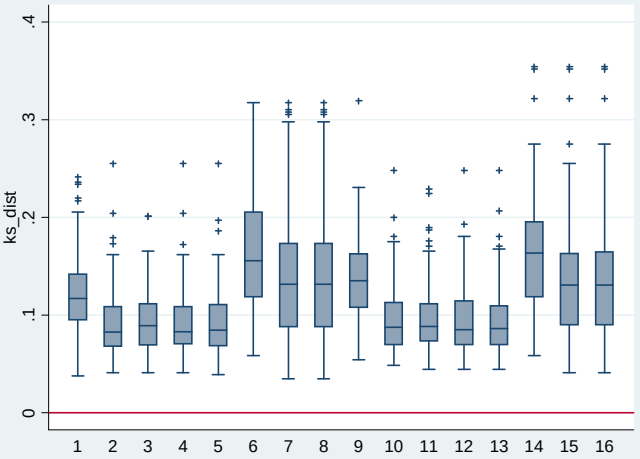



*Figure D15 Estimation accuracy: criteria 8*

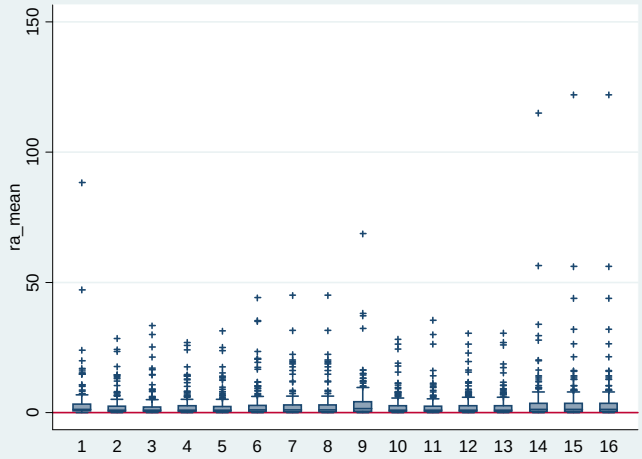



*Figure D16 Estimation accuracy: criteria 9*

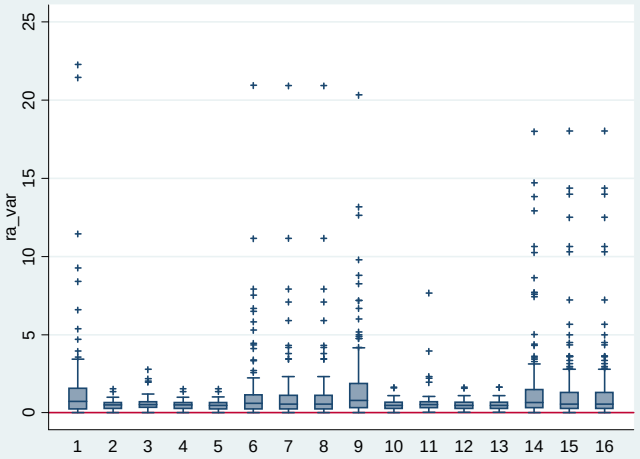


*Figure D17 Estimation accuracy: criteria 10*

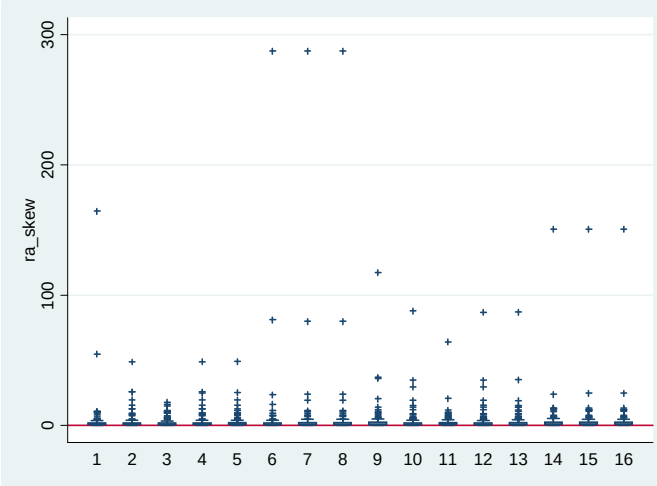



*Figure D18 Estimation accuracy: criteria 11*

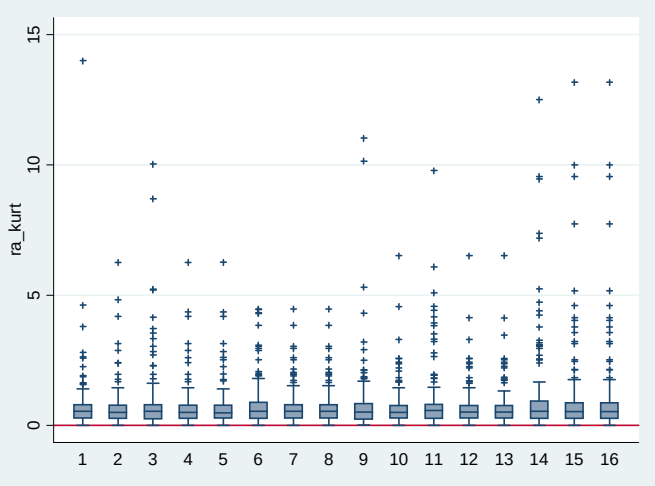


***Figure E1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for dividends and royalties for respondents***

*Figure E1 Predictive accuracy: criteria 1*

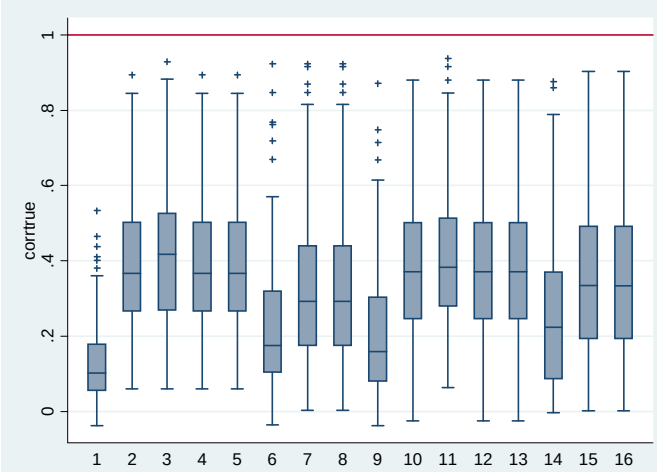



*Figure E2 Predictive accuracy: criteria 2*

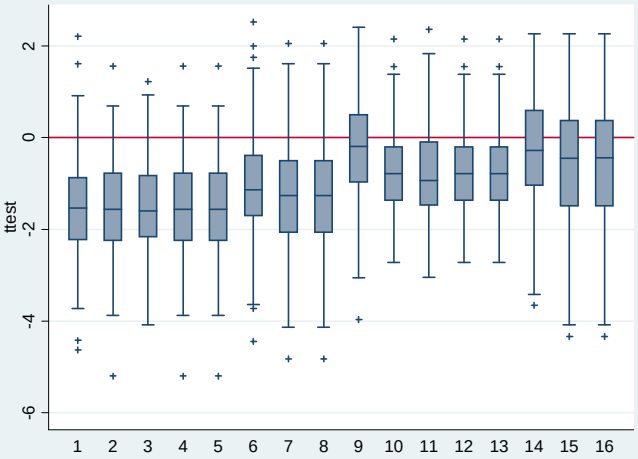



*Figure E3 Predictive accuracy: criteria 4*

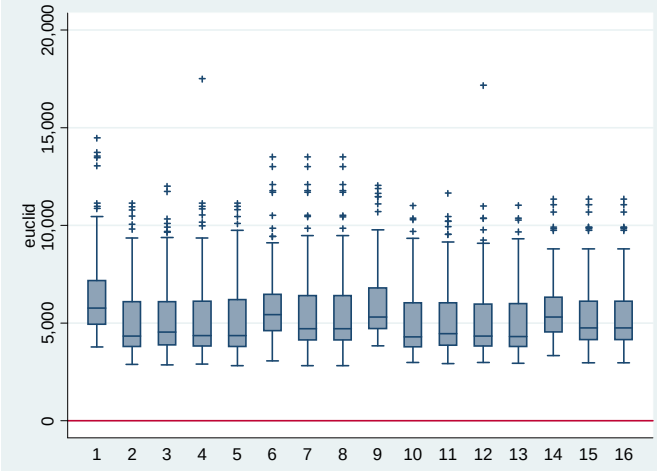



*Figure E4 Predictive accuracy: criteria 5A*

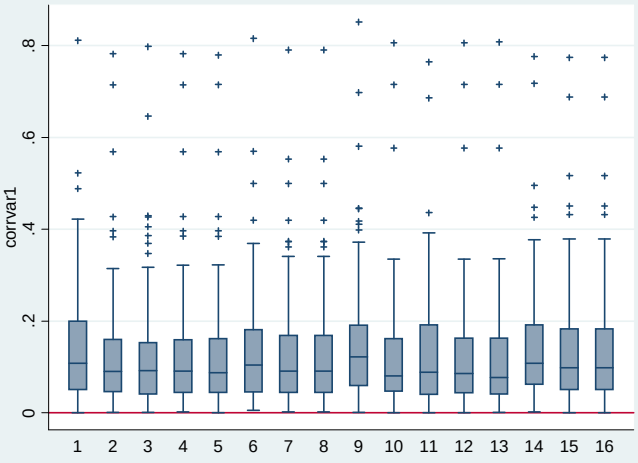



*Figure E5 Predictive accuracy: criteria 5B*

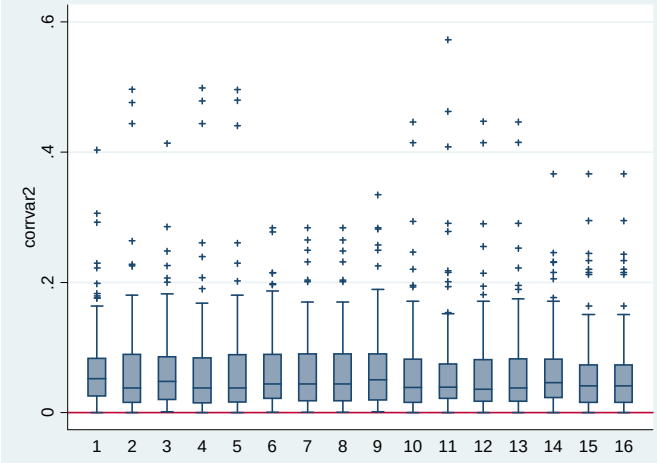



*Figure E6 Distributional accuracy: criteria 6*

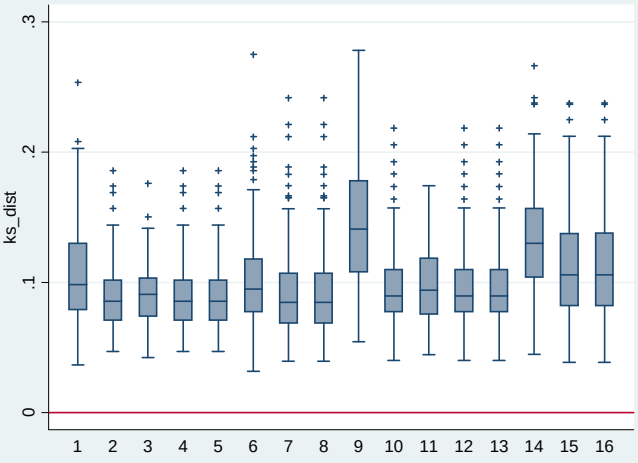


*Figure E7 Estimation accuracy: criteria 8*

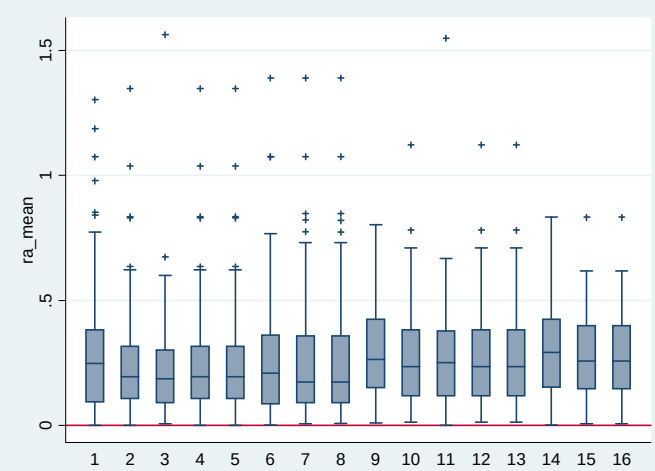



*Figure E8 Estimation accuracy: criteria 9*

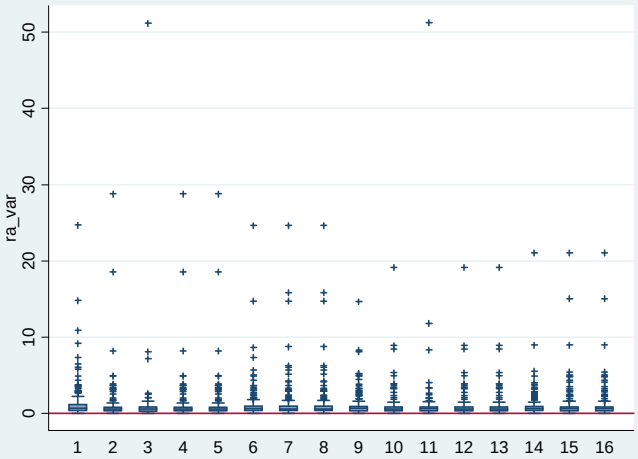



*Figure E9 Estimation accuracy: criteria 10*

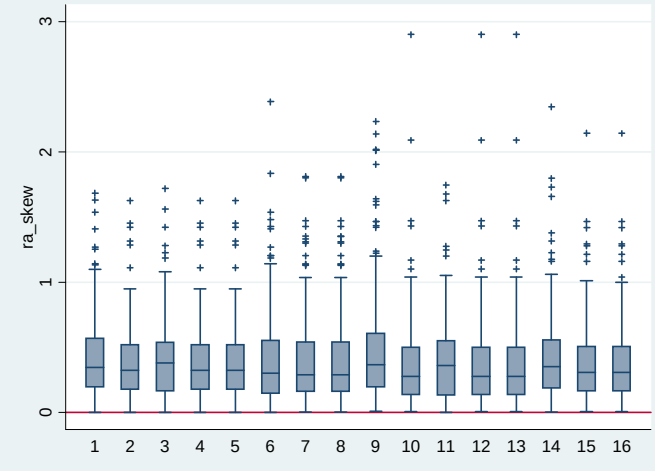



*Figure E10 Estimation accuracy: criteria 11*

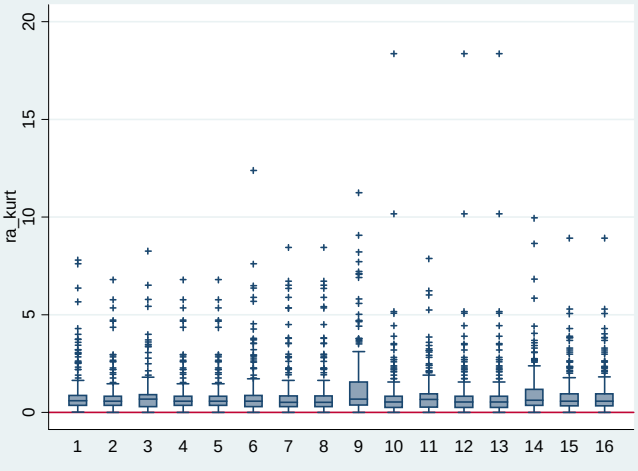


***Figure E11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for dividends and royalties for respondents***

*Figure E11 Predictive accuracy: criteria 1*

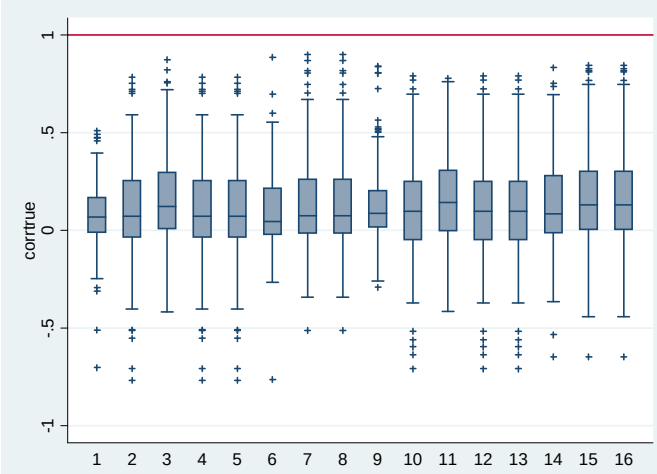



*Figure E12 Predictive accuracy: criteria 2*

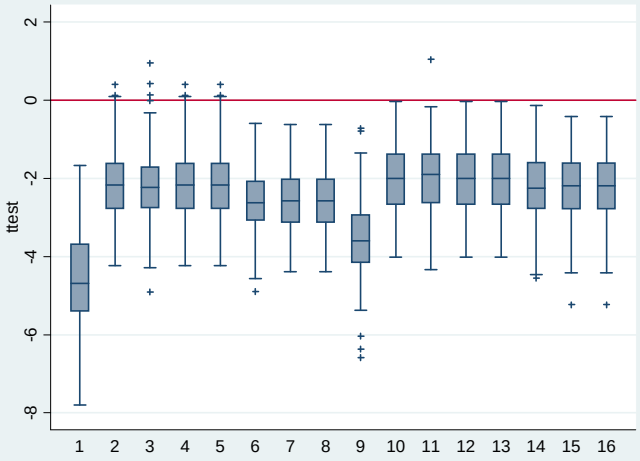



*Figure E13 Predictive accuracy: criteria 3*

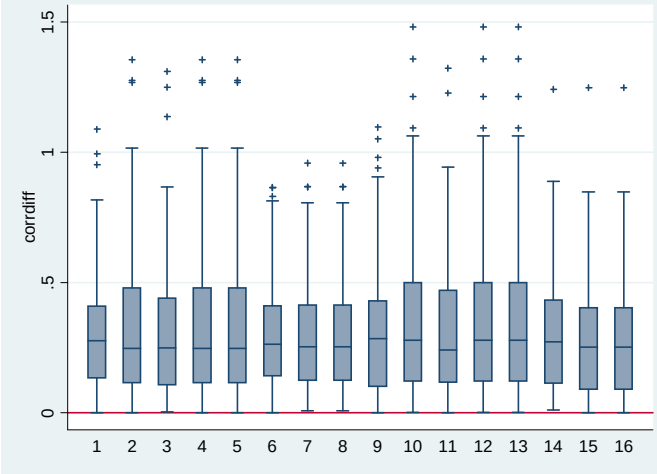



*Figure E14 Distributional accuracy: criteria 6*

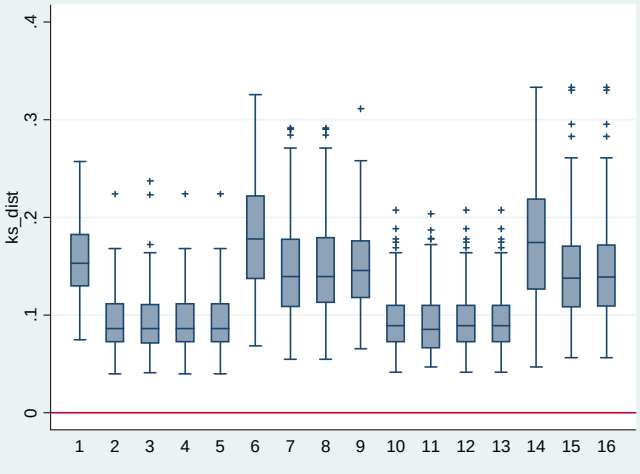



*Figure E15 Estimation accuracy: criteria 8*

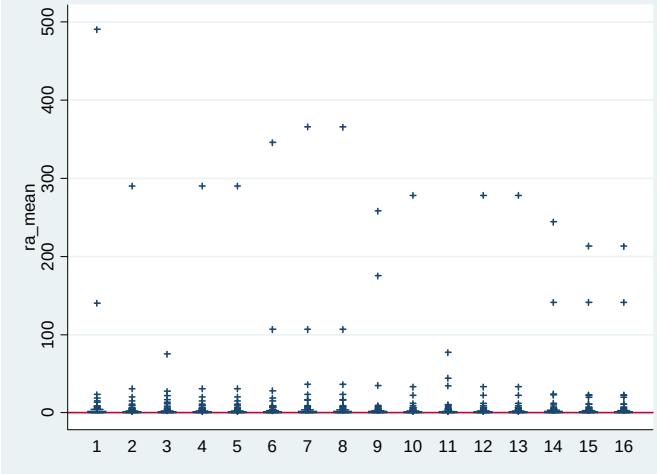



*Figure E16 Estimation accuracy: criteria 9*

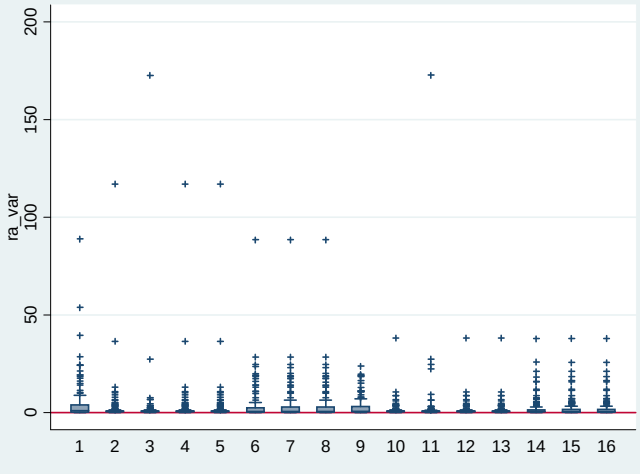


*Figure E17 Estimation accuracy: criteria 10*

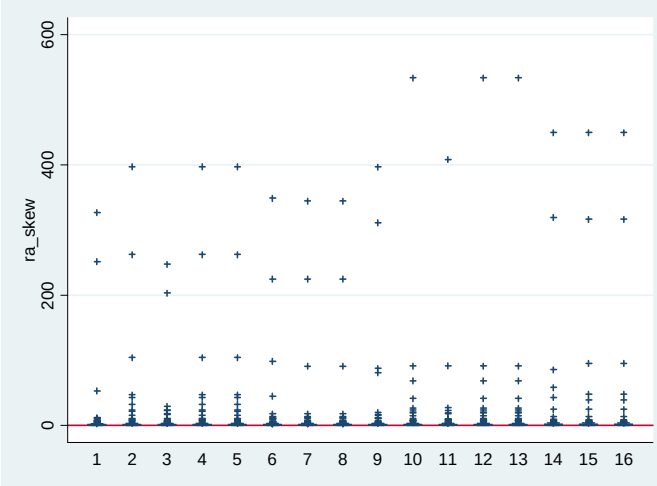



*Figure E18 Estimation accuracy: criteria 11*

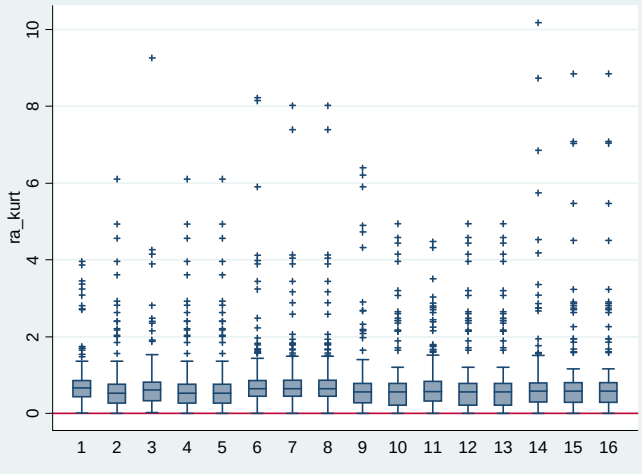


***Figure F1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for rental income for respondents***

*Figure F1 Predictive accuracy: criteria 1*

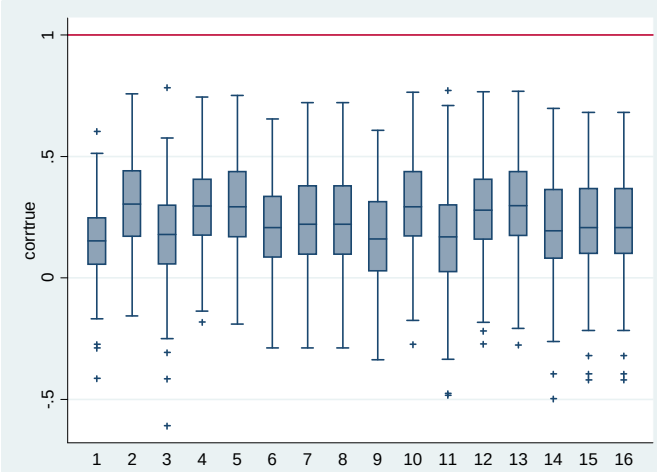



*Figure F2 Predictive accuracy: criteria 2*

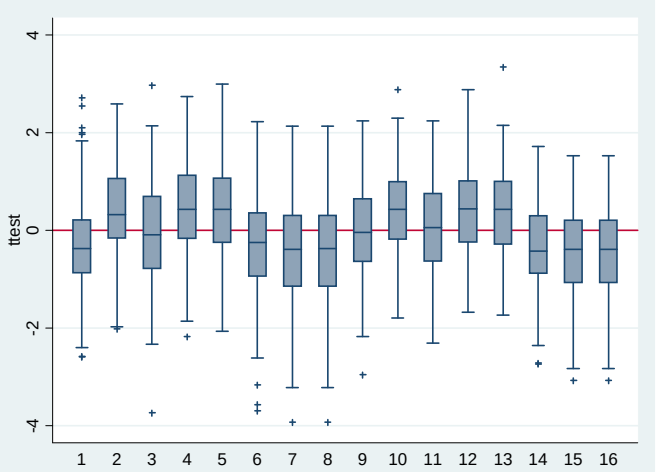



*Figure F3 Predictive accuracy: criteria 4*

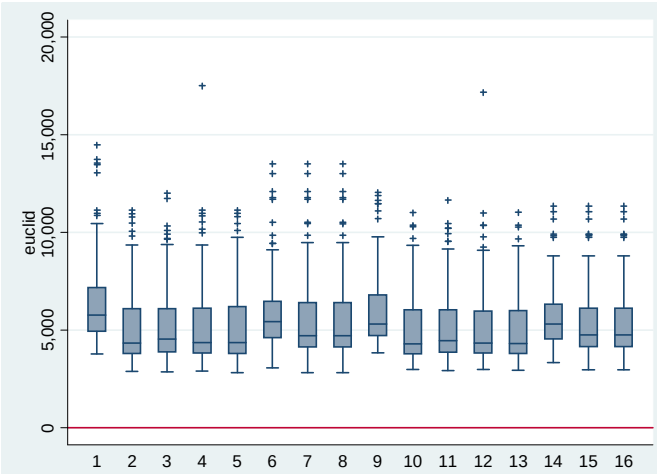



*Figure F4 Predictive accuracy: criteria 5A*

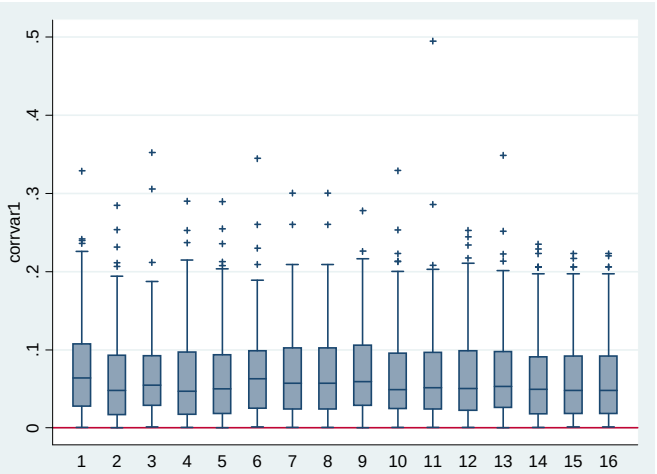



*Figure F5 Predictive accuracy: criteria 5B*

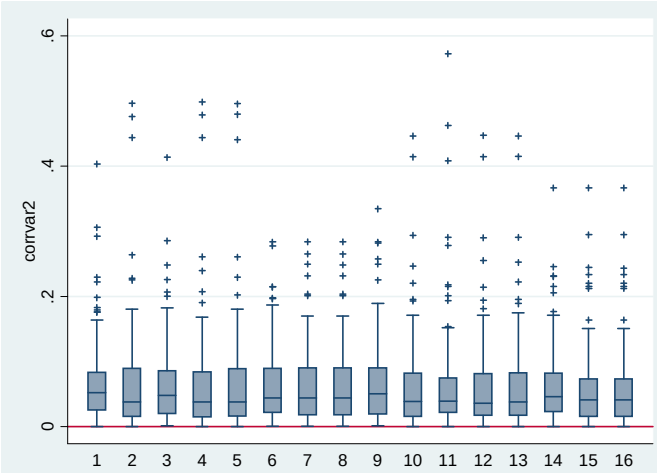



*Figure F6 Distributional accuracy: criteria 6*

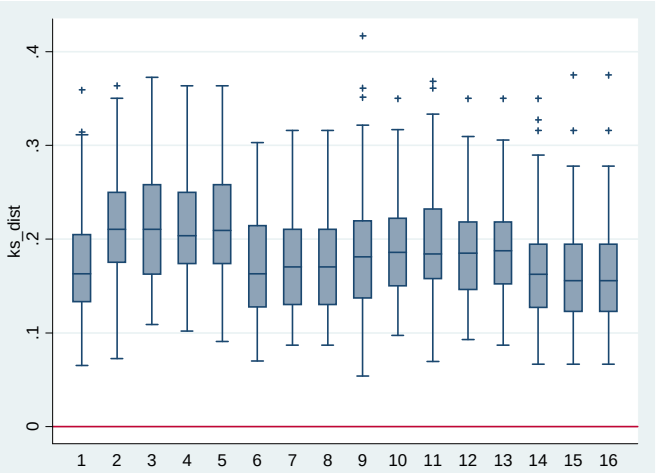


*Figure F7 Estimation accuracy: criteria 8*

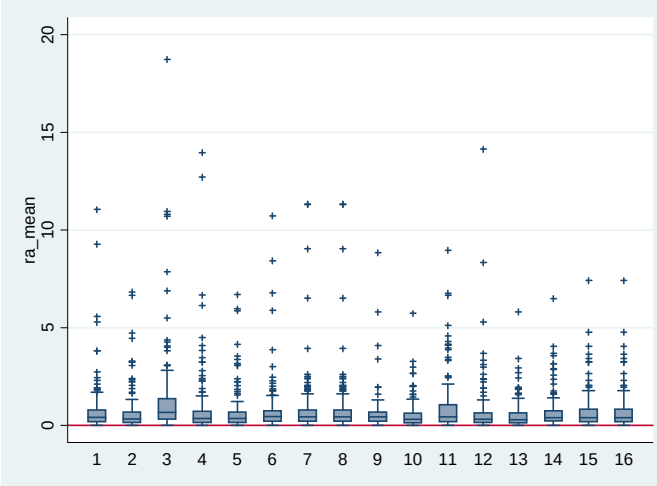



*Figure F8 Estimation accuracy: criteria 9*

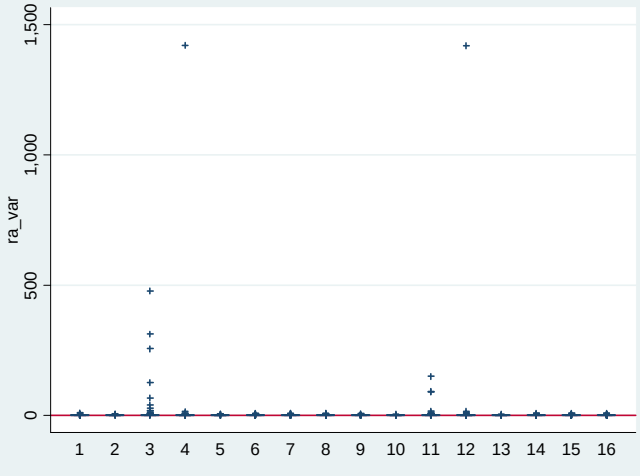



*Figure F9 Estimation accuracy: criteria 10*

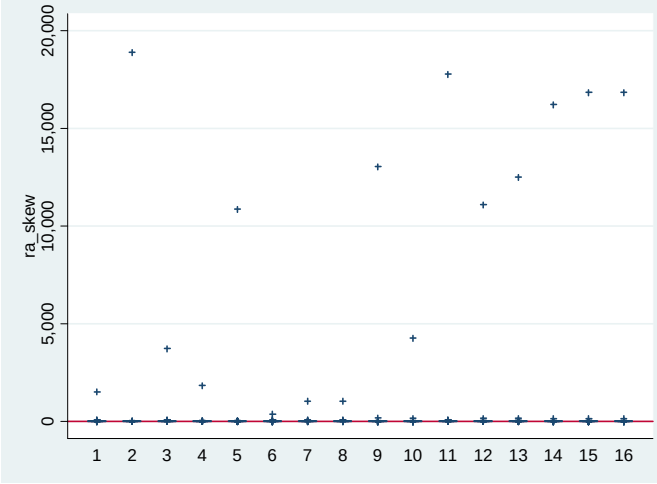



*Figure F10 Estimation accuracy: criteria 11*

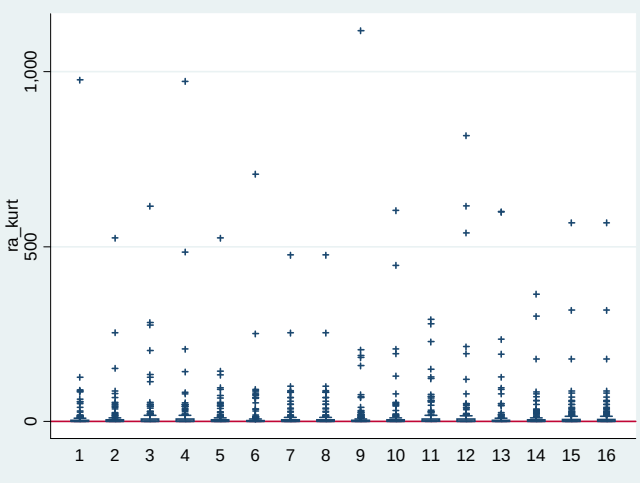


***Figure F11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for rental income for respondents***

*Figure F11 Predictive accuracy: criteria 1*

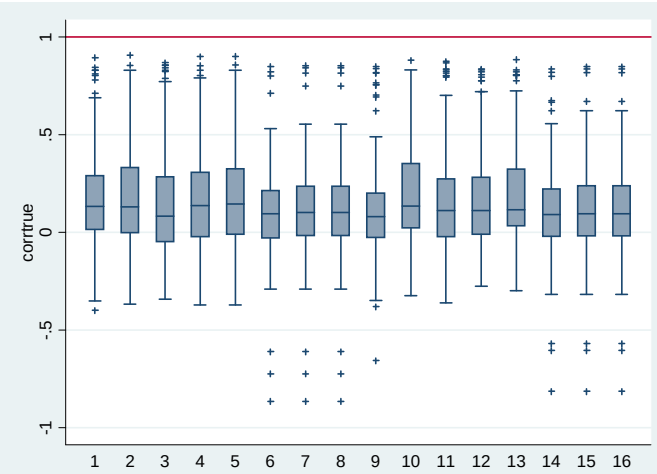



*Figure F12 Predictive accuracy: criteria 2*

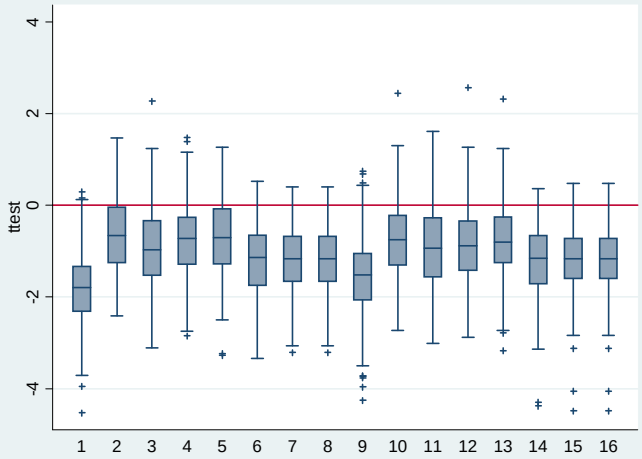



*Figure F13 Predictive accuracy: criteria 3*

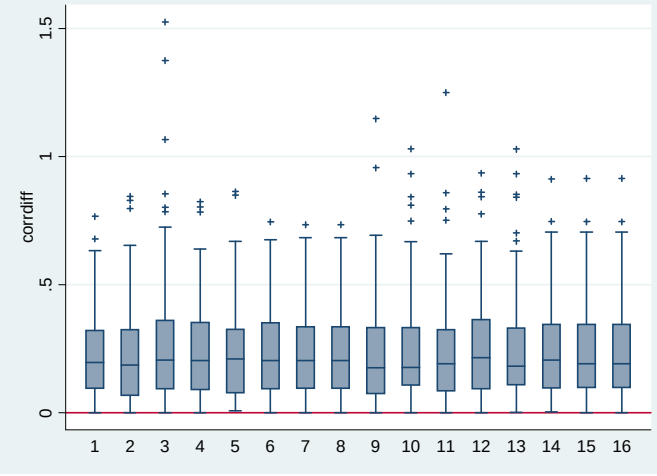



*Figure F14 Distributional accuracy: criteria 6*

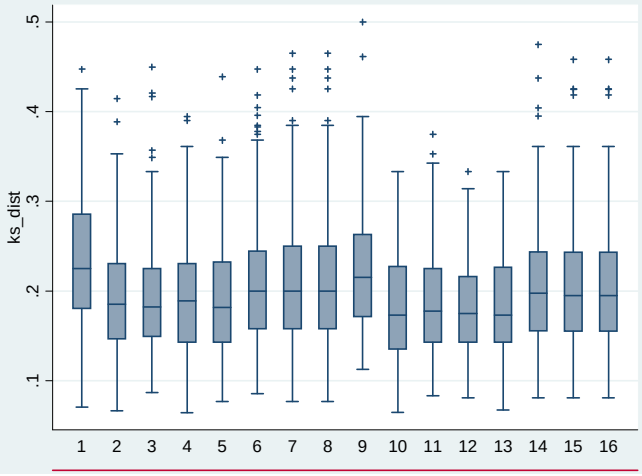



*Figure F15 Estimation accuracy: criteria 8*

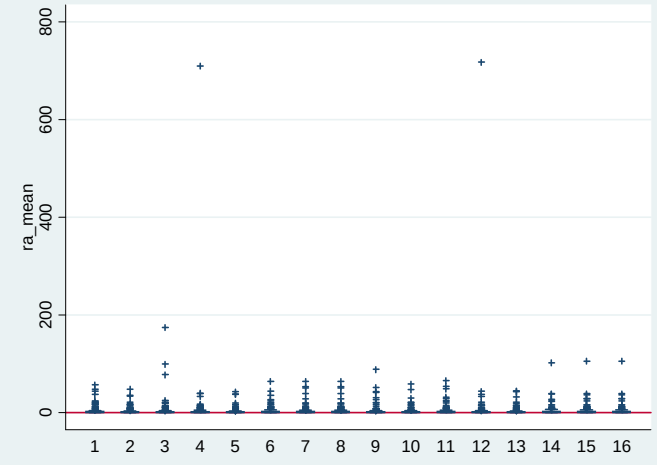



*Figure F16 Estimation accuracy: criteria 9*

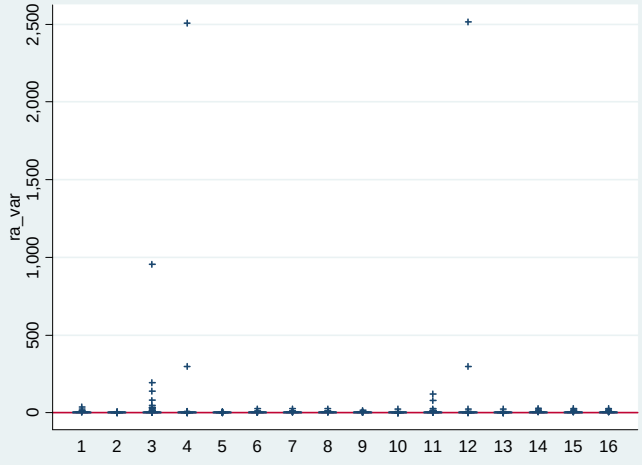


*Figure F17 Estimation accuracy: criteria 10*

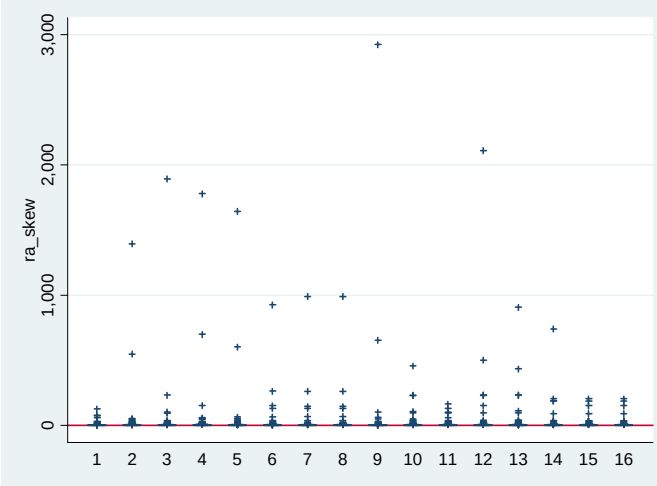



*Figure F18 Estimation accuracy: criteria 11*

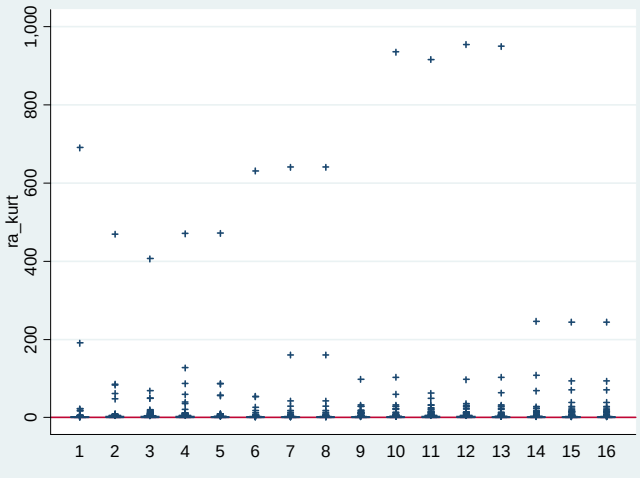


***Figure G1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for private transfers for respondents***

*Figure G1 Predictive accuracy: criteria 1*

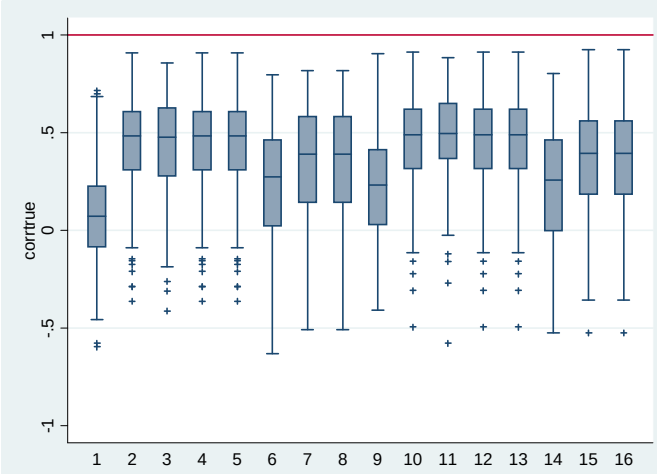



*Figure G2 Predictive accuracy: criteria 2*

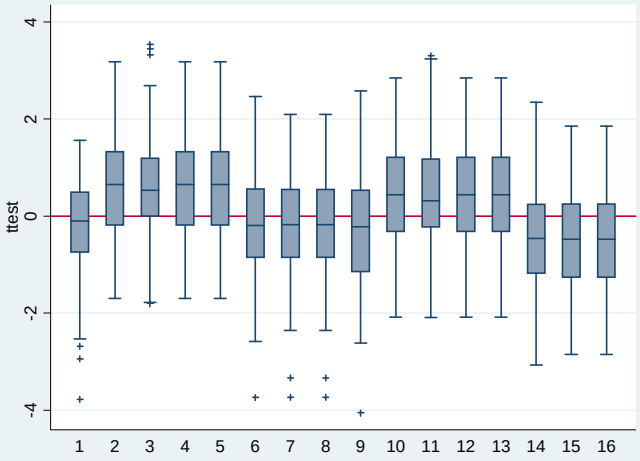



*Figure G3 Distributional accuracy: criteria 6*

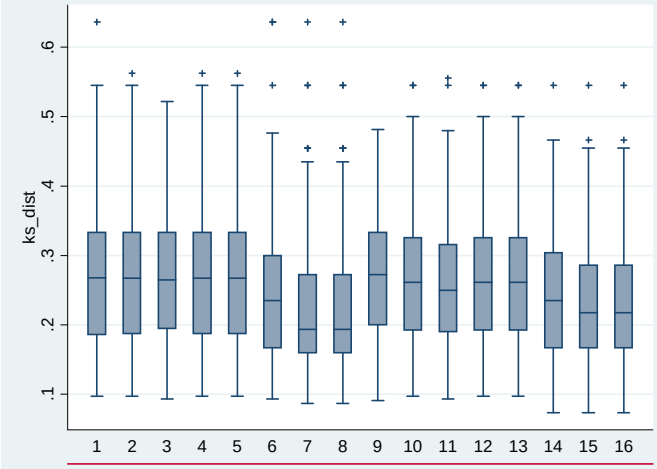



*Figure G4 Estimation accuracy: criteria 8*

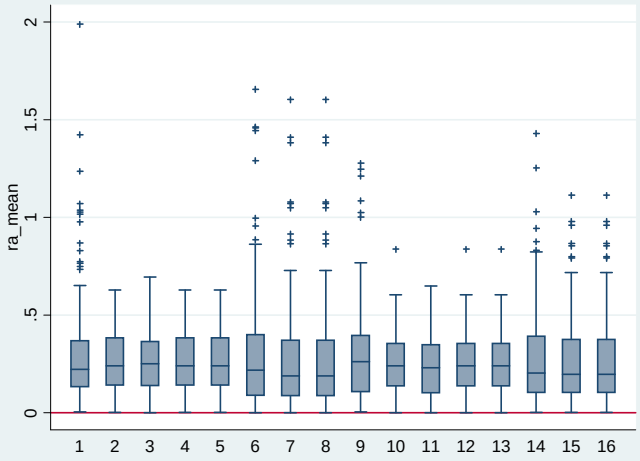



*Figure G5 Estimation accuracy: criteria 9*

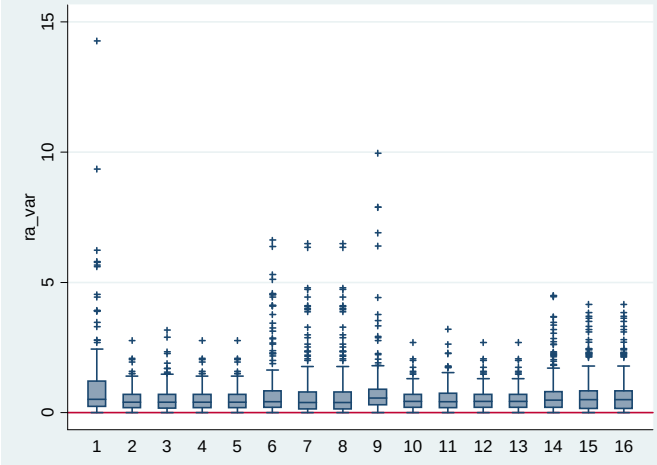



*Figure G6 Estimation accuracy: criteria 10*

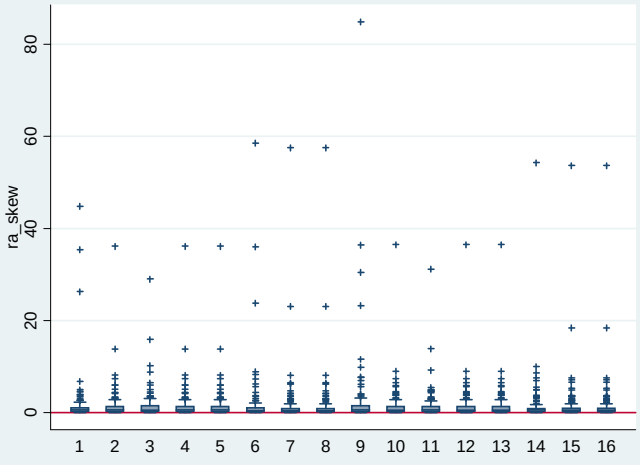


*Figure G7 Estimation accuracy: criteria 11*

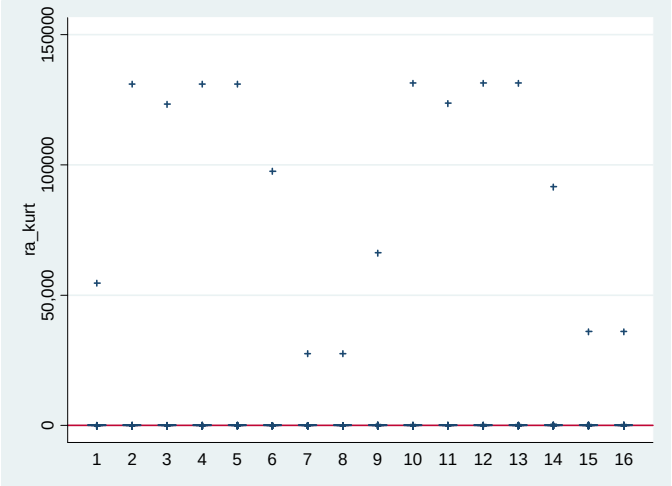


***Figure G8-15 Box plots of longitudinal predictive, distributional and estimation evaluation measures for private transfers for respondents***

*Figure G8 Predictive accuracy: criteria 1*

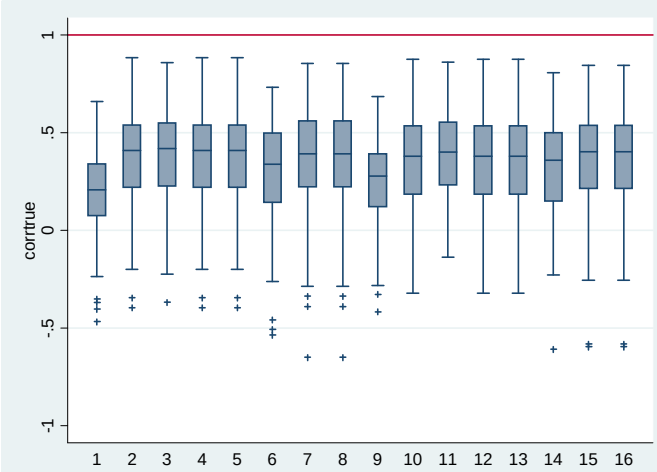



*Figure G9 Predictive accuracy: criteria 2*

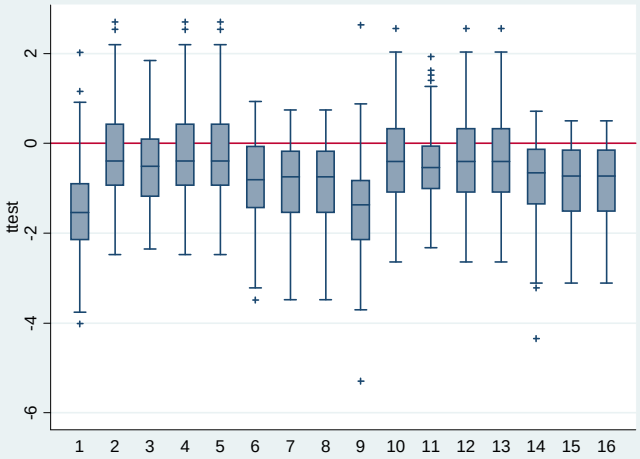



*Figure G10 Predictive accuracy: criteria 3*

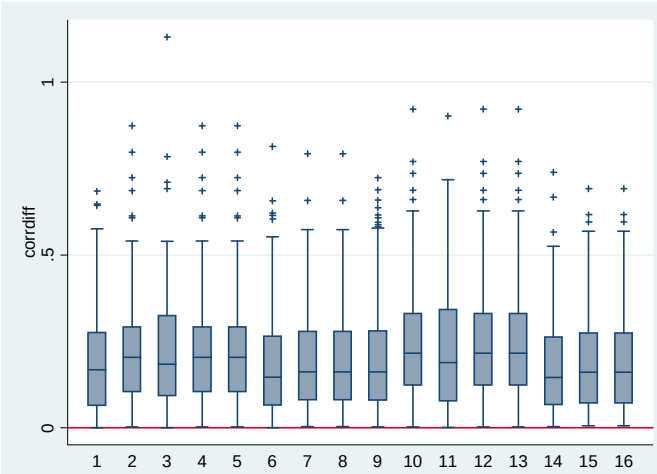



*Figure G11 Distributional accuracy: criteria 6*

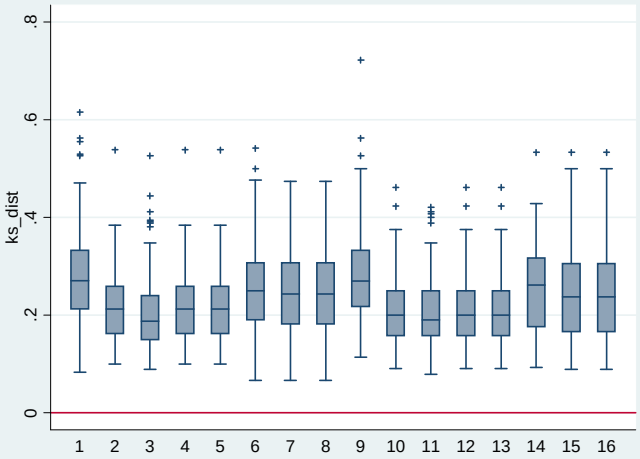



*Figure G12 Estimation accuracy: criteria 8*

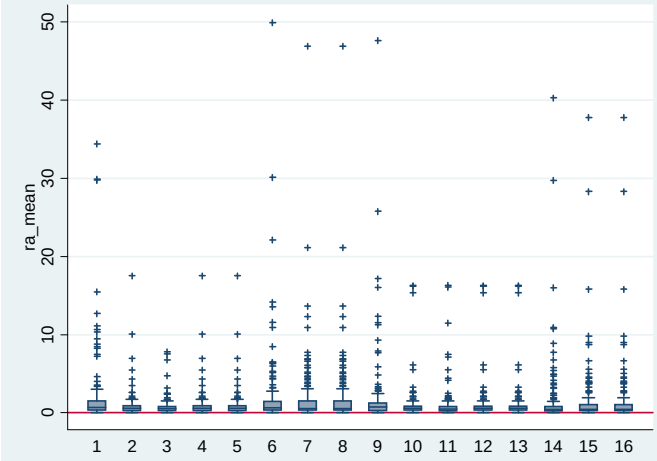



*Figure G13 Estimation accuracy: criteria 9*

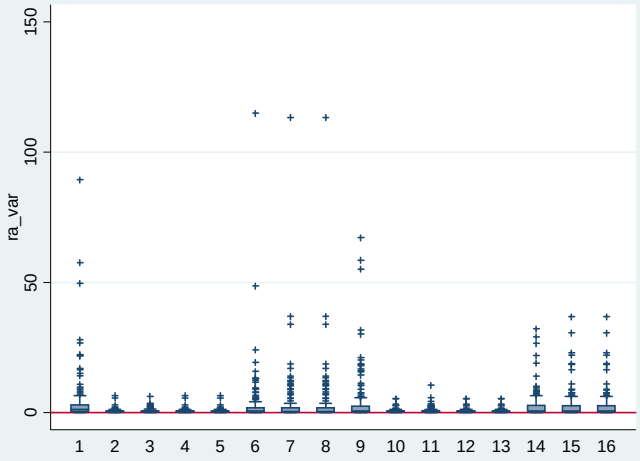


*Figure G14 Estimation accuracy: criteria 10*

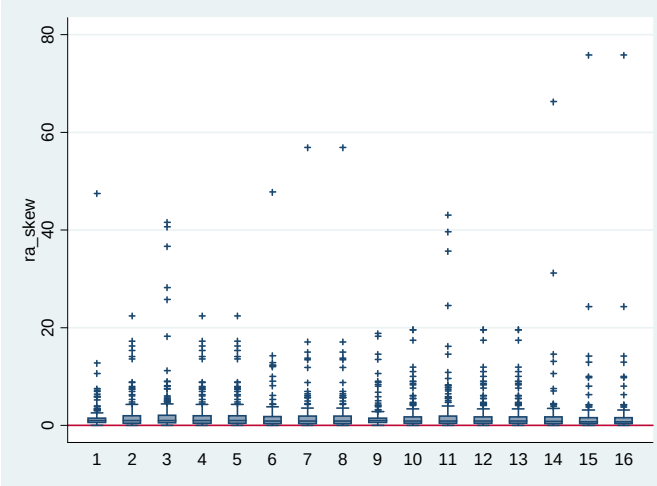



*Figure G15 Estimation accuracy: criteria 11*

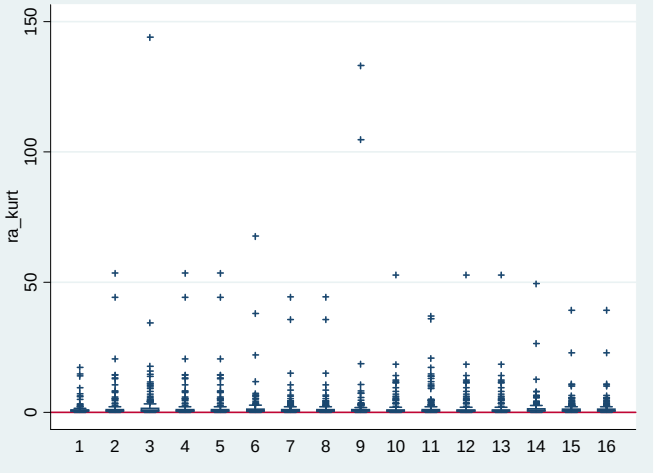


***Figure H1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for total financial year income for respondents***

*Figure H1 Predictive accuracy: criteria 1*

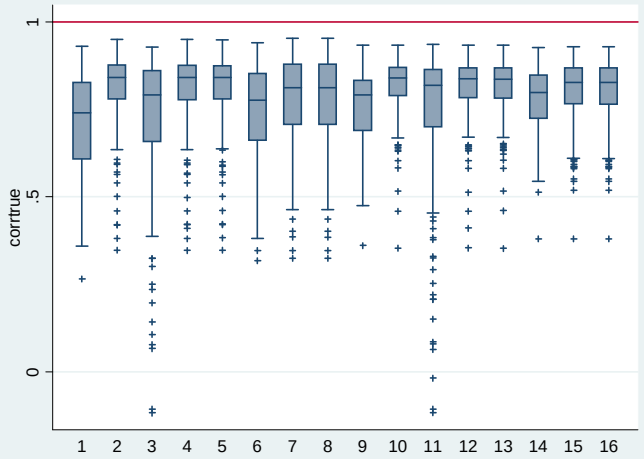



*Figure H2 Predictive accuracy: criteria 2*

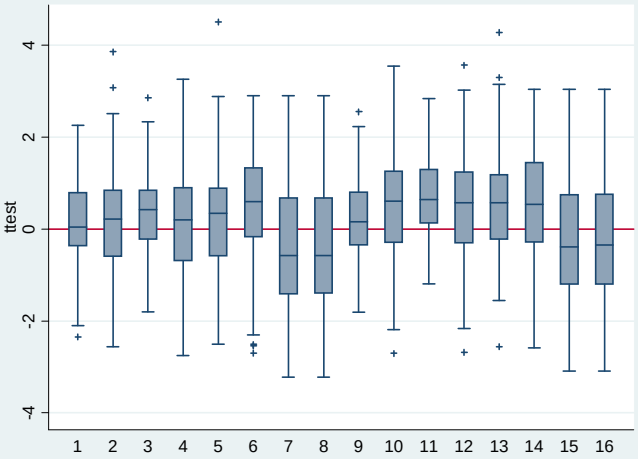



*Figure H3 Distributional accuracy: criteria 6*

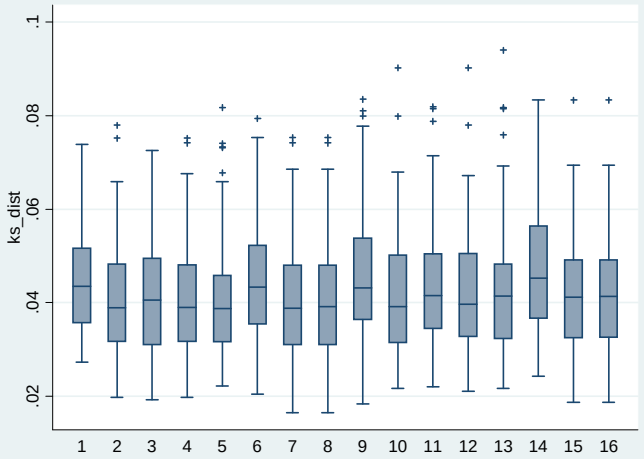



*Figure H4 Estimation accuracy: criteria 8*

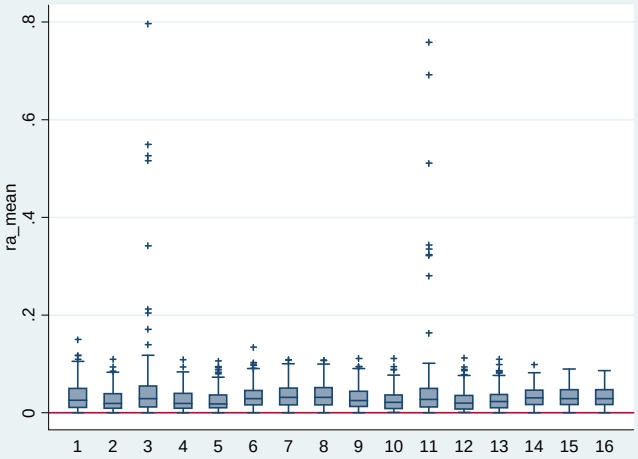



*Figure H5 Estimation accuracy: criteria 9*

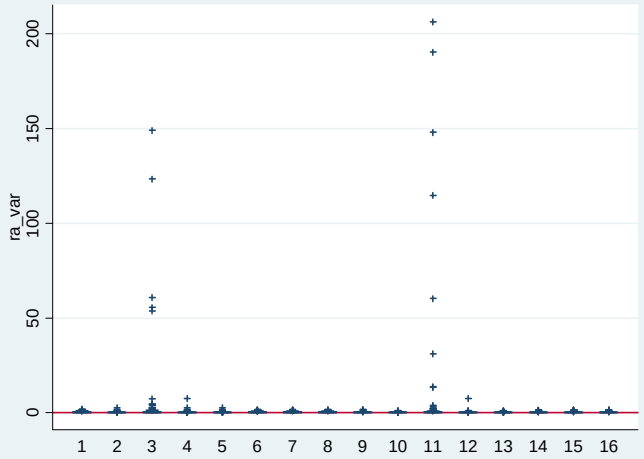



*Figure H6 Estimation accuracy: criteria 10*

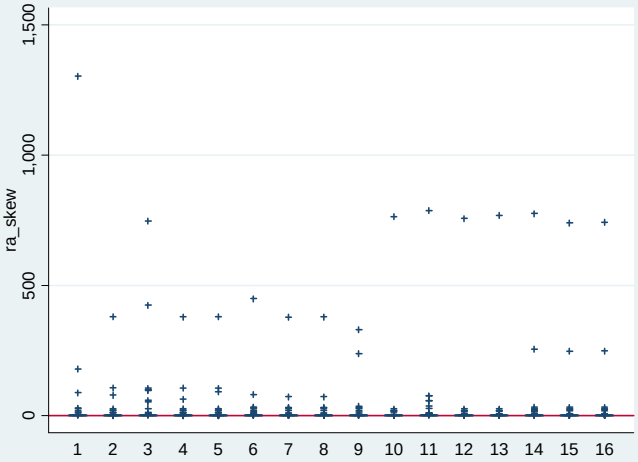


*Figure H7 Estimation accuracy: criteria 11*

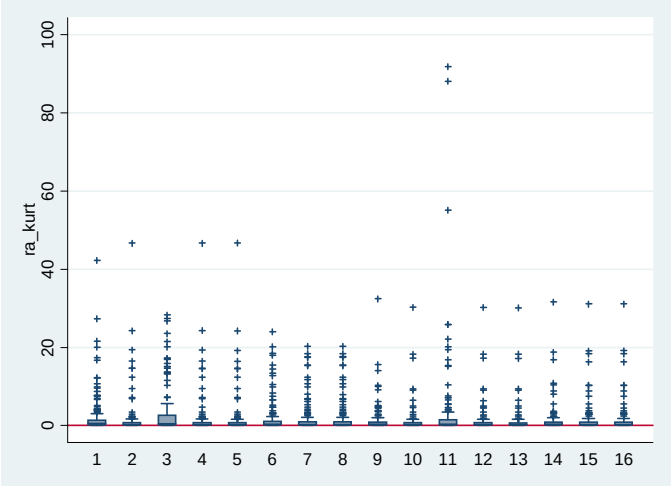


***Figure H8-16 Box plots of longitudinal predictive, distributional and estimation evaluation measures for total financial year income for respondents***

*Figure H8 Predictive accuracy: criteria 1*

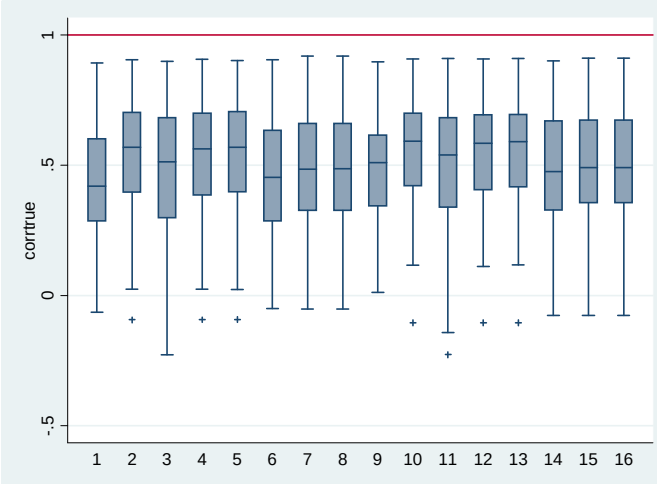



*Figure H9 Predictive accuracy: criteria 2*

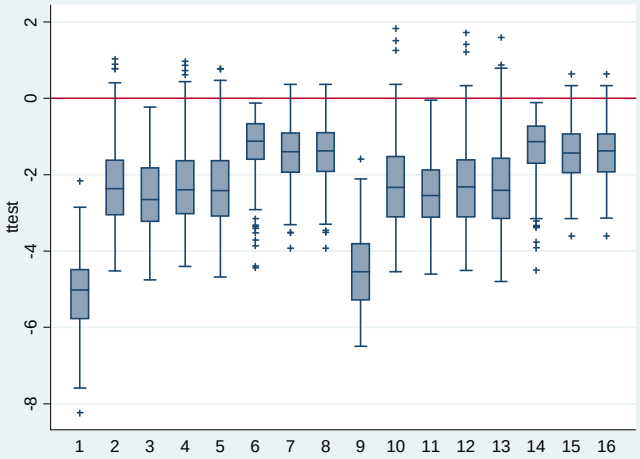



*Figure H10 Predictive accuracy: criteria 3*

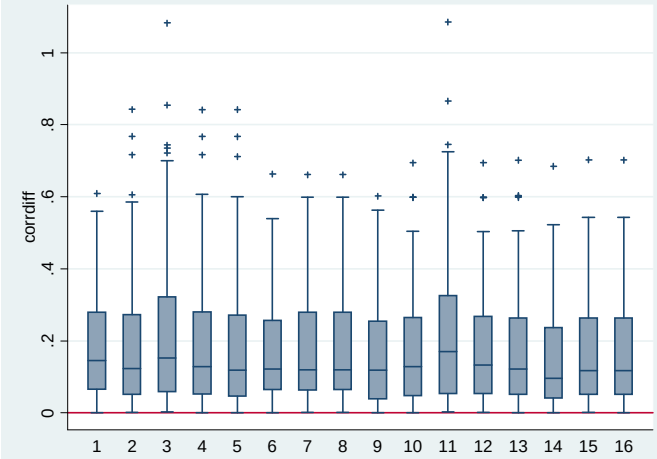



*Figure H11 Distributional accuracy: criteria 6*

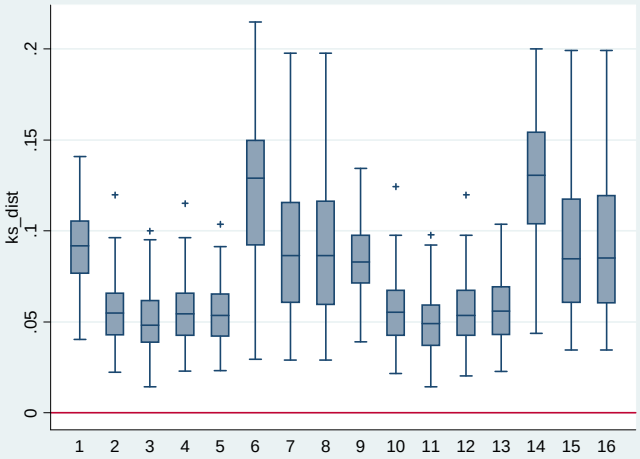



*Figure H12 Distributional accuracy: criteria 7*

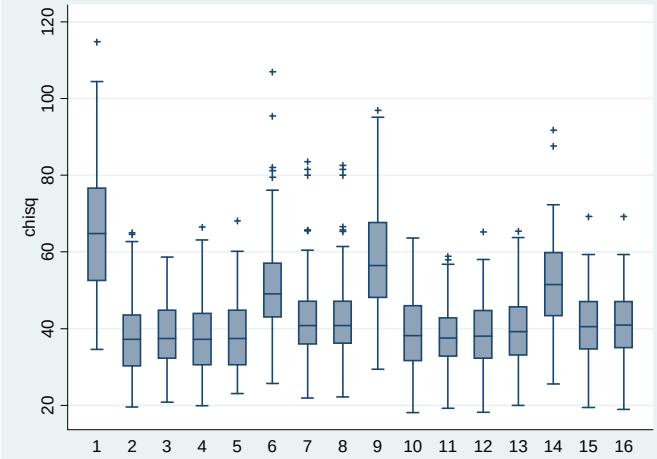



*Figure H13 Estimation accuracy: criteria 8*

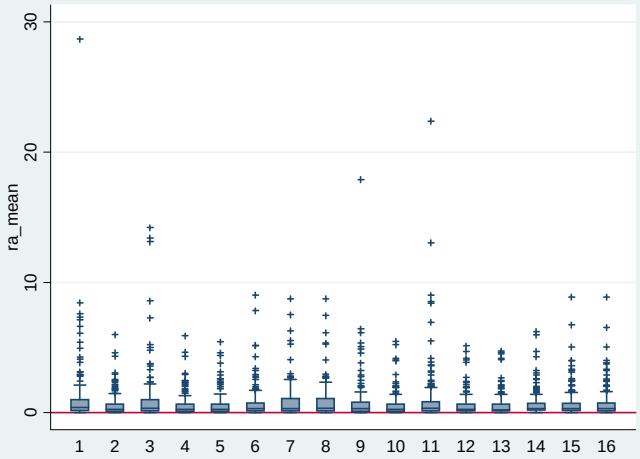


*Figure H14 Estimation accuracy: criteria 9*

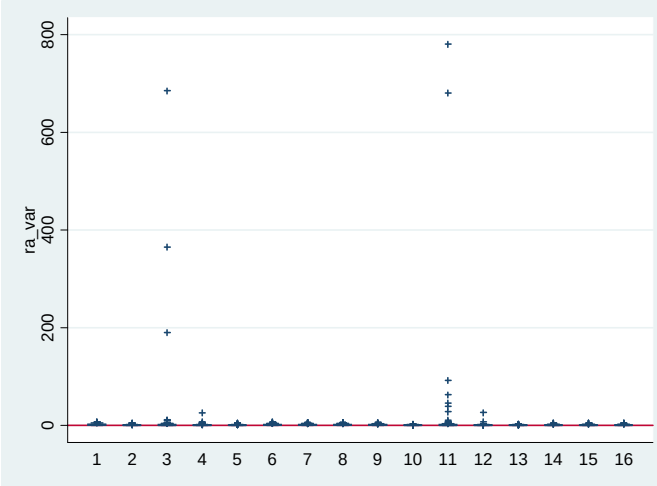



*Figure H15 Estimation accuracy: criteria 10*

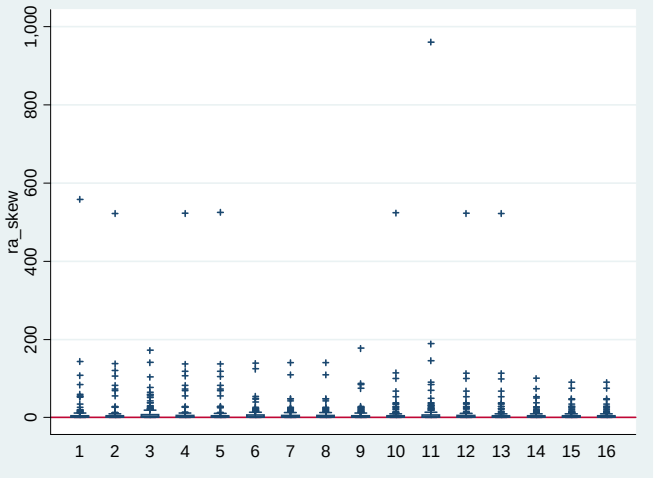



*Figure H16 Estimation accuracy: criteria 11*

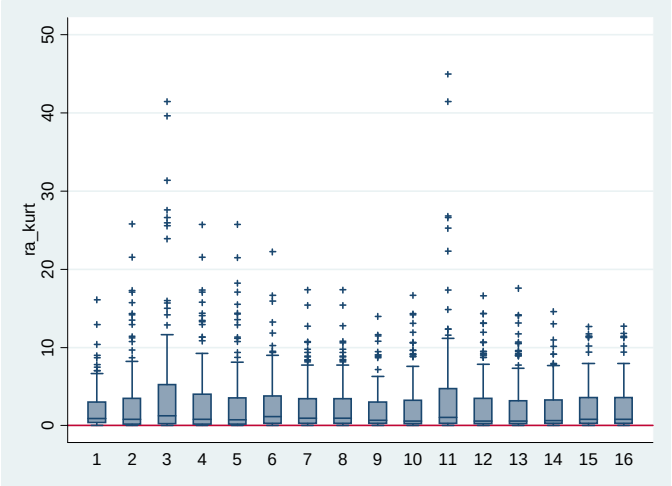


***Figure I1-9 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for wages and salaries for non-respondents***

*Figure I1 Predictive accuracy: criteria 1*

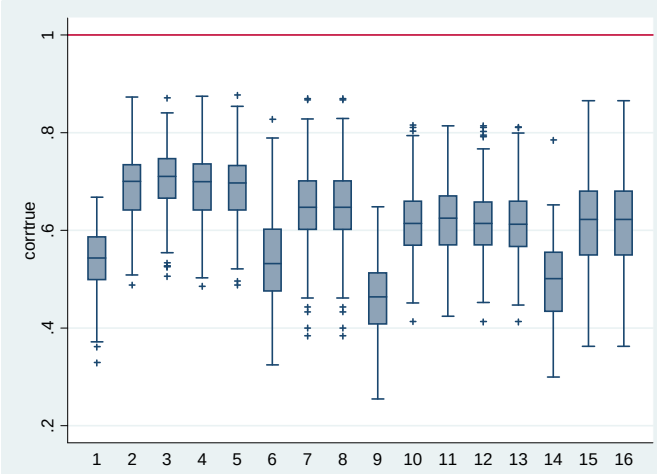
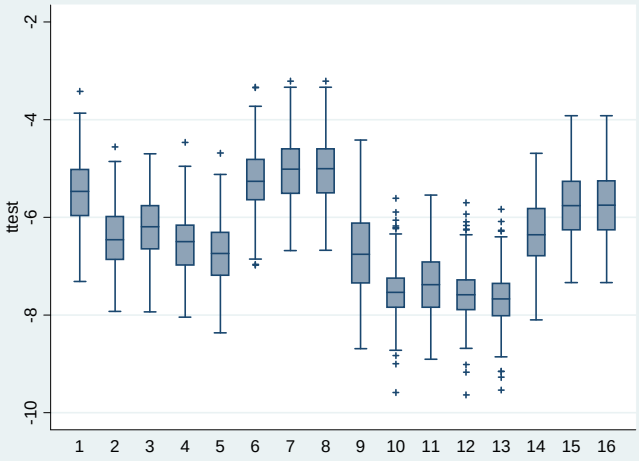



*Figure I2 Predictive accuracy: criteria 2*




*FigureI3 Predictive accuracy: criteria 4*

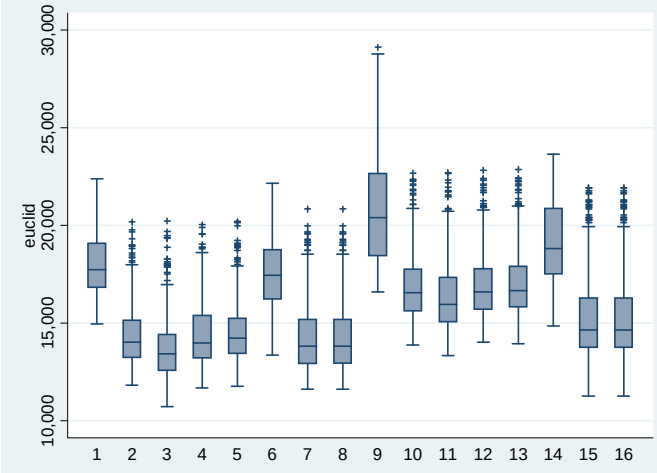



*Figure I4 Predictive accuracy: criteria 5*

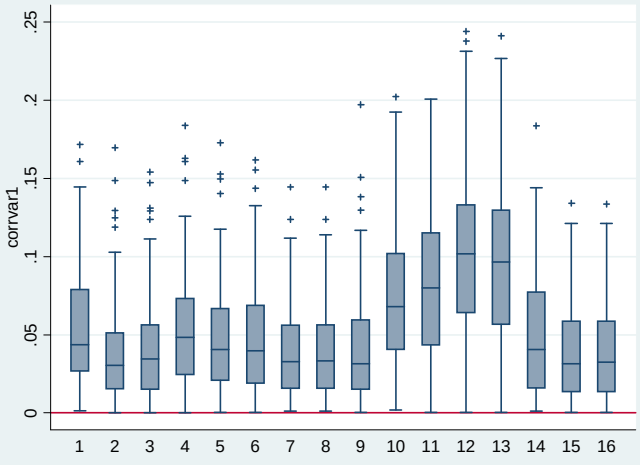



*Figure I5 Distributional accuracy: criteria 6*

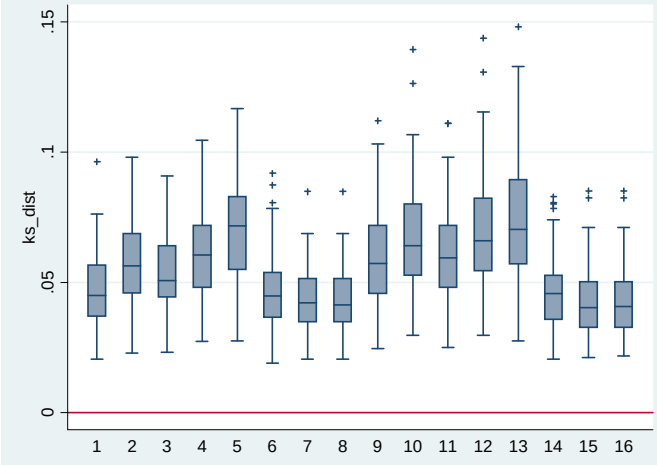



*Figure I6 Estimation accuracy: criteria 8*

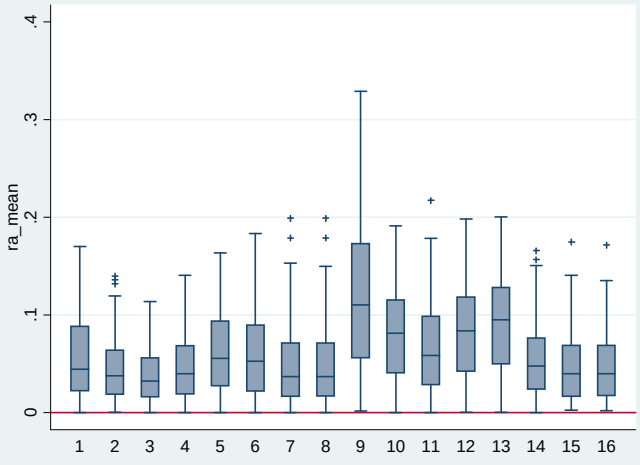


*Figure I7 Estimation accuracy: criteria 9*

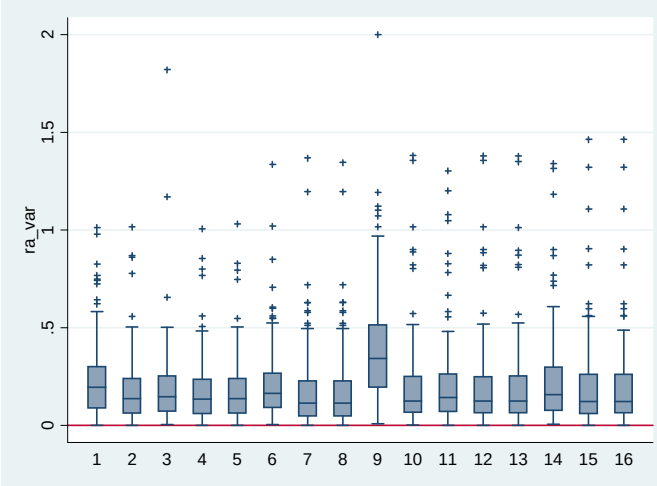



*Figure I8 Estimation accuracy: criteria 10*

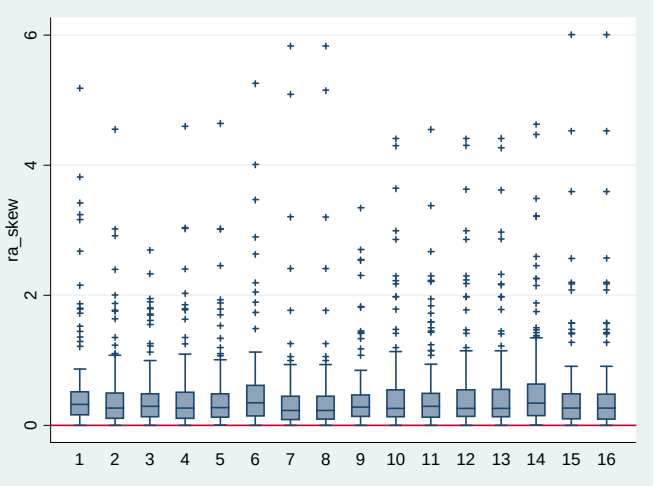



*Figure I9 Estimation accuracy: criteria 11*

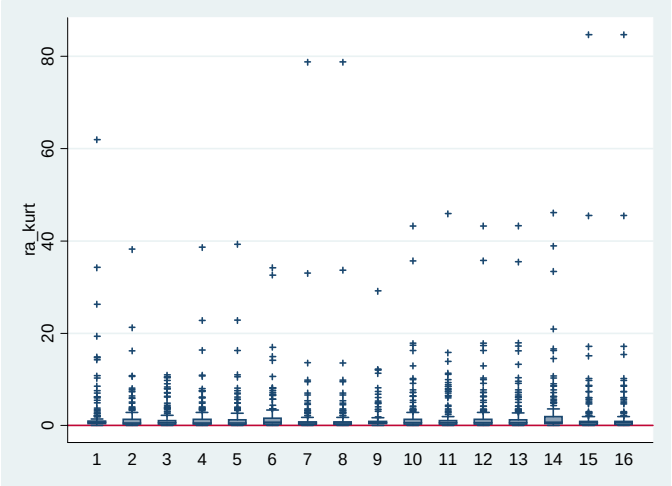


***Figure I10-17 Box plots of longitudinal predictive, distributional and estimation evaluation measures for wages and salaries for non-respondents***

*Figure I10 Predictive accuracy: criteria 1*

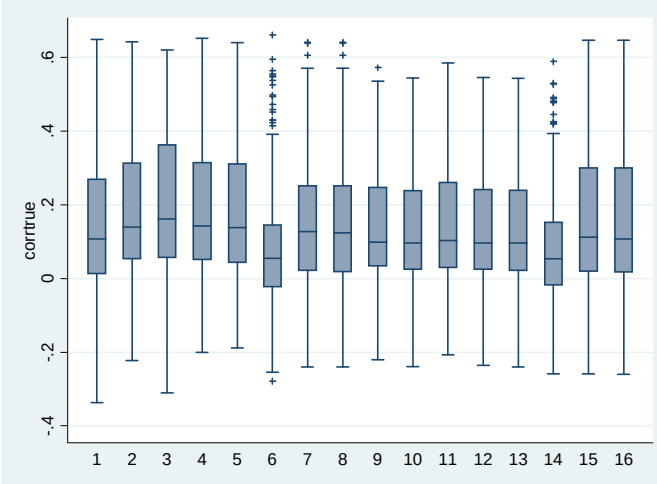



*Figure I11 Predictive accuracy: criteria 2*

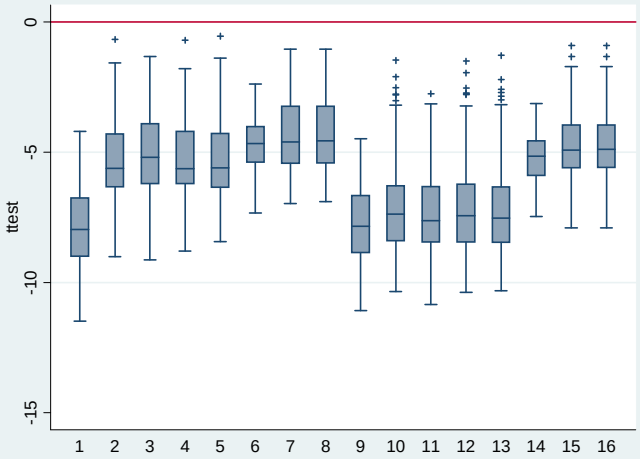



*Figure I12 Predictive accuracy: criteria 3*

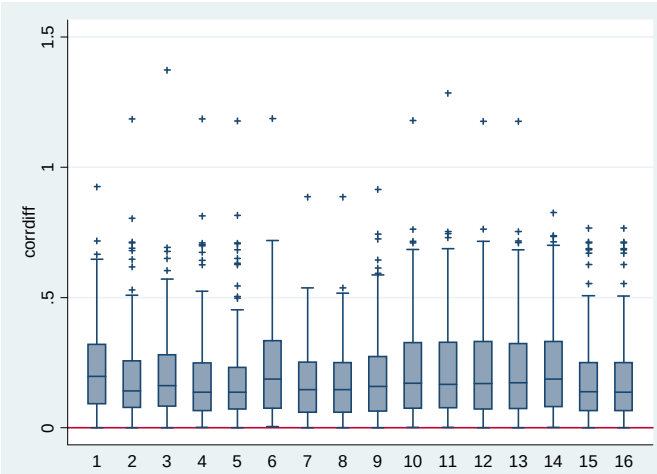



*Figure I13 Distributional accuracy: criteria 6*

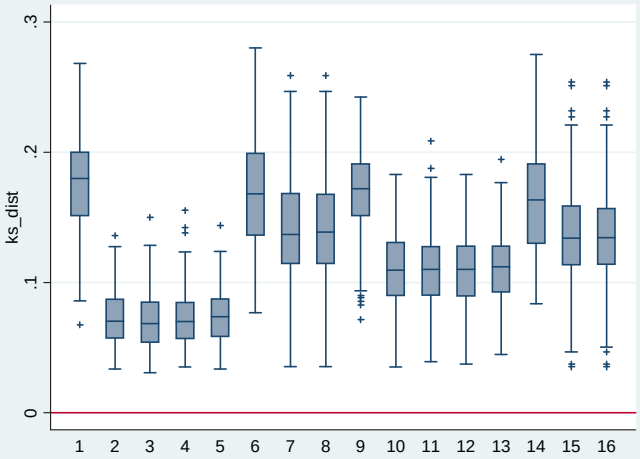



*Figure I14 Estimation accuracy: criteria 8*

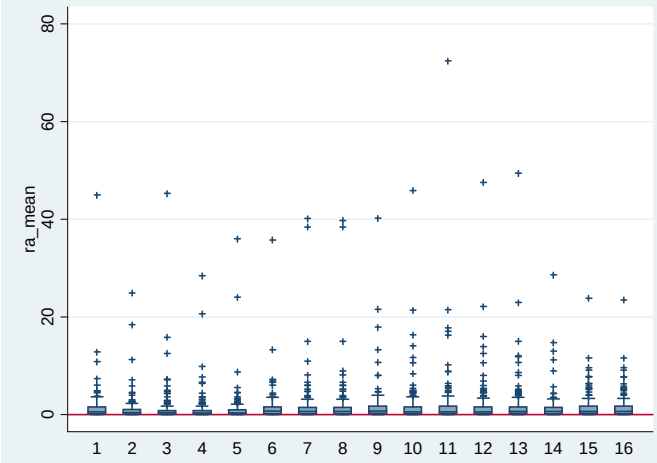



*Figure I15 Estimation accuracy: criteria 9*

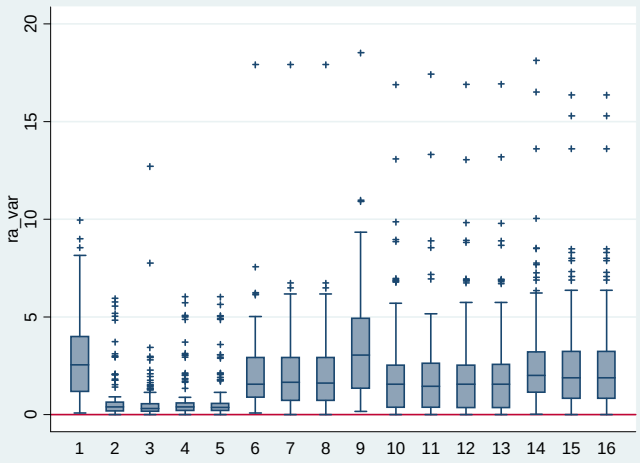


*Figure I16 Estimation accuracy: criteria 10*

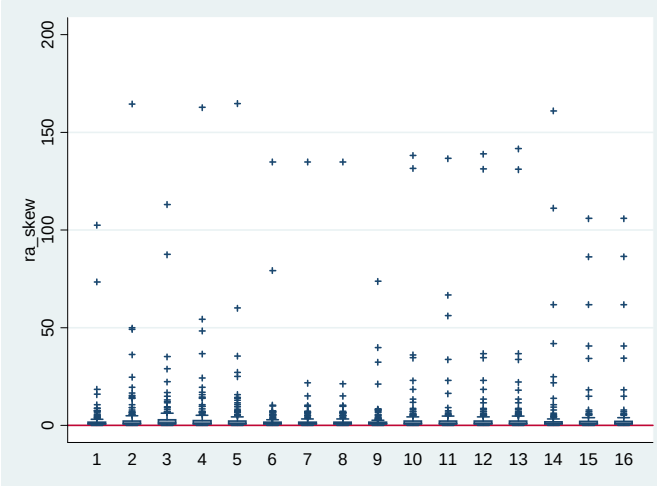



*Figure I17 Estimation accuracy: criteria 11*

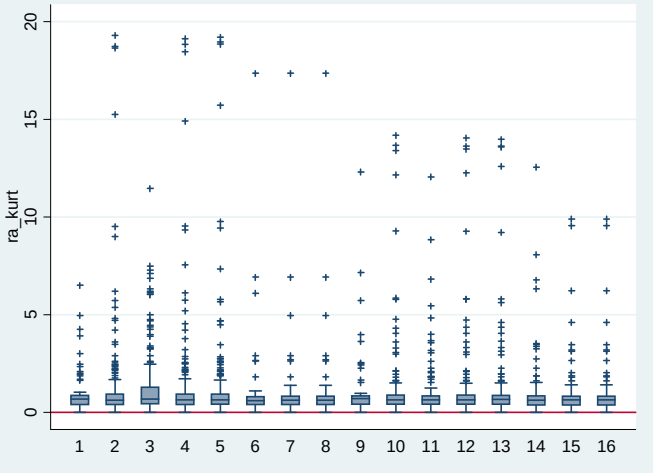


***Figure J1-9 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for Australian Government pensions for non-respondents***

*Figure J1 Predictive accuracy: criteria 1*

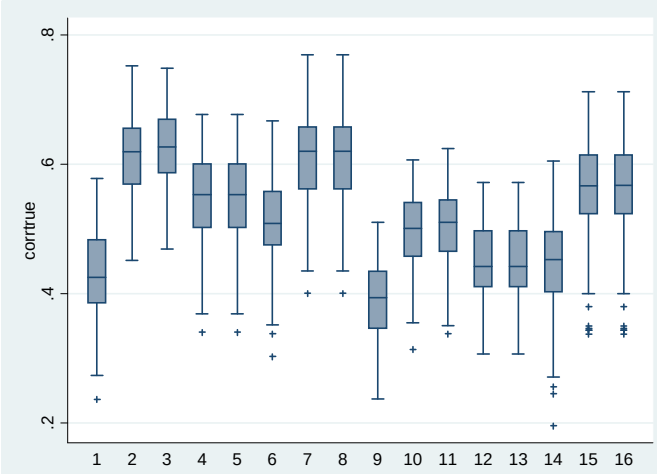



*Figure J2 Predictive accuracy: criteria 2*

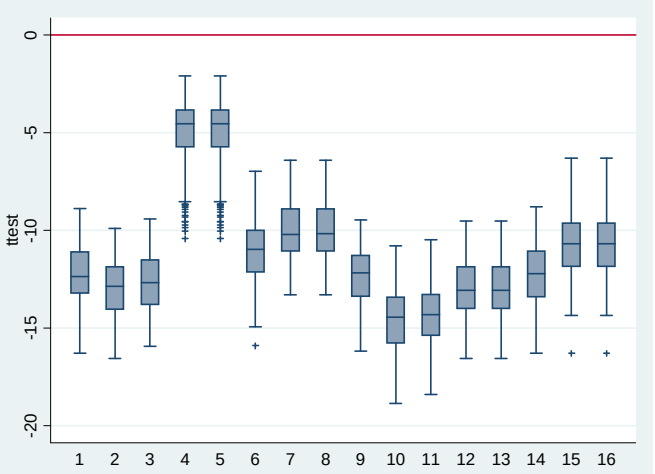



*Figure J3 Predictive accuracy: criteria 4*

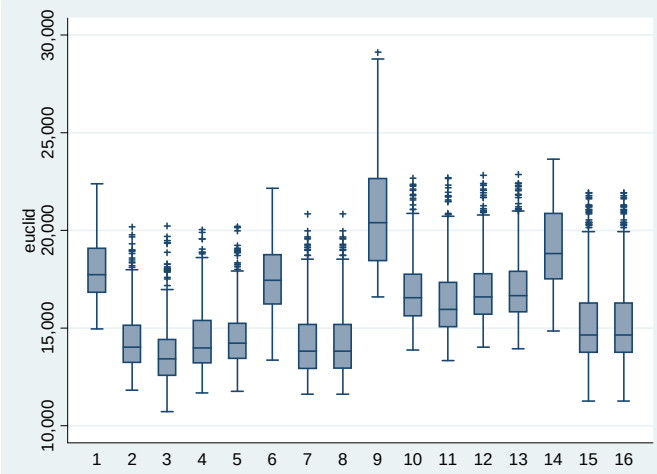



*Figure J4 Predictive accuracy: criteria 5*

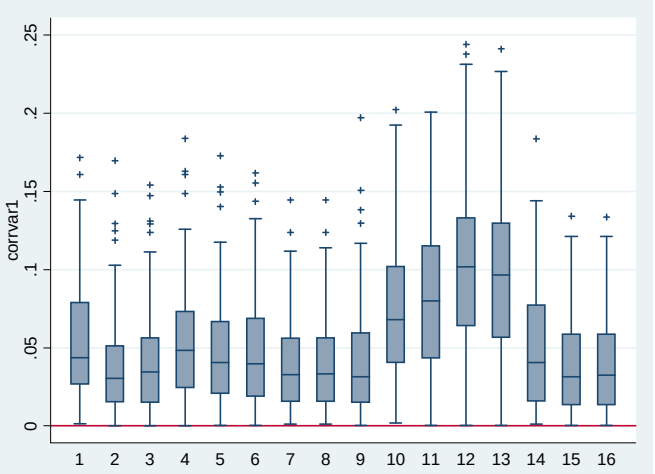



*Figure J5 Distributional accuracy: criteria 6*

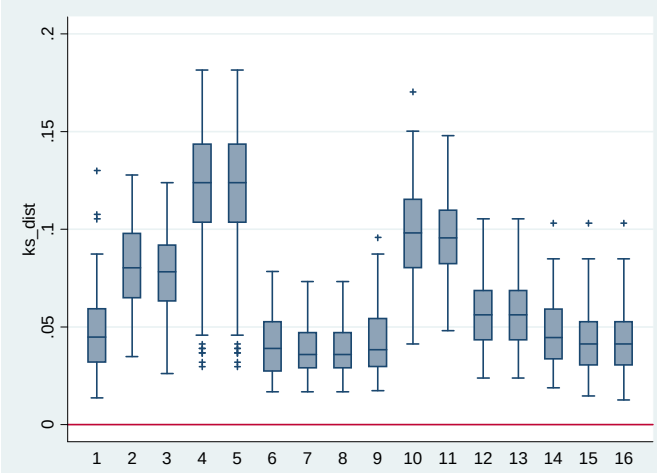



*Figure J6 Estimation accuracy: criteria 8*

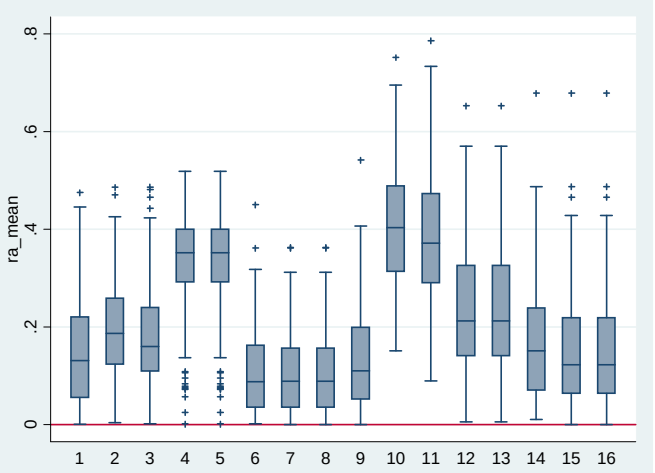


*Figure J7 Estimation accuracy: criteria 9*

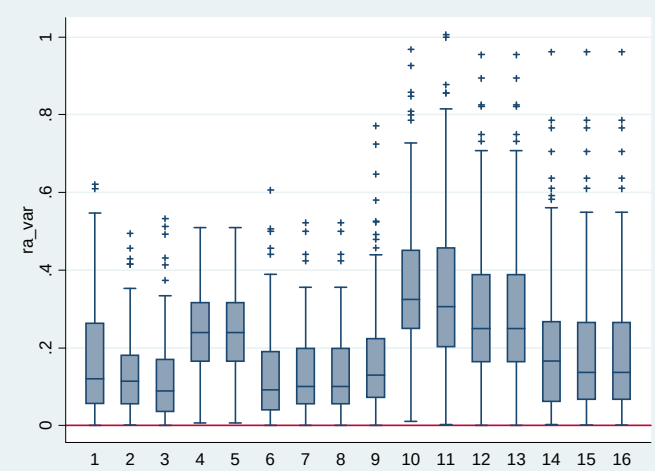



*Figure J8 Estimation accuracy: criteria 10*

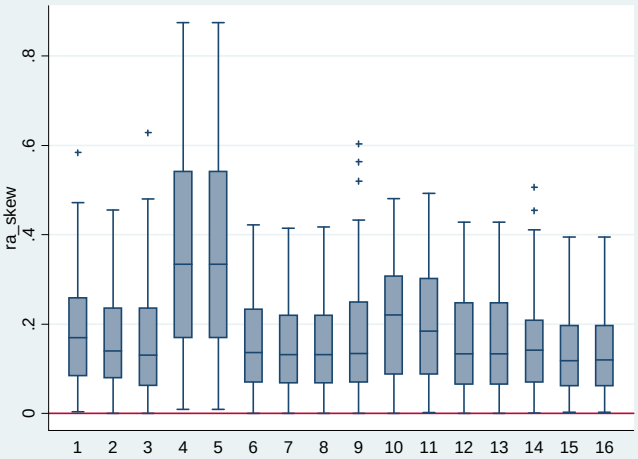



*Figure J9 Estimation accuracy: criteria 11*

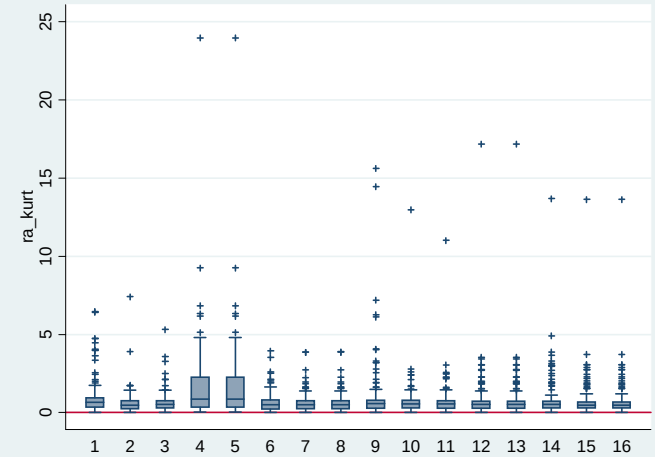


***Figure J10-17 Box plots of longitudinal predictive, distributional and estimation evaluation measures for Australian Government pensions for non-respondents***

*Figure J10 Predictive accuracy: criteria 1*

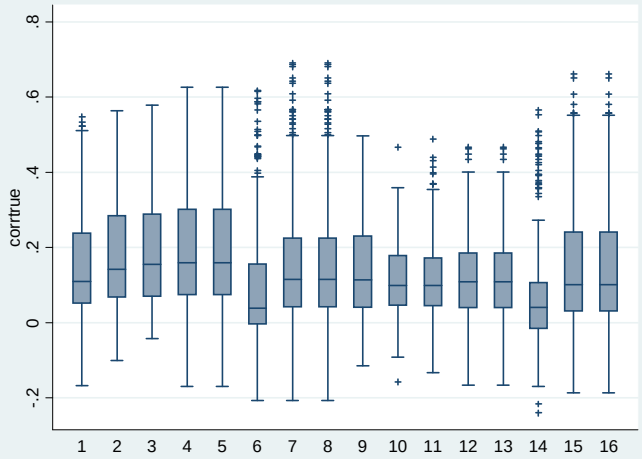



*Figure J11 Predictive accuracy: criteria 2*

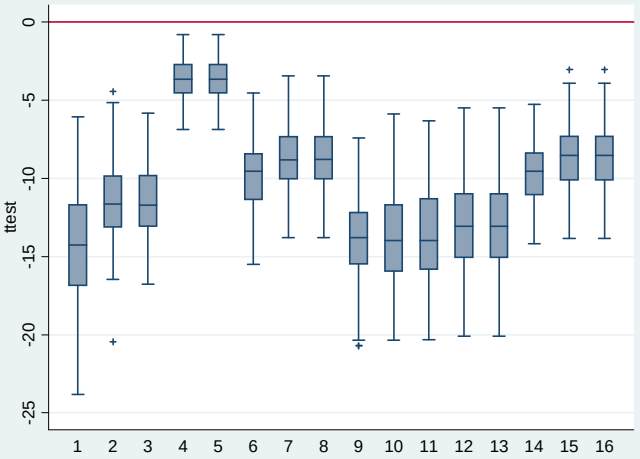



*Figure J12 Predictive accuracy: criteria 3*

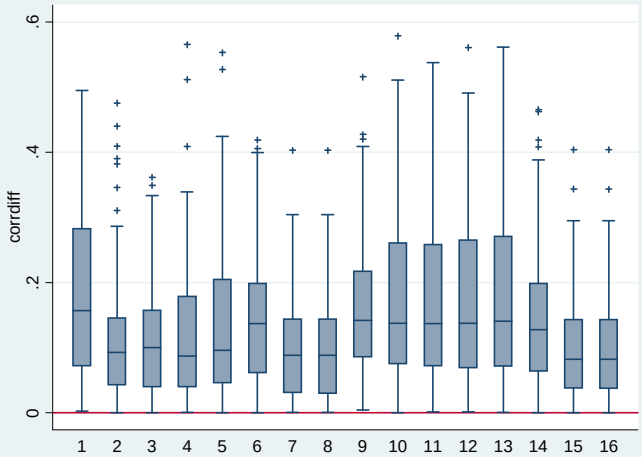



*Figure J13 Distributional accuracy: criteria 6*

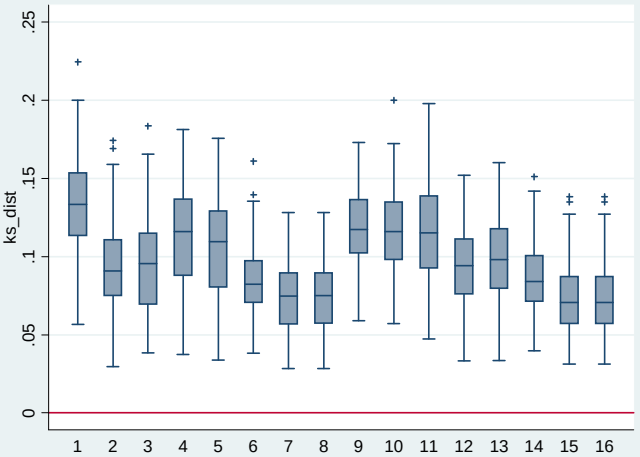



*Figure J14 Estimation accuracy: criteria 8*

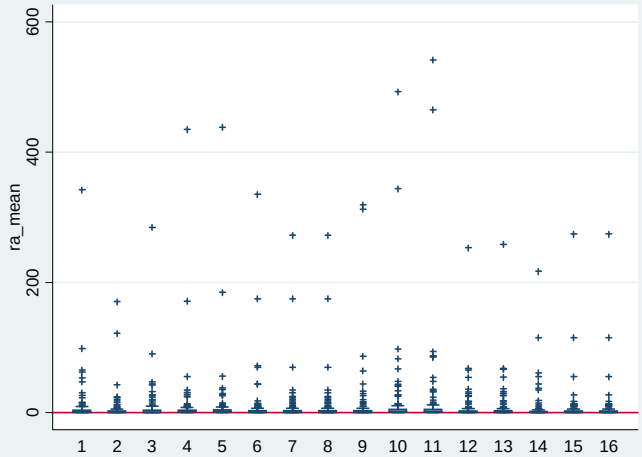



*Figure J15 Estimation accuracy: criteria 9*

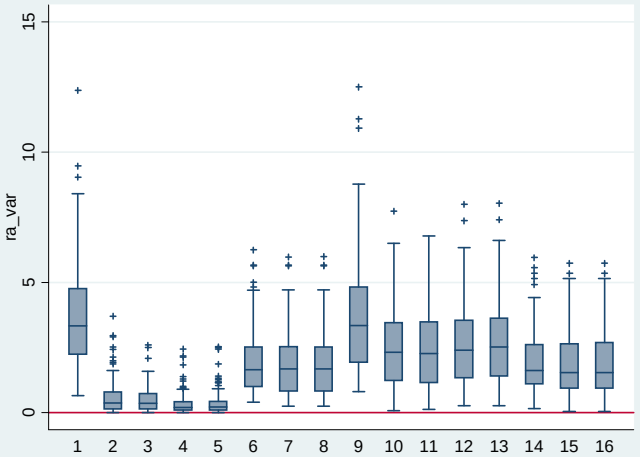


*Figure J16 Estimation accuracy: criteria 10*

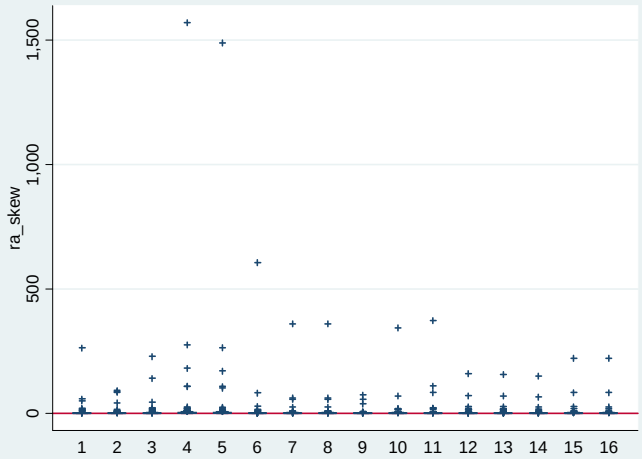



*Figure J17 Estimation accuracy: criteria 11*

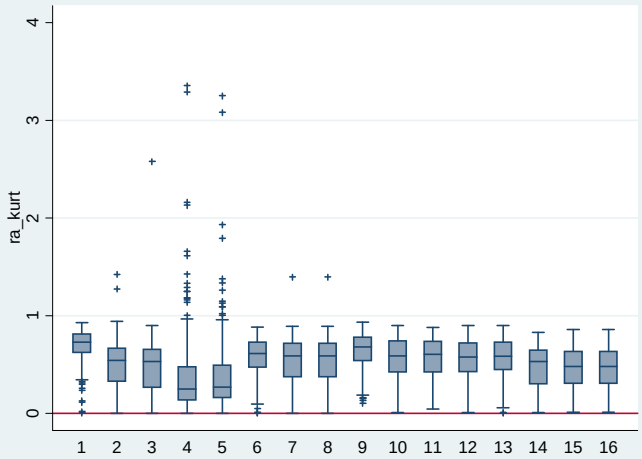


***Figure K1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for business income for non-respondents***

*Figure K1 Predictive accuracy: criteria 1*

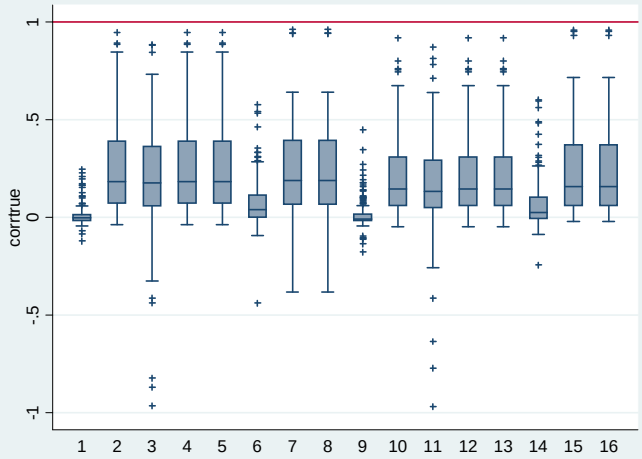



*Figure K2 Predictive accuracy: criteria 2*

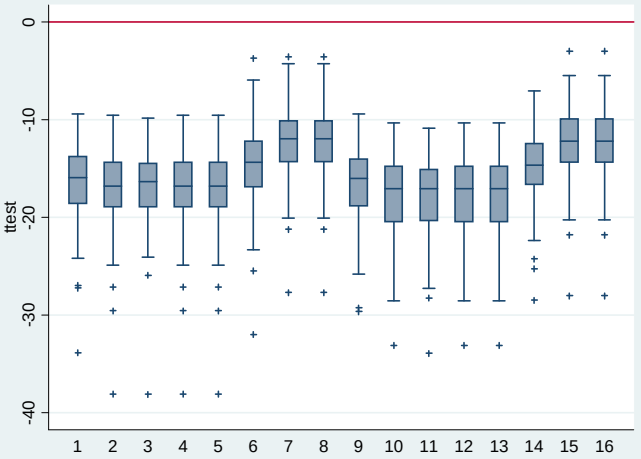



*Figure K3 Distributional accuracy: criteria 6*

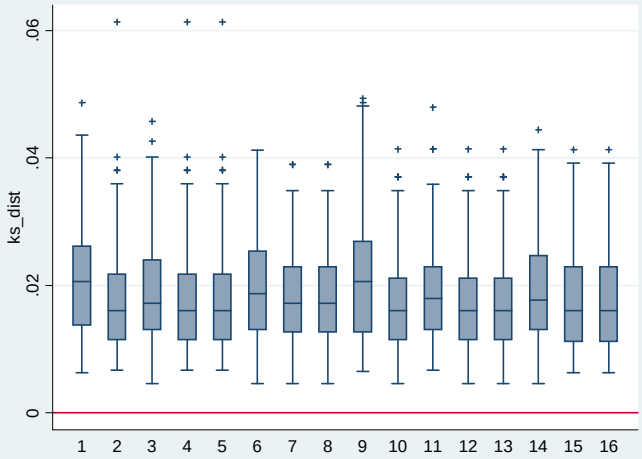



*Figure K4 Estimation accuracy: criteria 8*

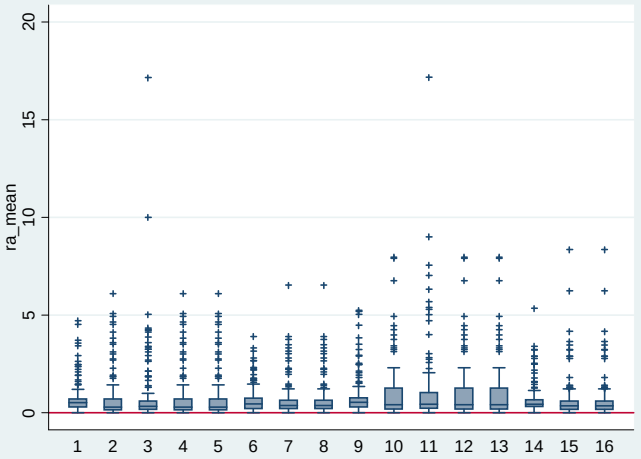



*Figure K5 Estimation accuracy: criteria 9*

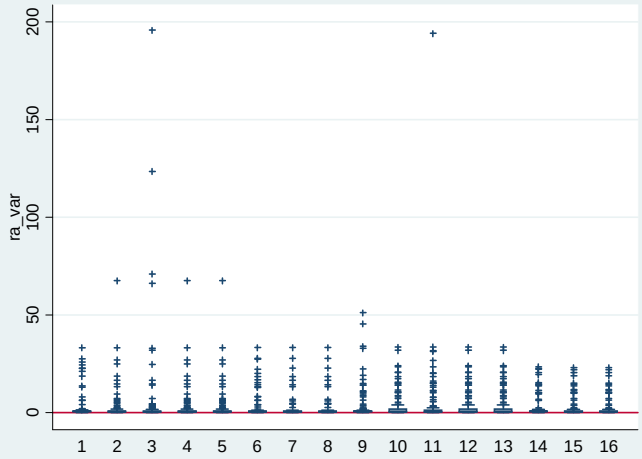



*Figure K6 Estimation accuracy: criteria 10*

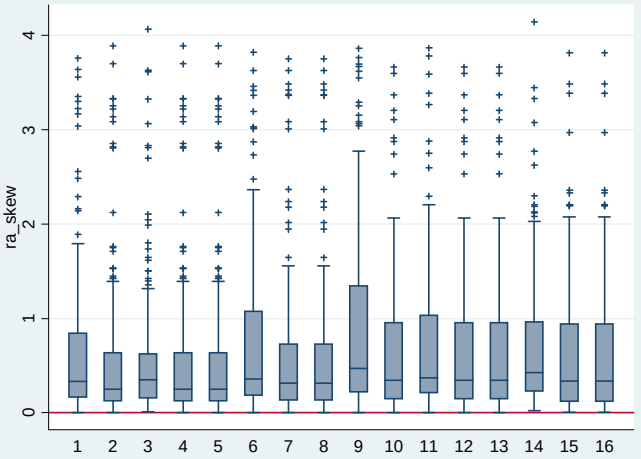


*Figure K7 Estimation accuracy: criteria 11*

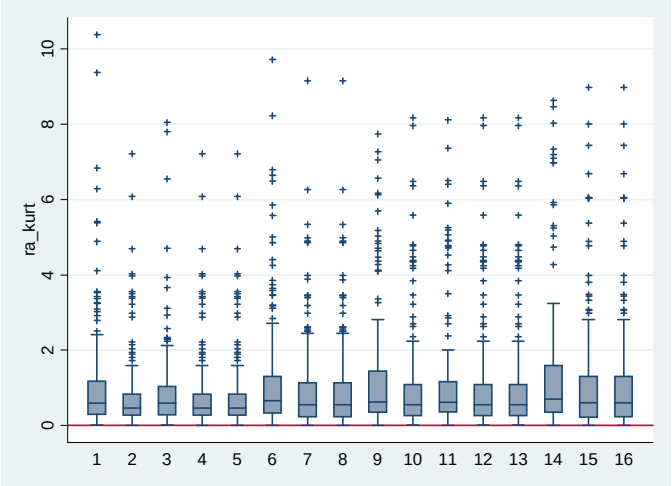


***Figure K8-15 Box plots of longitudinal predictive, distributional and estimation evaluation measures for business income for non-respondents***

*Figure K8 Predictive accuracy: criteria 1*

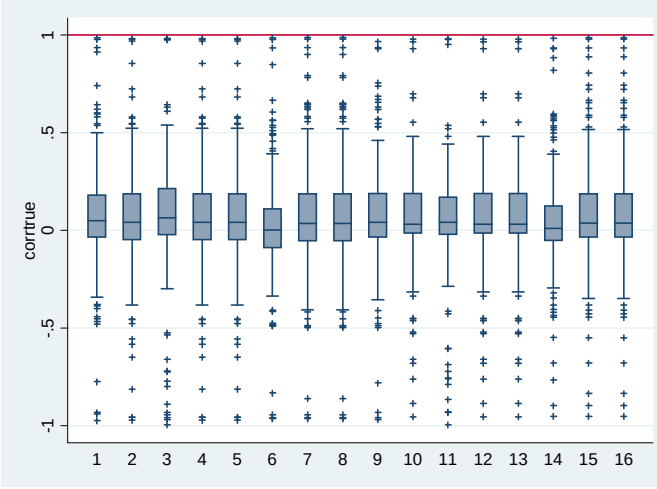



*Figure K9 Predictive accuracy: criteria 2*

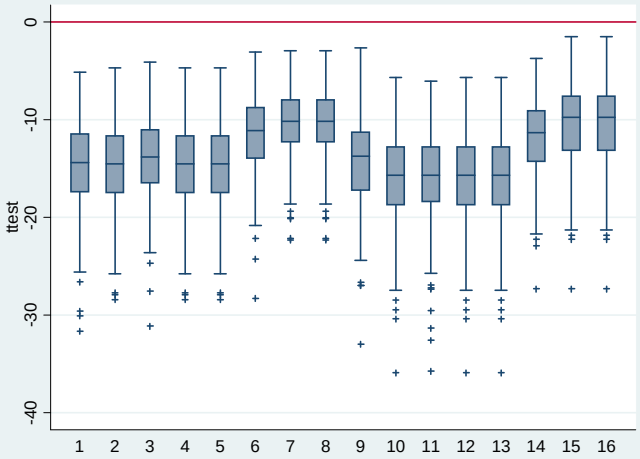



*Figure K10 Predictive accuracy: criteria 3*

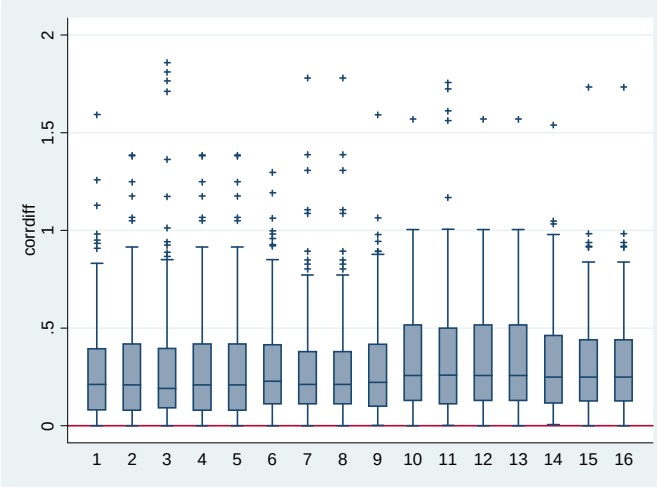



*Figure K11 Distributional accuracy: criteria 6*

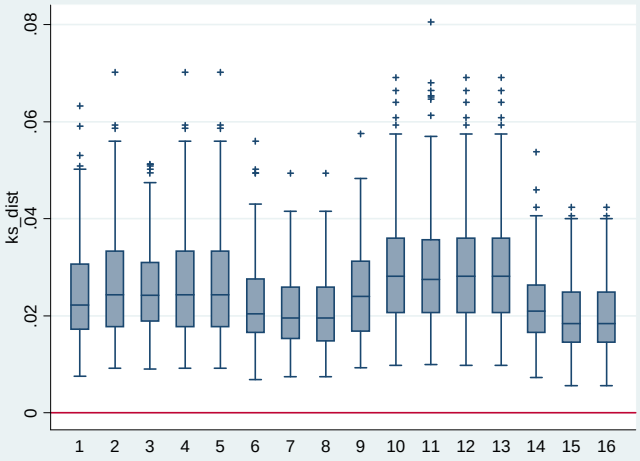



*Figure K12 Estimation accuracy: criteria 8*

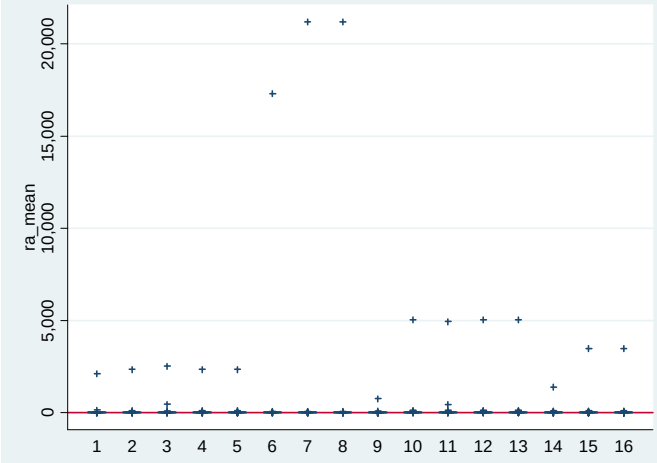



*Figure K13 Estimation accuracy: criteria 9*

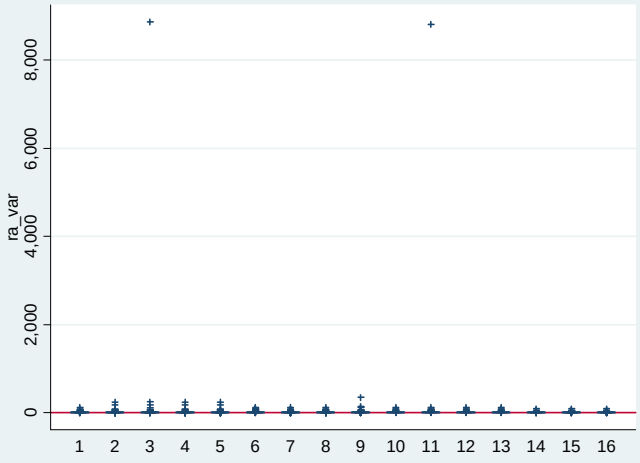


*Figure K14 Estimation accuracy: criteria 10*

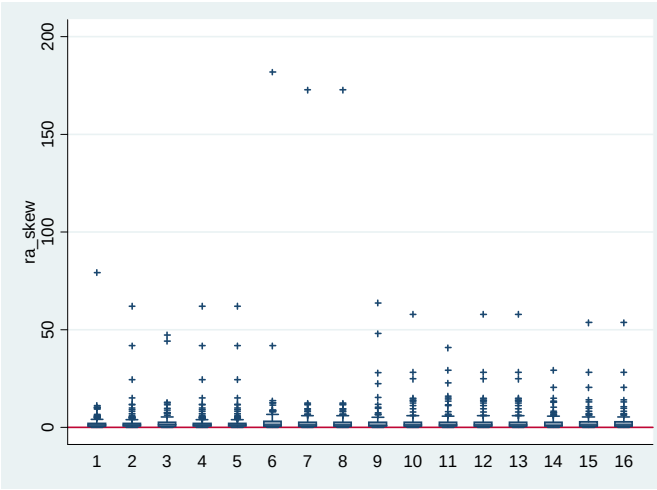



*Figure K15 Estimation accuracy: criteria 11*

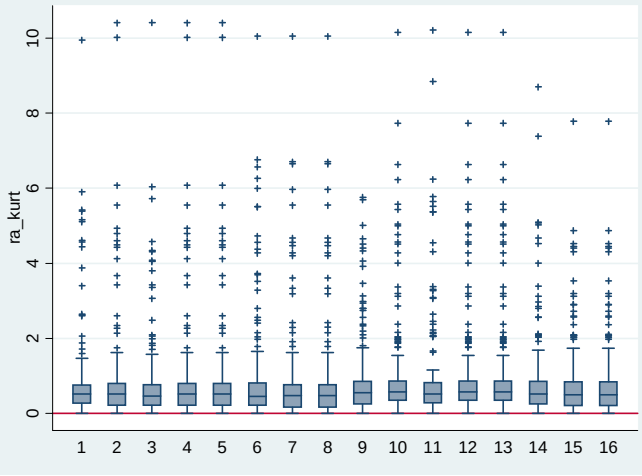


***Figure L1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for interest income for non-respondents***

*Figure L1 Predictive accuracy: criteria 1*

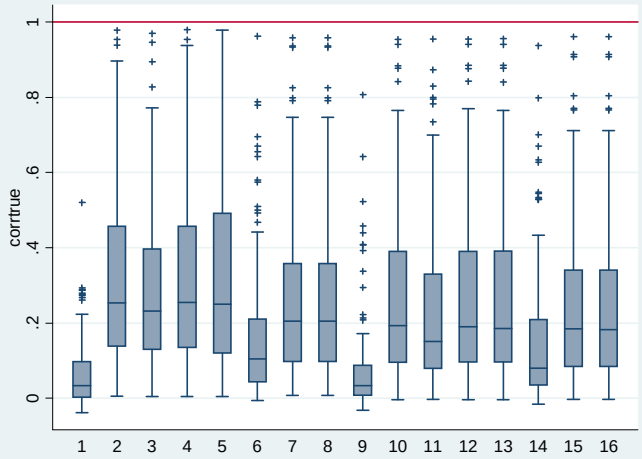



*Figure L2 Predictive accuracy: criteria 2*

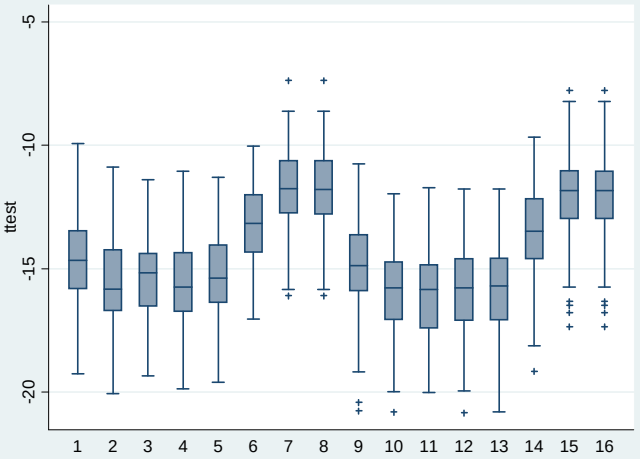



*Figure L3 Predictive accuracy: criteria 4*

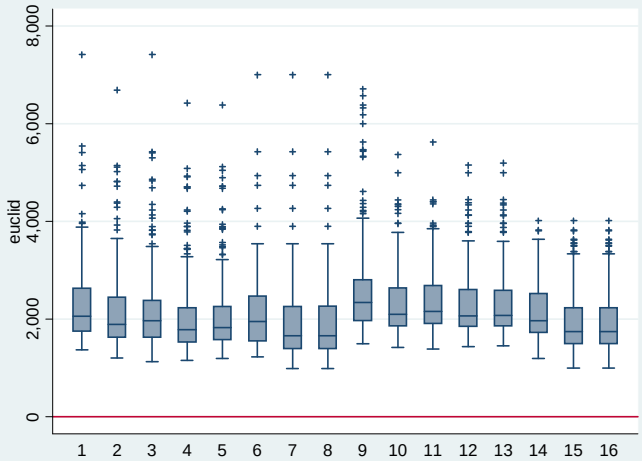



*Figure L4 Predictive accuracy: criteria 5A*

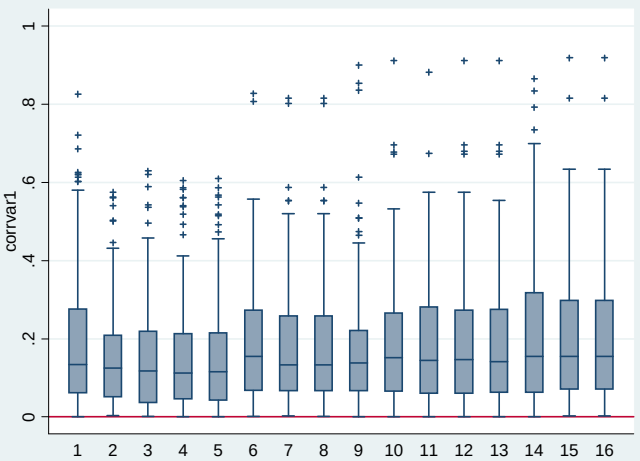



*Figure L5 Predictive accuracy: criteria 5B*

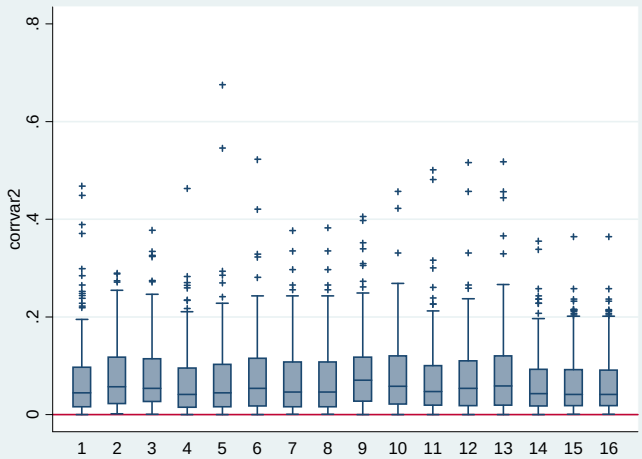



*Figure L6 Distributional accuracy: criteria 6*

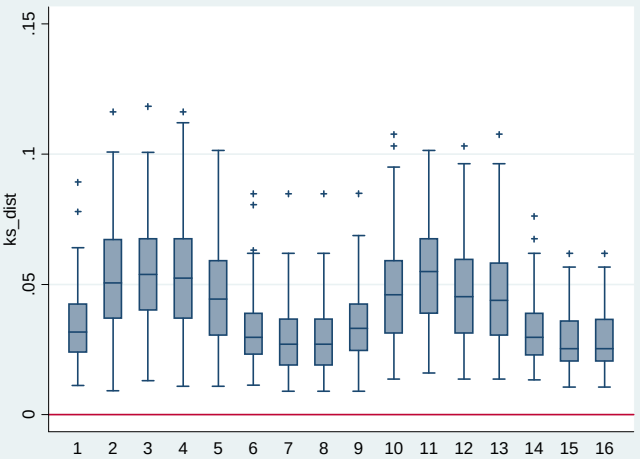


*Figure L7 Estimation accuracy: criteria 8*

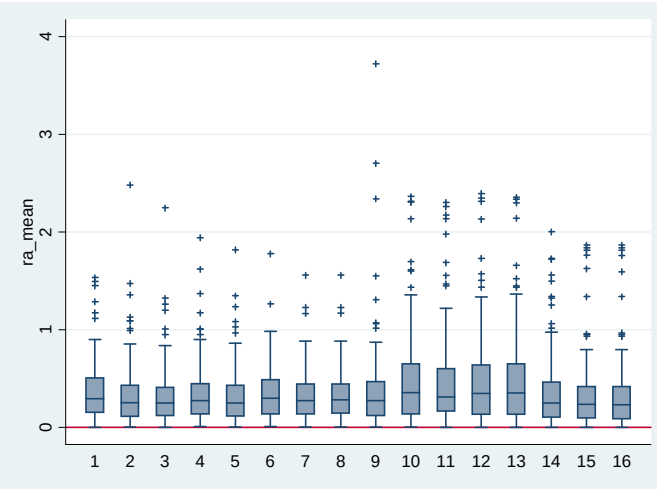



*Figure L8 Estimation accuracy: criteria 9*

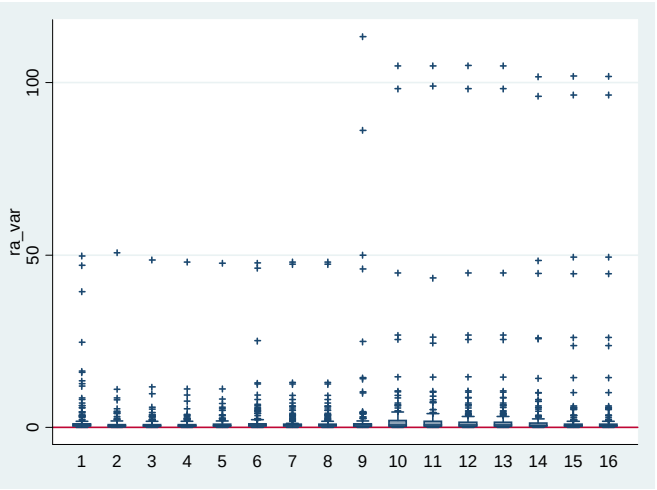



*Figure L9 Estimation accuracy: criteria 10*

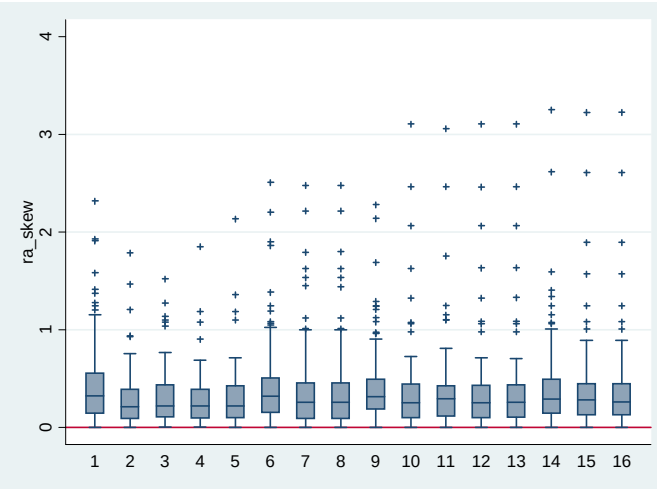



*Figure L10 Estimation accuracy: criteria 11*

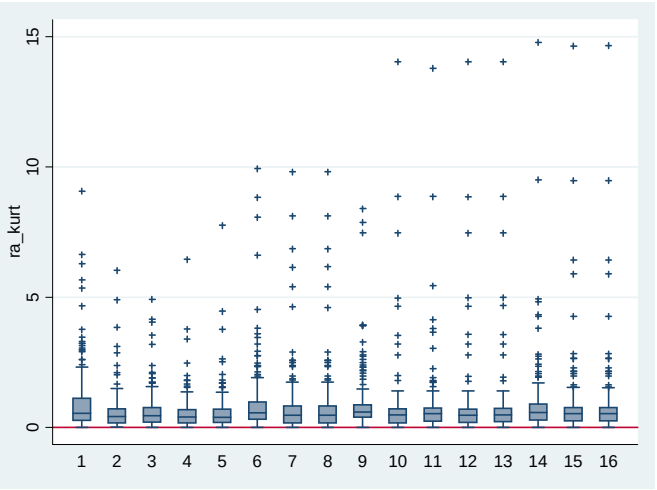


***Figure L11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for interest income for non-respondents***

*Figure L11 Predictive accuracy: criteria 1*

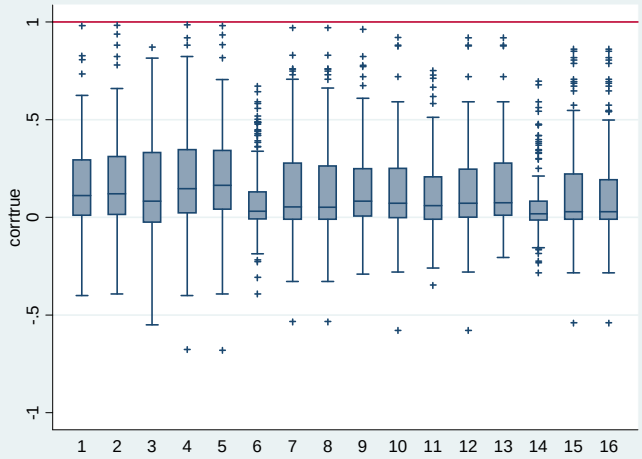



*Figure L12 Predictive accuracy: criteria 2*

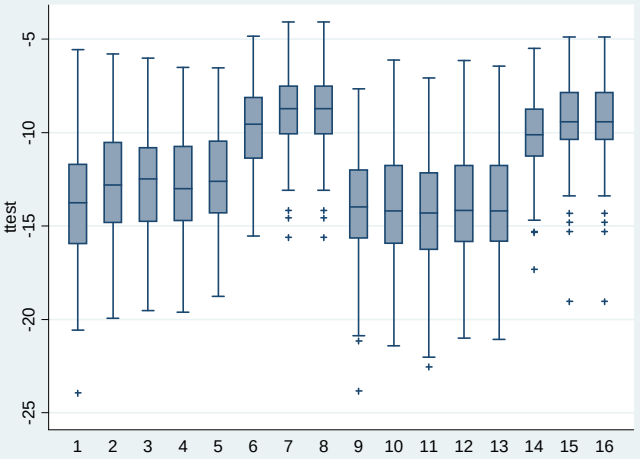



*Figure L13 Predictive accuracy: criteria 3*

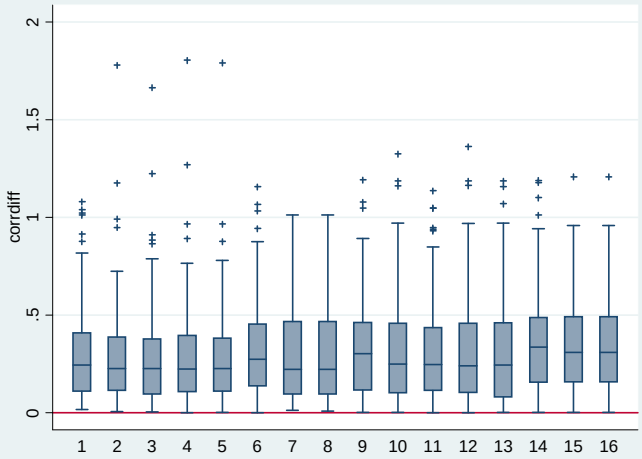



*Figure L14 Distributional accuracy: criteria 6*

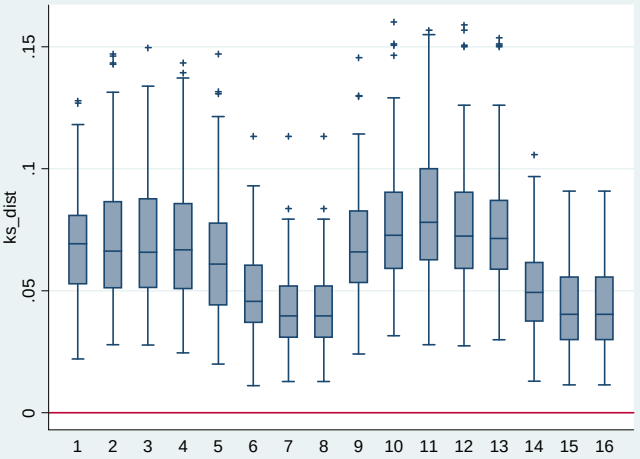



*Figure L15 Estimation accuracy: criteria 8*

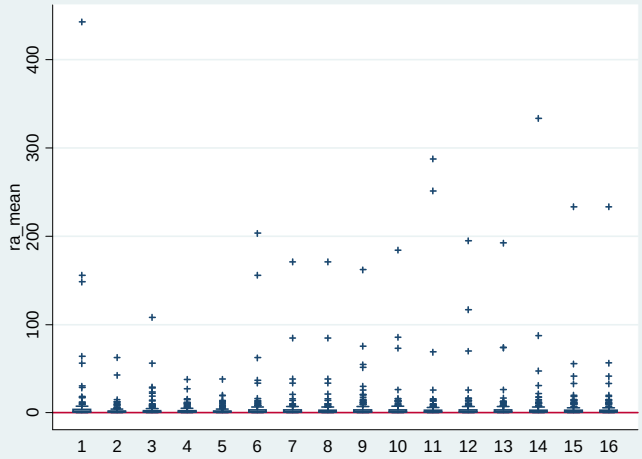



*Figure L16 Estimation accuracy: criteria 9*

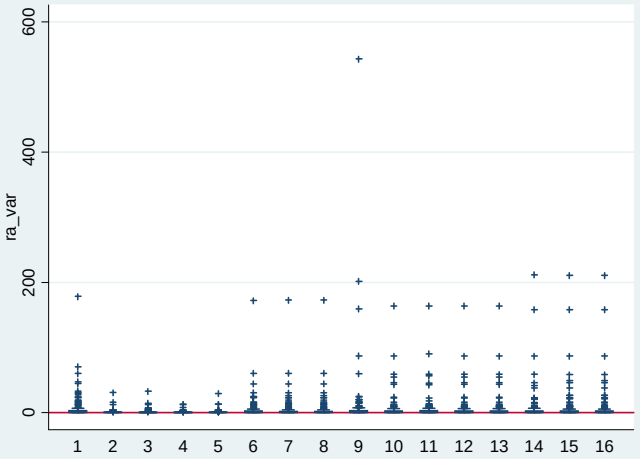


*Figure L17 Estimation accuracy: criteria 10*

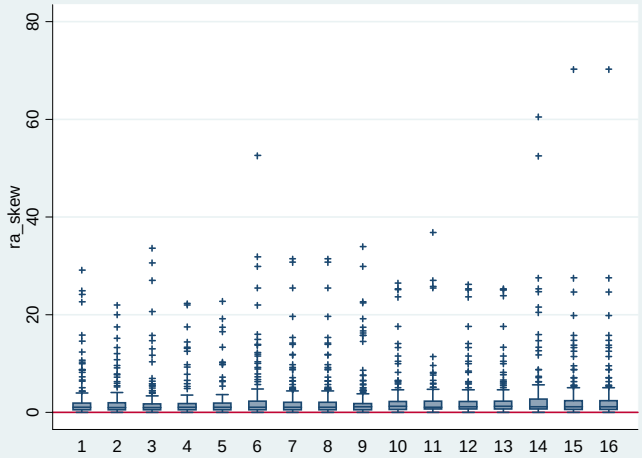



*Figure L18 Estimation accuracy: criteria 11*

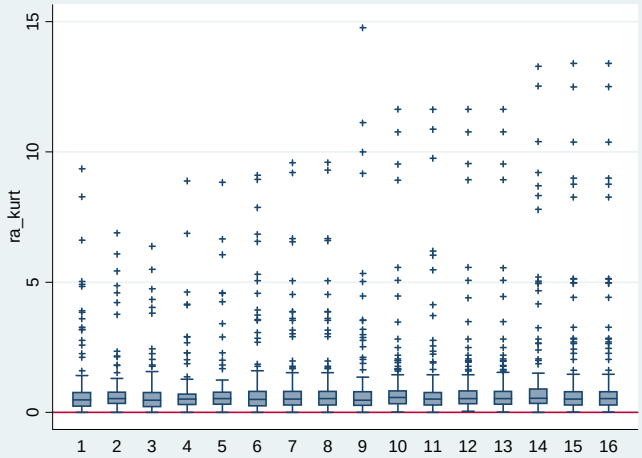


***Figure M1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for dividends and royalties for non-respondents***

*Figure M1 Predictive accuracy: criteria 1*

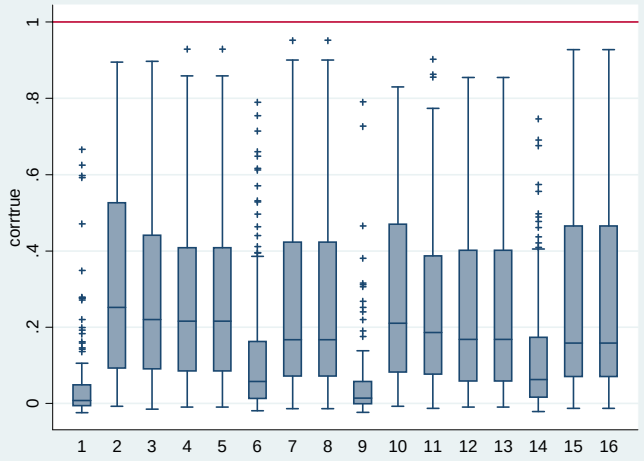



*Figure M2 Predictive accuracy: criteria 2*

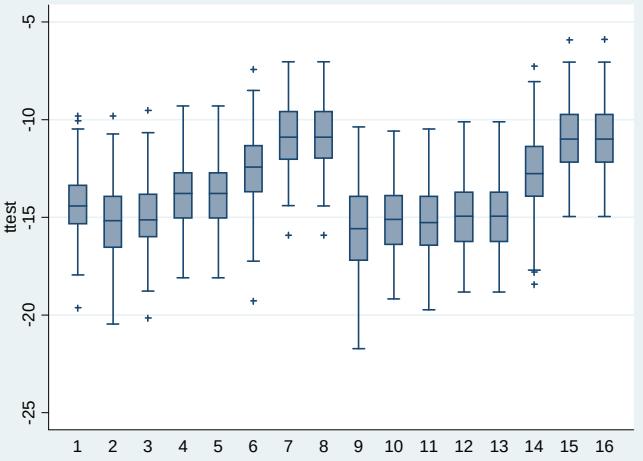



*Figure M3 Predictive accuracy: criteria 4*

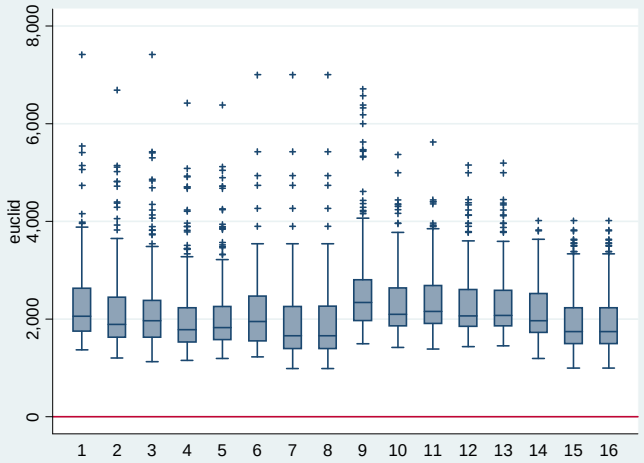



*Figure M4 Predictive accuracy: criteria 5A*

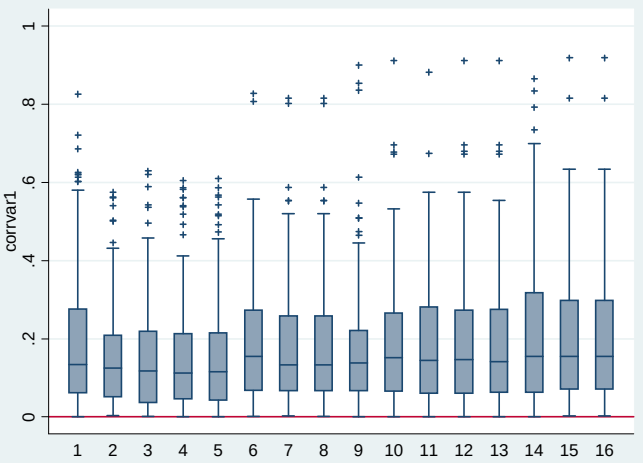



*Figure M5 Predictive accuracy: criteria 5A*

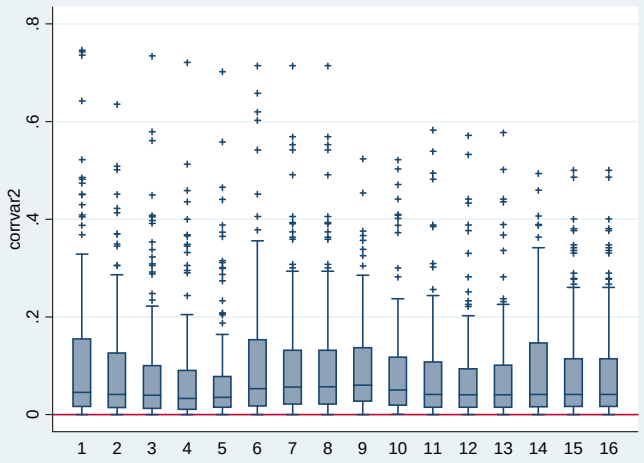



*Figure M6 Distributional accuracy: criteria 6*

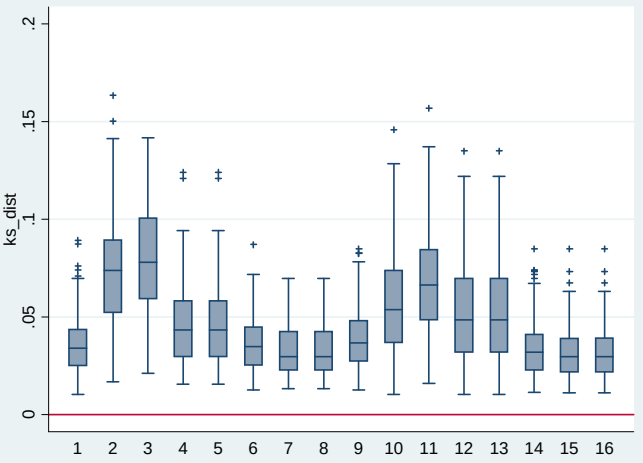


*Figure M7 Estimation accuracy: criteria 8*

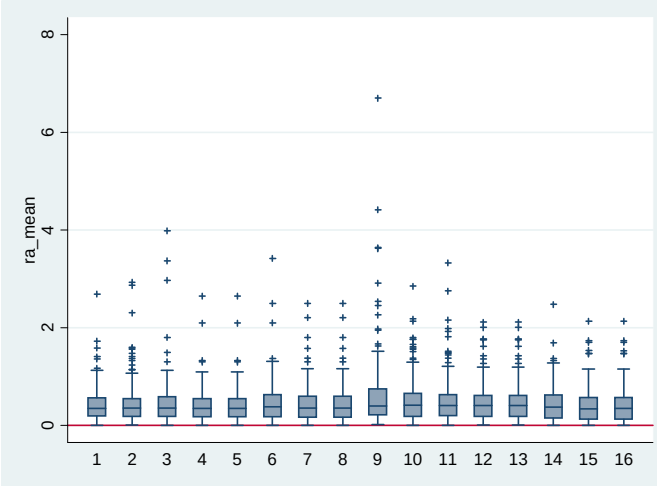



*Figure M8 Estimation accuracy: criteria 9*

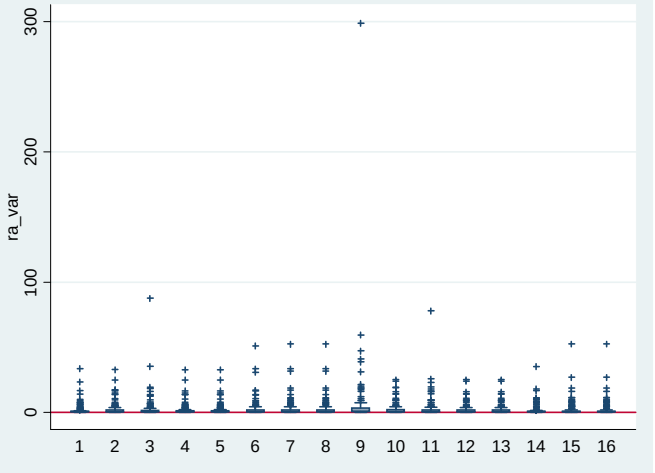



*Figure M9 Estimation accuracy: criteria 10*

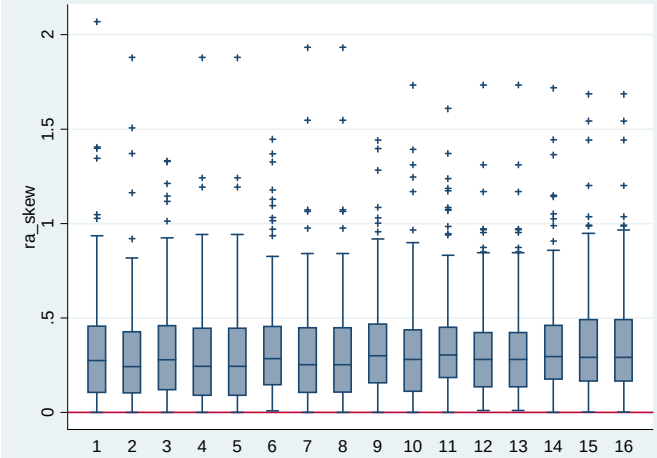



*Figure M10 Estimation accuracy: criteria 11*

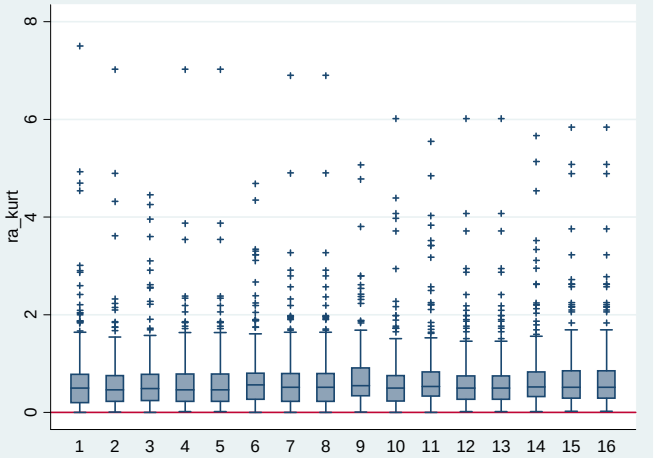


***Figure M11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for dividends and royalties for non-respondents***

*Figure M11 Predictive accuracy: criteria 1*

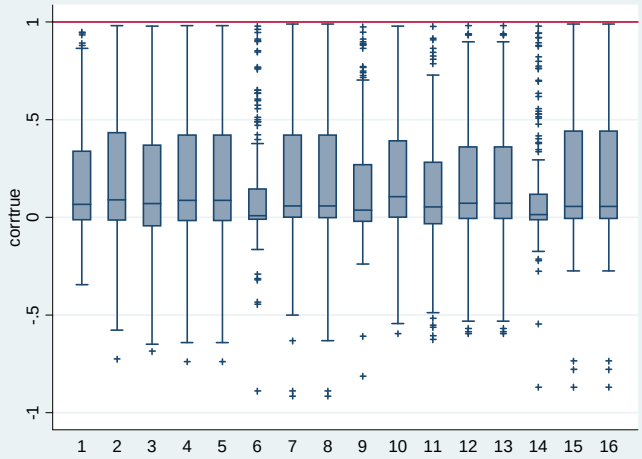



*Figure M12 Predictive accuracy: criteria 2*

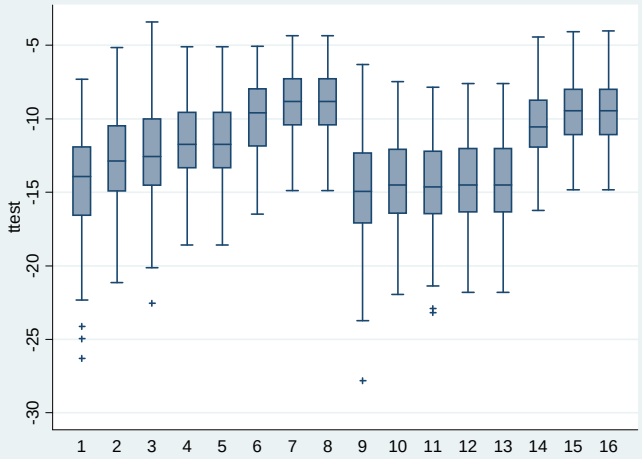



*Figure M13 Predictive accuracy: criteria 3*

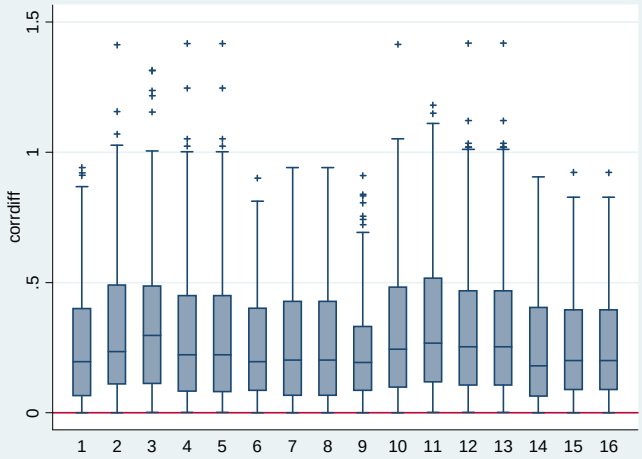



*Figure M14 Distributional accuracy: criteria 6*

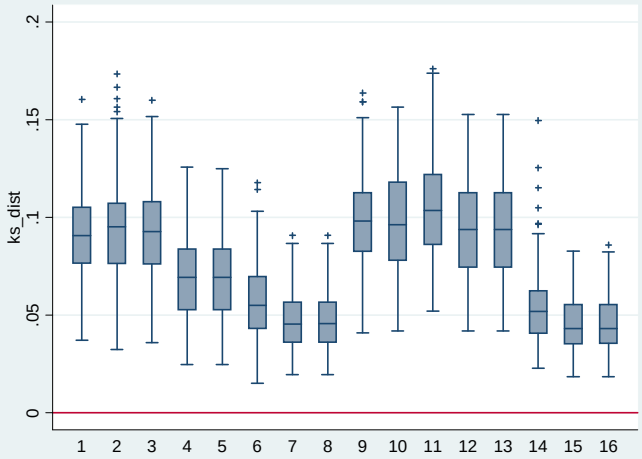



*Figure M15 Estimation accuracy: criteria 8*

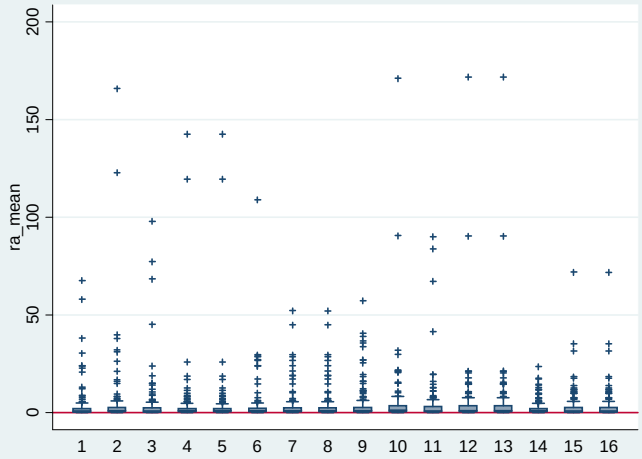



*Figure M16 Estimation accuracy: criteria 9*

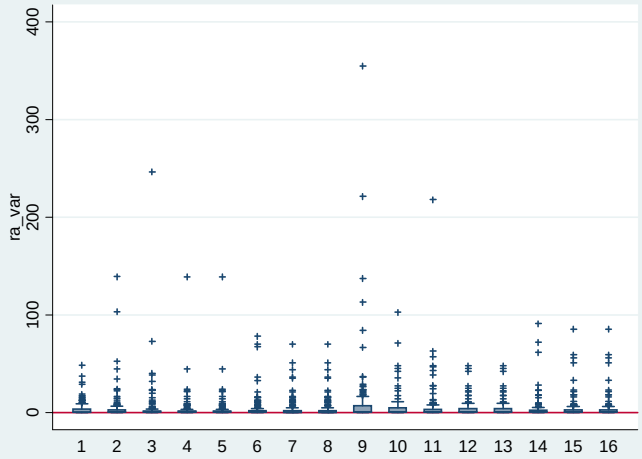


*Figure M17 Estimation accuracy: criteria 10*

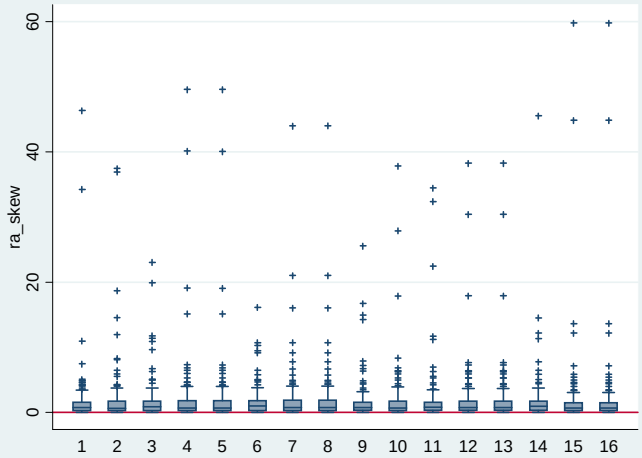



*Figure M18 Estimation accuracy: criteria 11*

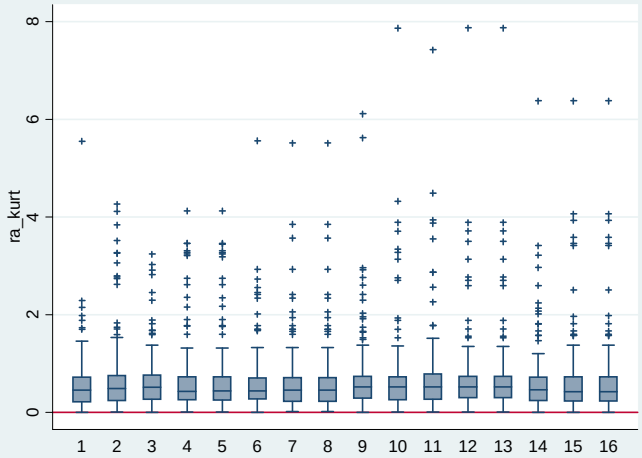


***Figure N1-10 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for rental income for non-respondents***

*Figure N1 Predictive accuracy: criteria 1*

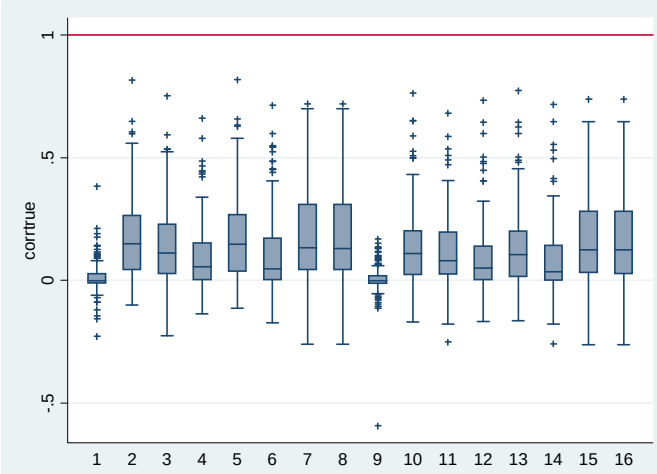



*Figure N2 Predictive accuracy: criteria 2*

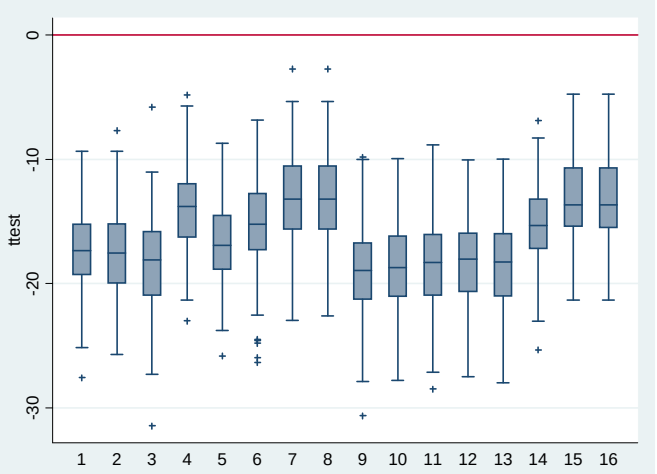



*Figure N3 Predictive accuracy: criteria 4*

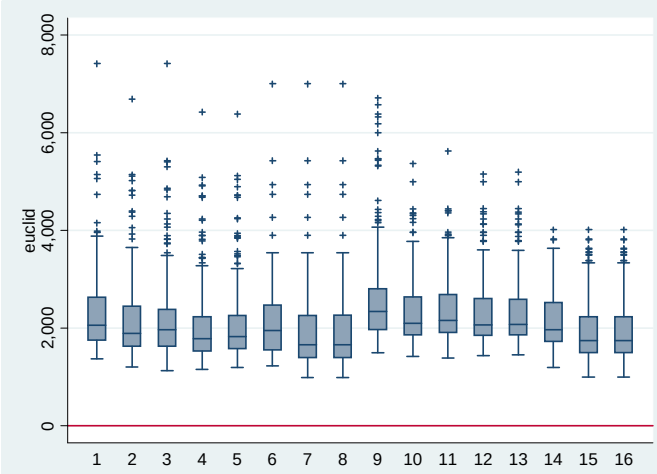



*Figure N4 Predictive accuracy: criteria 5A*

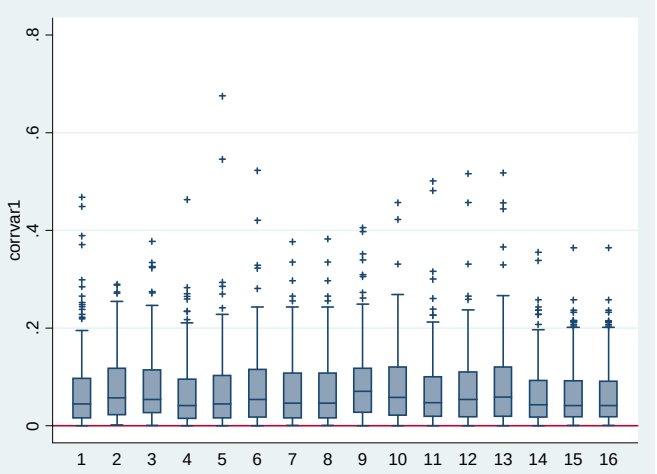



*Figure N5 Predictive accuracy: criteria 5A*

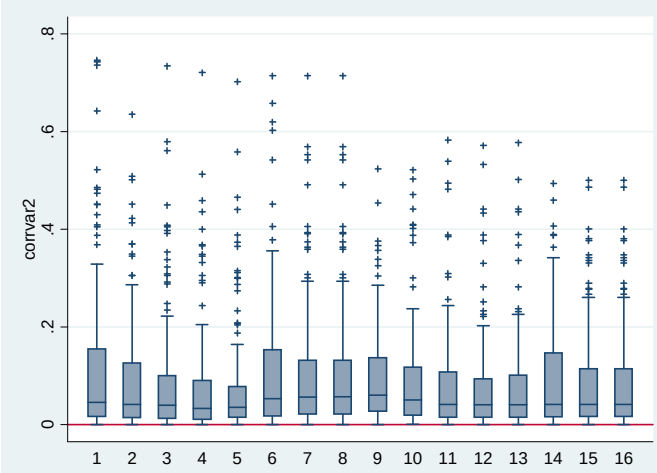



*Figure N6 Distributional accuracy: criteria 6*

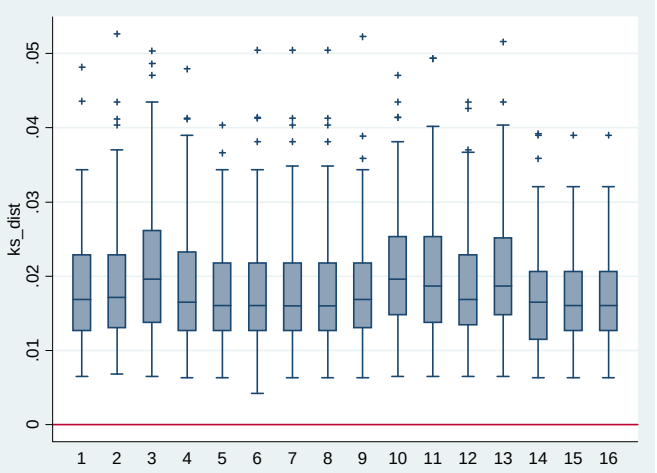


*Figure N7 Estimation accuracy: criteria 8*

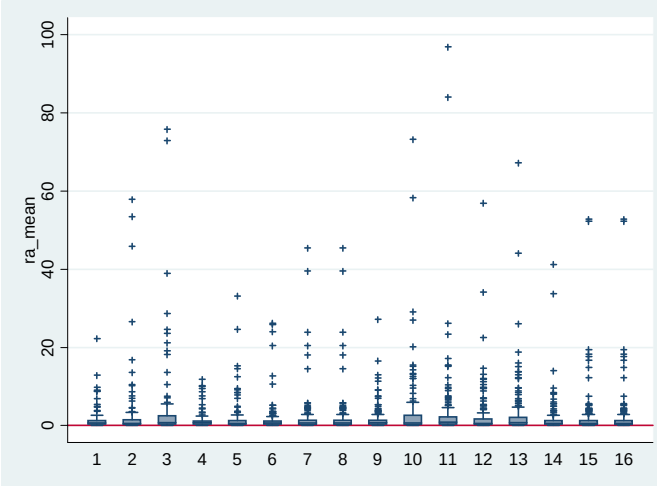



*Figure N8 Estimation accuracy: criteria 9*

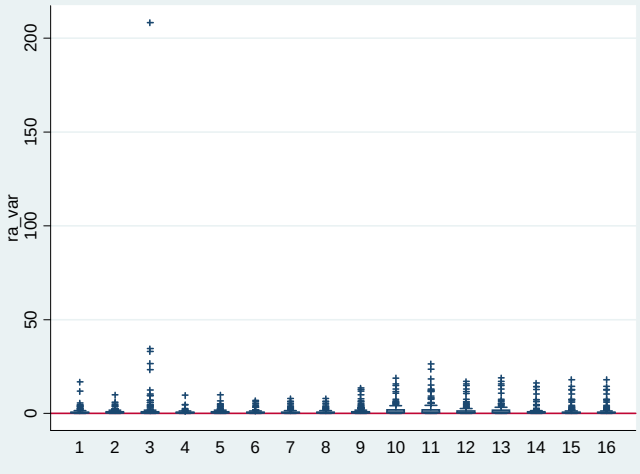



*Figure N9 Estimation accuracy: criteria 10*

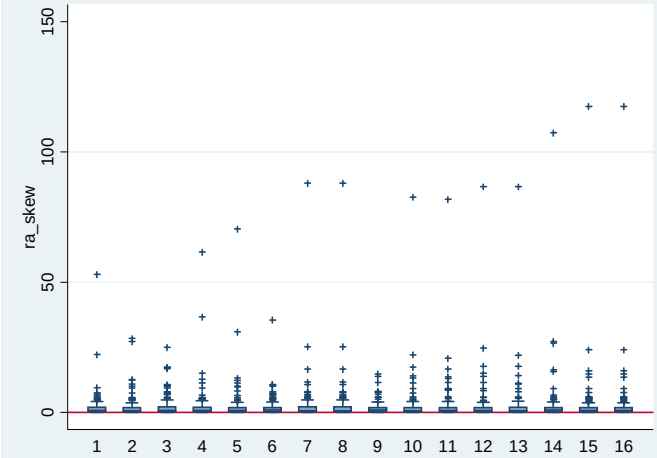



*Figure N10 Estimation accuracy: criteria 11*

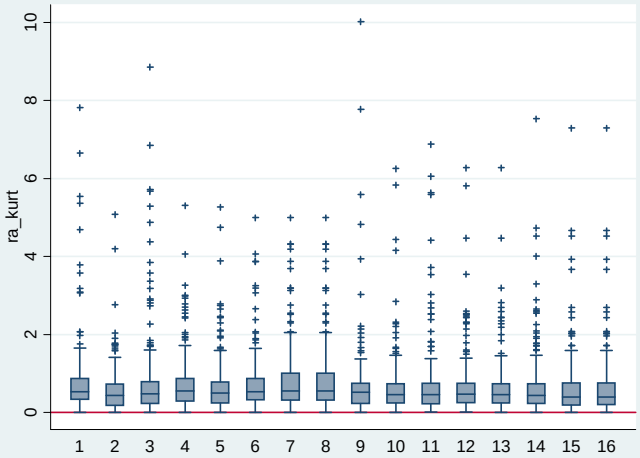


***Figure N11-18 Box plots of longitudinal predictive, distributional and estimation evaluation measures for rental income for non-respondents***

*Figure N11 Predictive accuracy: criteria 1*

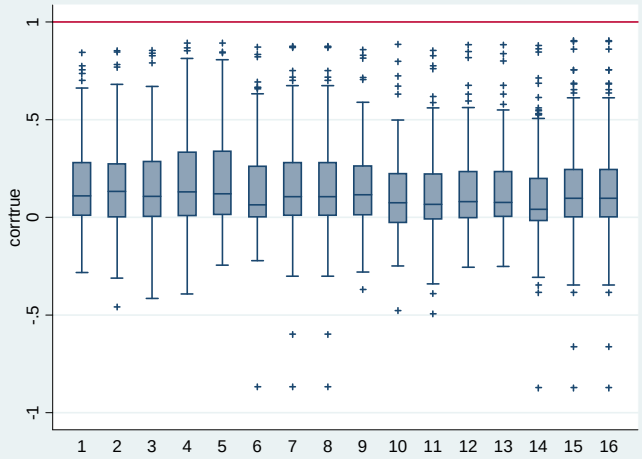



*Figure N12 Predictive accuracy: criteria 2*

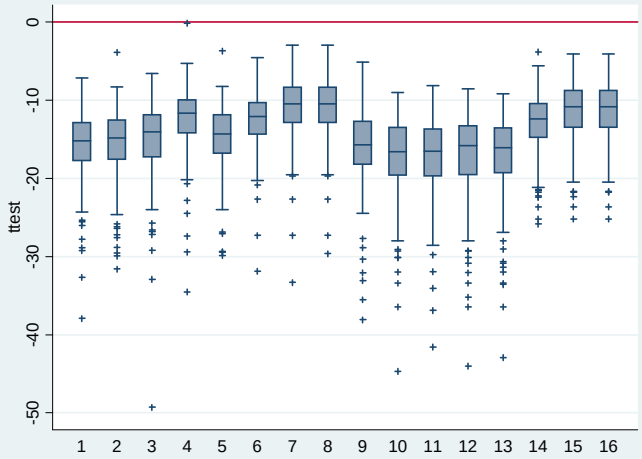



*Figure N13 Predictive accuracy: criteria 3*

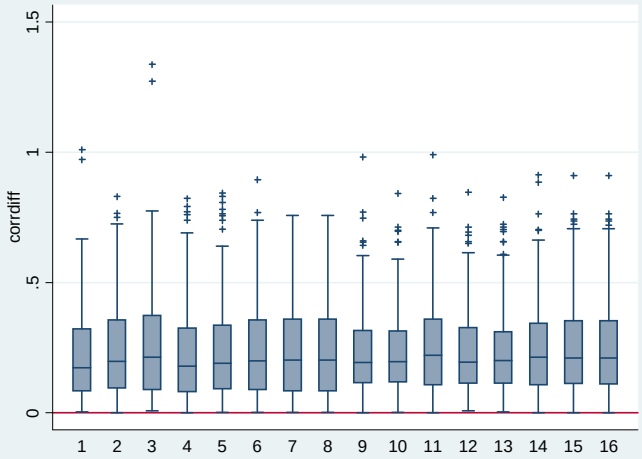



*Figure N14 Distributional accuracy: criteria 6*

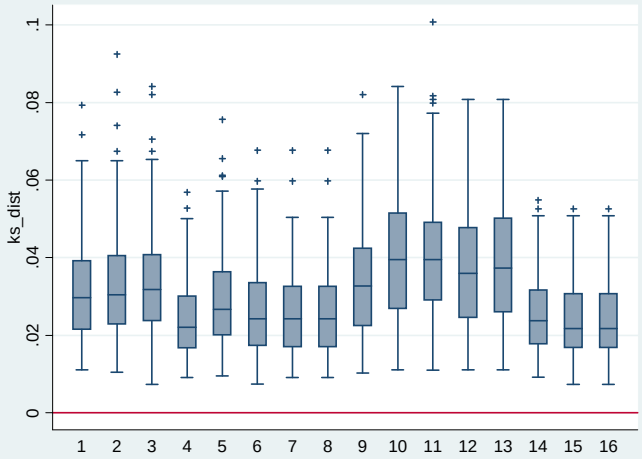



*Figure N15 Estimation accuracy: criteria 8*

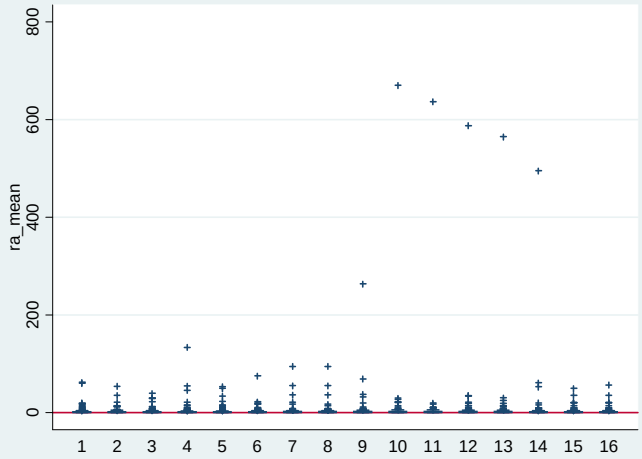



*Figure N16 Estimation accuracy: criteria 9*

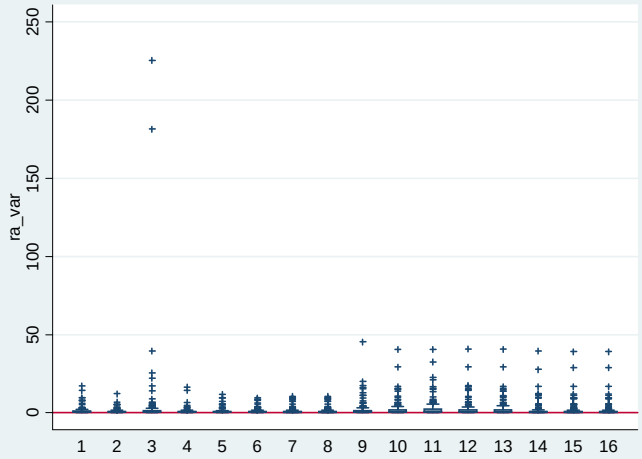


*Figure N17 Estimation accuracy: criteria 10*

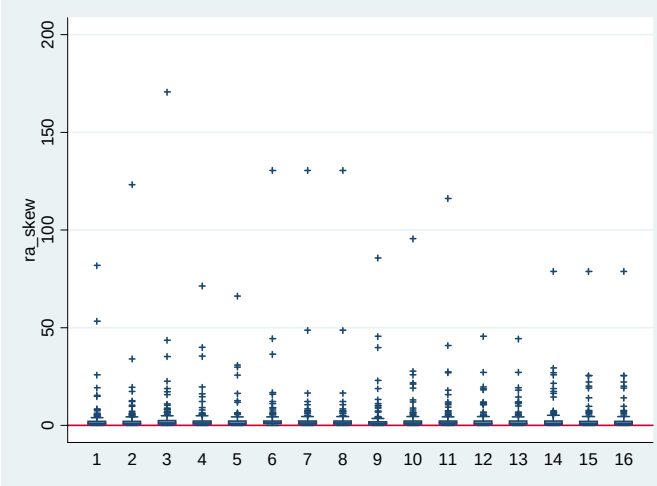



*Figure N18 Estimation accuracy: criteria 11*

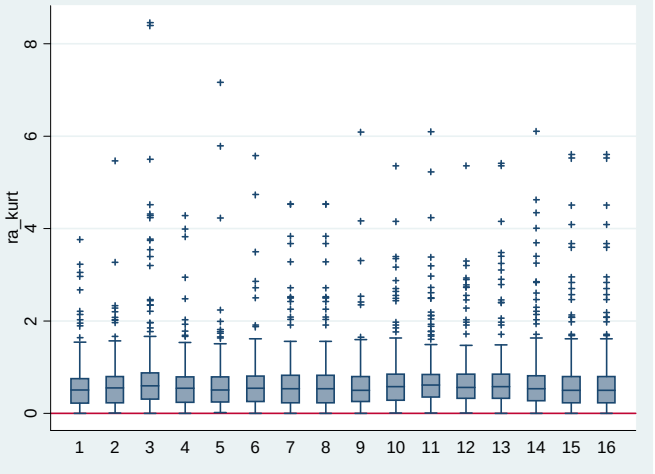


***Figure O1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for private transfers for non-respondents***

*Figure O1 Predictive accuracy: criteria 1*

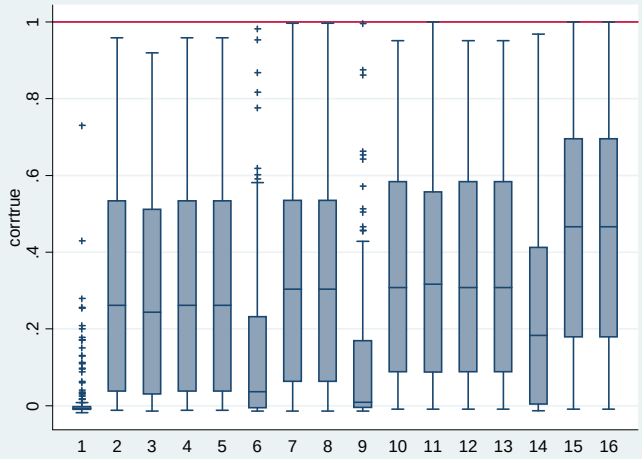



*Figure O2 Predictive accuracy: criteria 2*

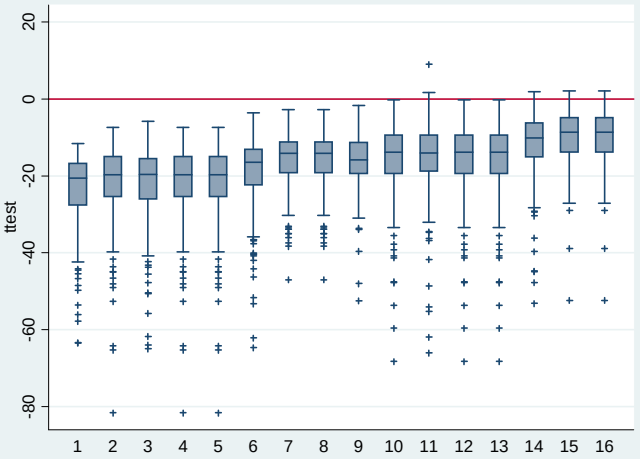



*Figure O3 Distributional accuracy: criteria 6*

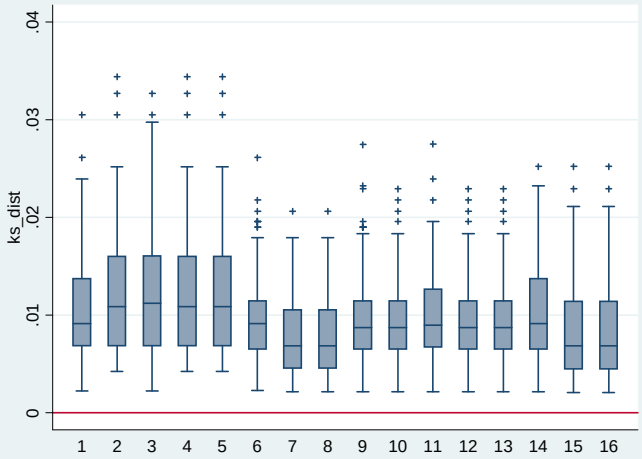



*Figure O4 Estimation accuracy: criteria 8*

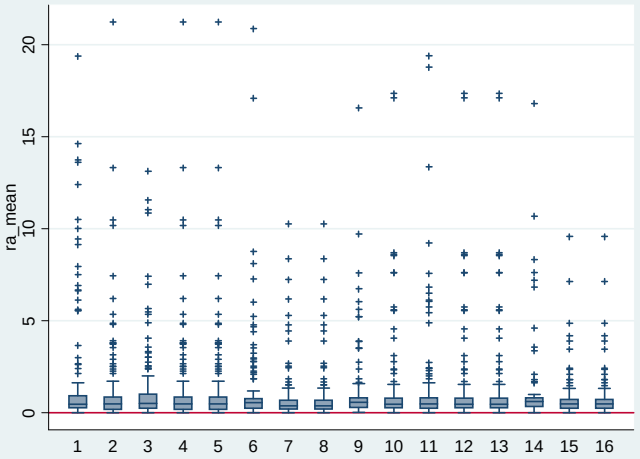



*Figure O5 Estimation accuracy: criteria 9*

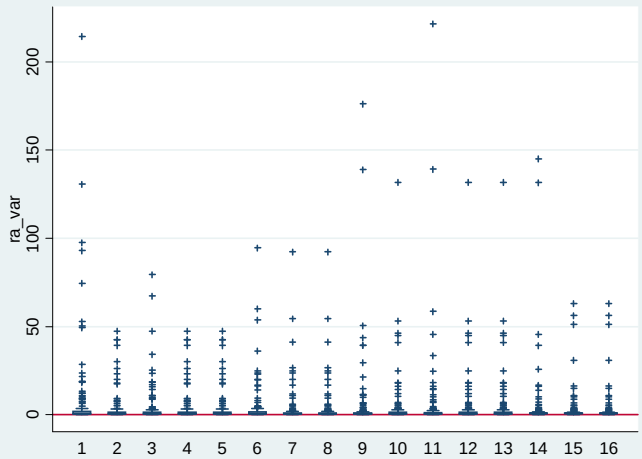



*Figure O6 Estimation accuracy: criteria 10*

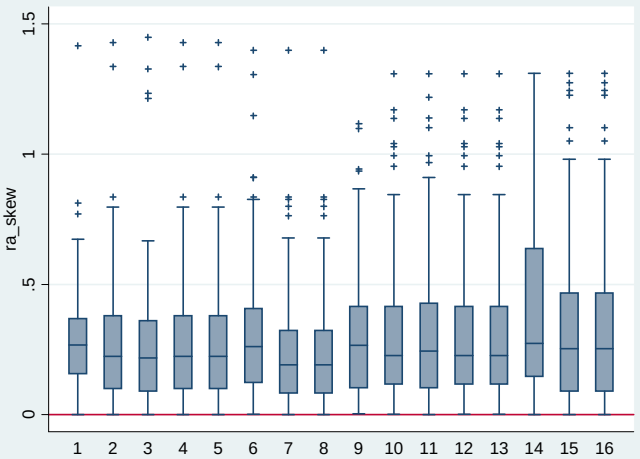


*Figure O7 Estimation accuracy: criteria 11*

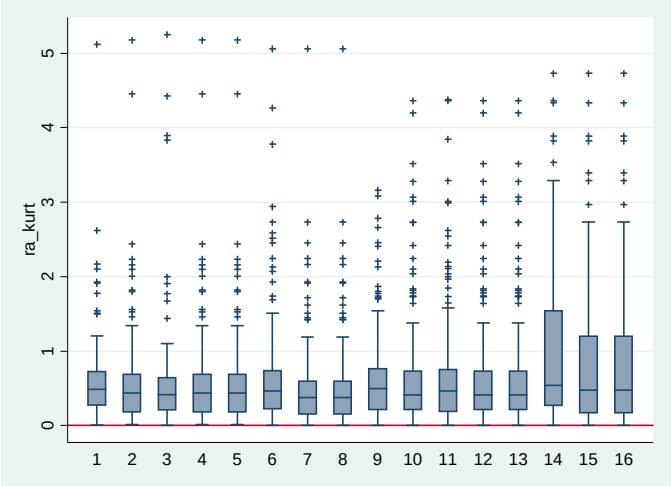


***Figure O8-15 Box plots of longitudinal predictive, distributional and estimation evaluation measures for private transfers for non-respondents***

*Figure O8 Predictive accuracy: criteria 1*

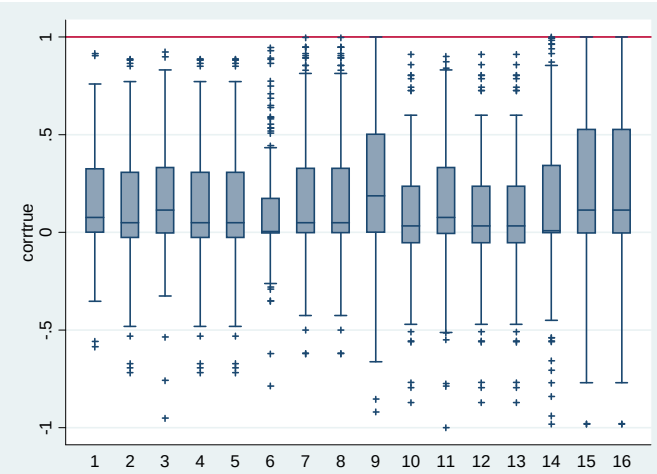



*Figure O9 Predictive accuracy: criteria 2*

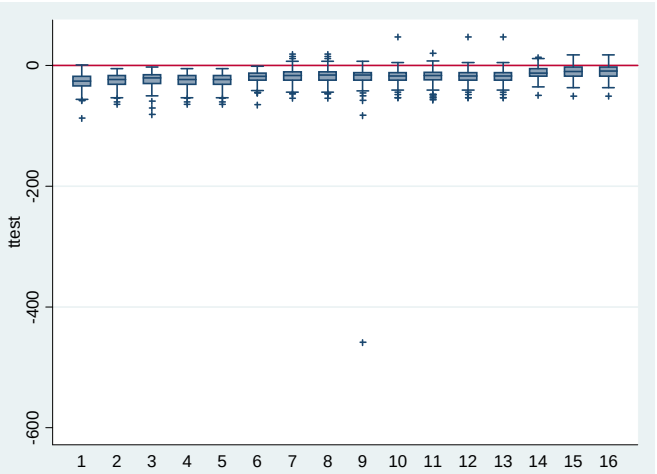



*Figure O10 Predictive accuracy: criteria 3*

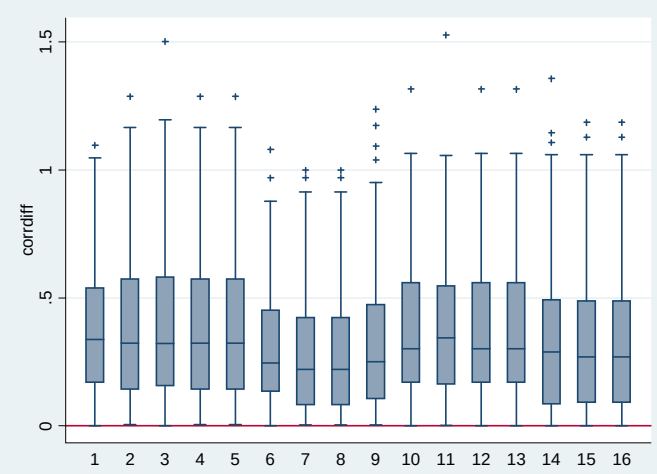



*Figure O11 Distributional accuracy: criteria 6*

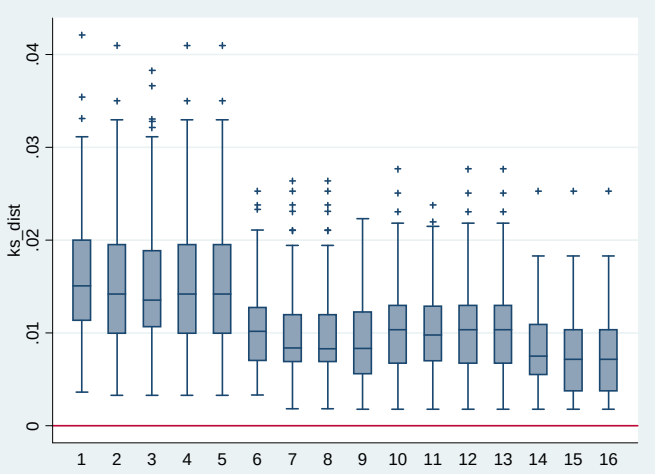



*Figure O12 Estimation accuracy: criteria 8*

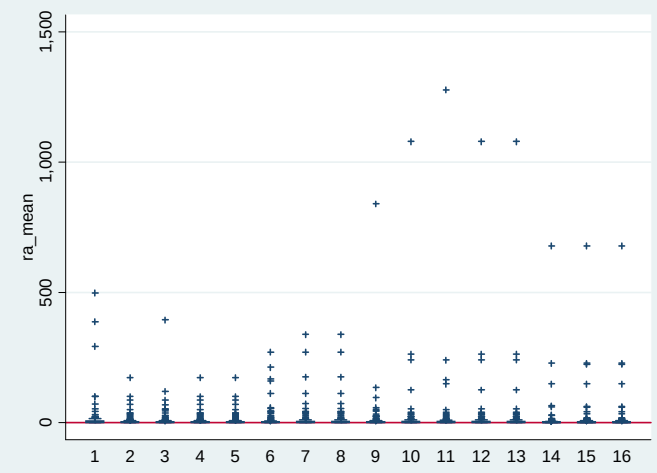



*Figure O13 Estimation accuracy: criteria 9*

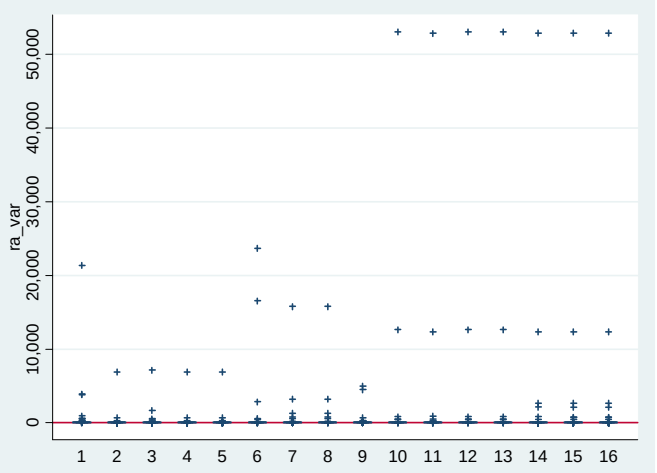


*Figure O14 Estimation accuracy: criteria 10*

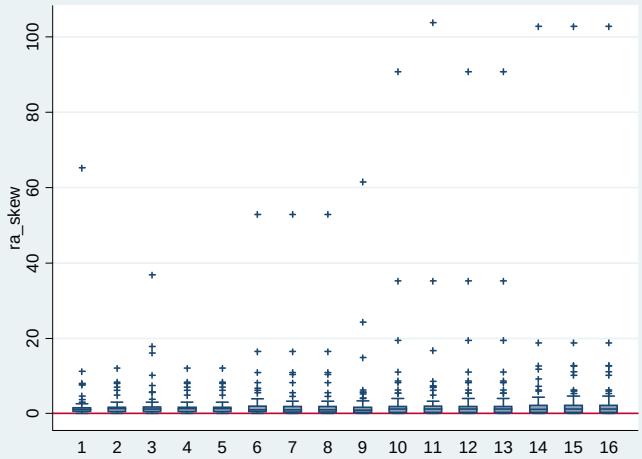



*Figure O15 Estimation accuracy: criteria 11*

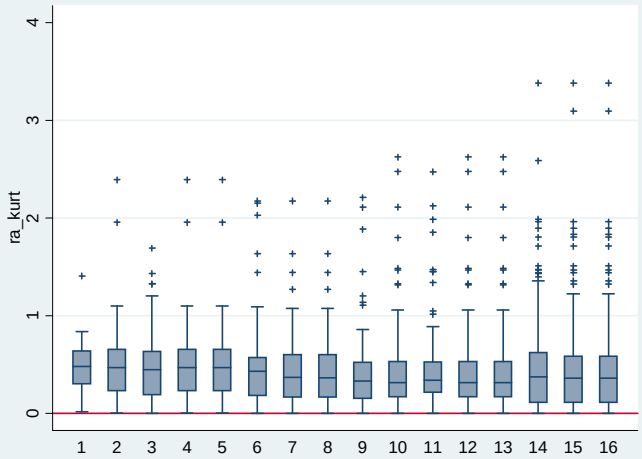


***Figure P1-7 Box plots of cross-sectional predictive, distributional and estimation evaluation measures for total financial year income for non-respondents***

*Figure P1 Predictive accuracy: criteria 1*

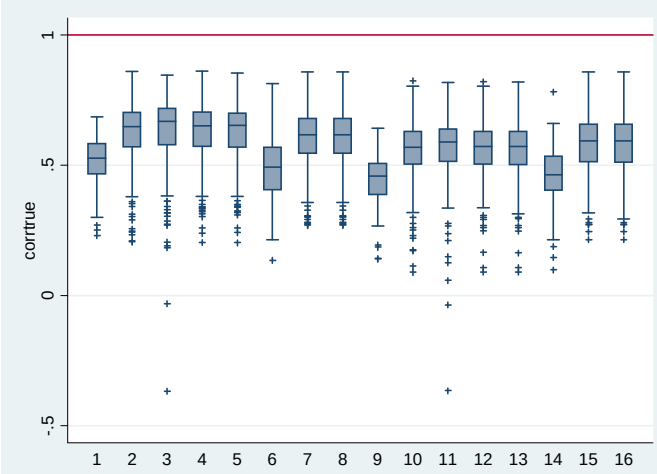



*Figure P2 Predictive accuracy: criteria 2*

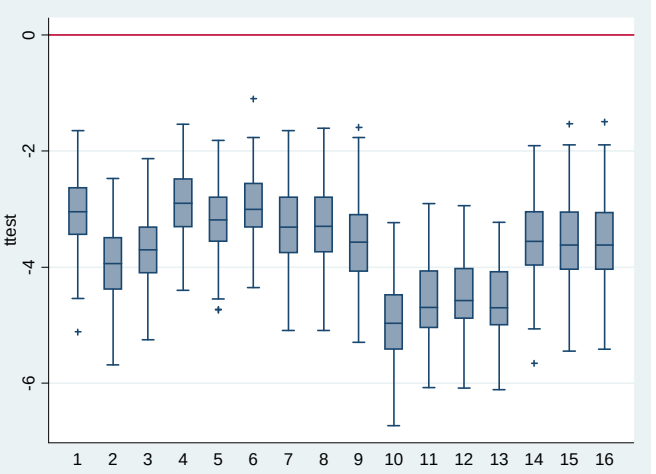



*Figure P3 Distributional accuracy: criteria 6*

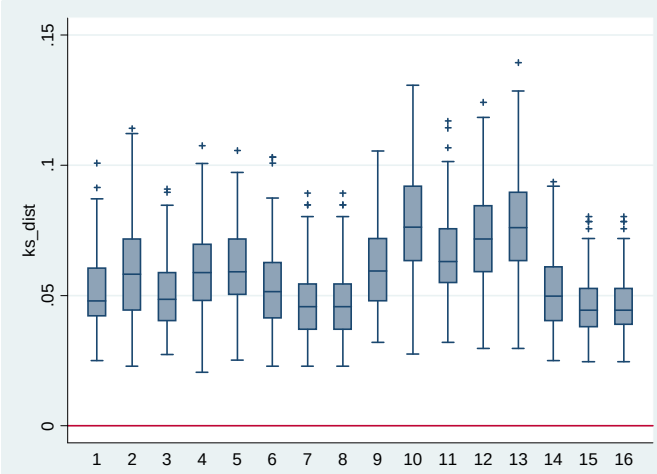



*Figure P4 Estimation accuracy: criteria 8*

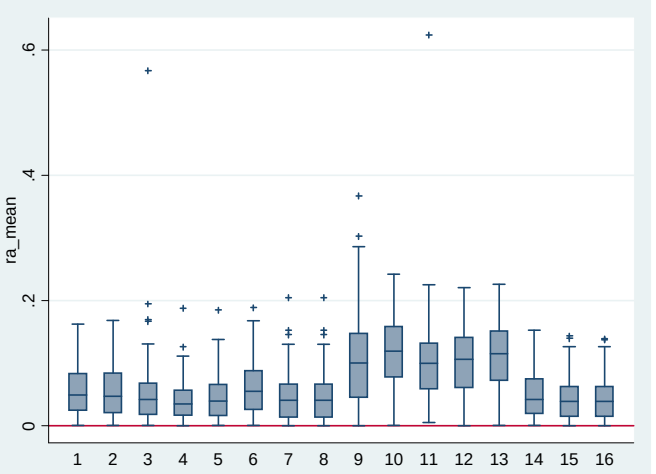



*Figure P5 Estimation accuracy: criteria 9*

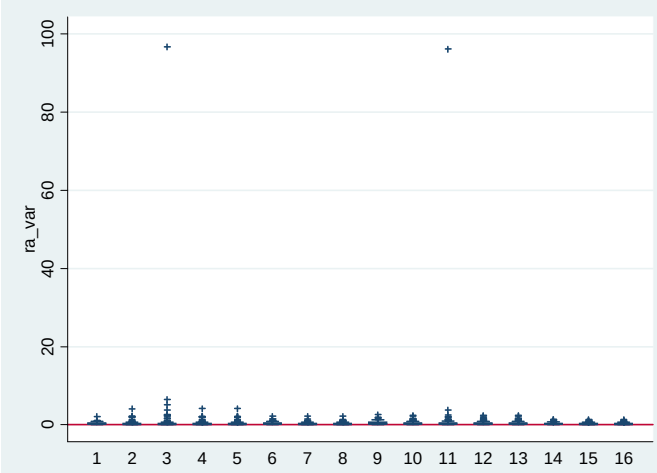



*Figure P6 Estimation accuracy: criteria 10*

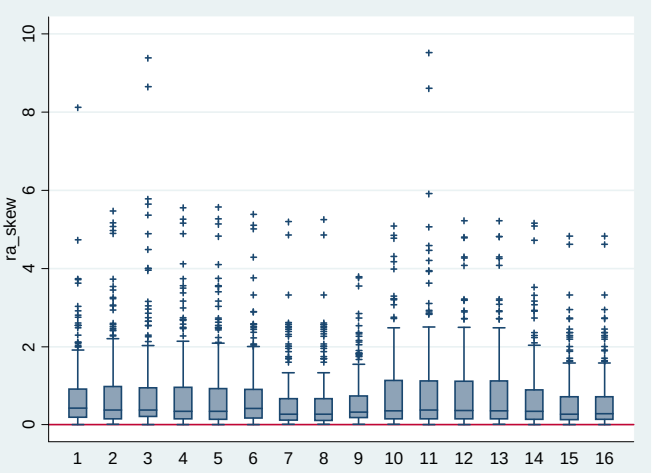


*Figure P7 Estimation accuracy: criteria 11*

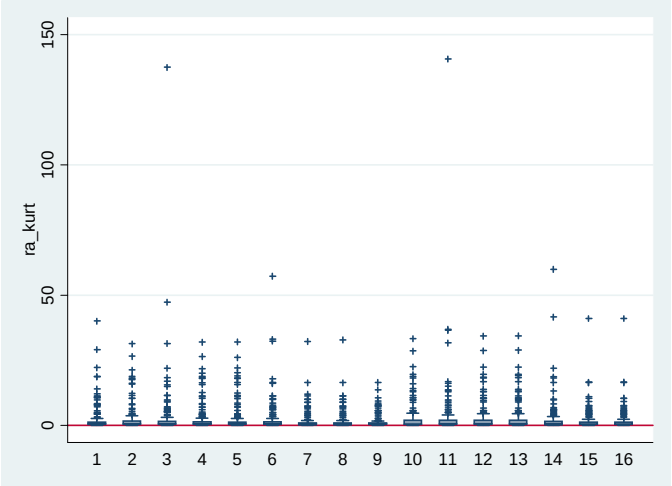


***Figure P8-16 Box plots of longitudinal predictive, distributional and estimation evaluation measures for total financial year income for non-respondents***

*Figure P8 Predictive accuracy: criteria 1*

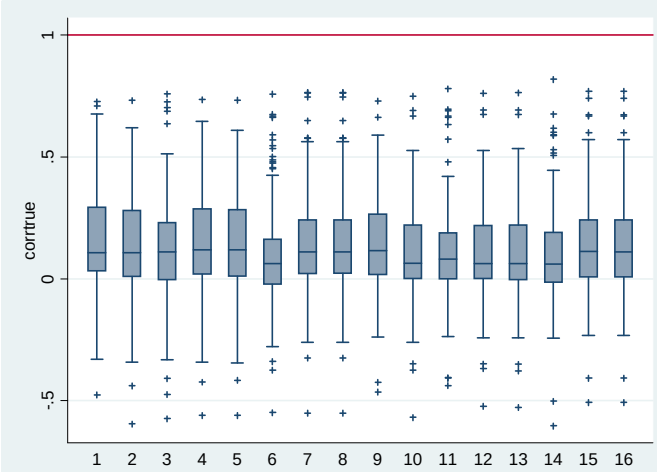



*Figure P9 Predictive accuracy: criteria 2*

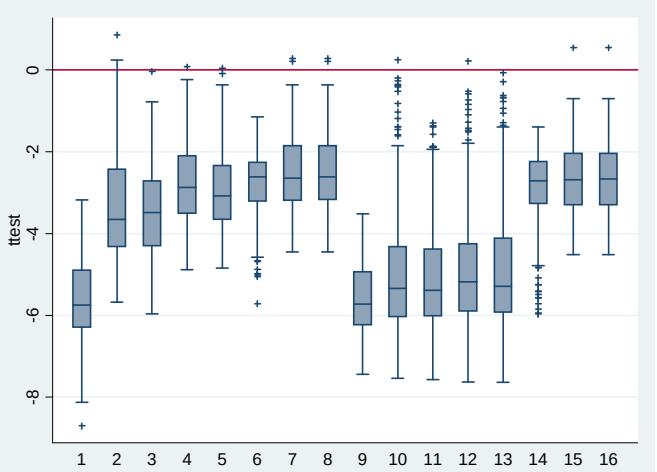



*Figure P10 Predictive accuracy: criteria 3*

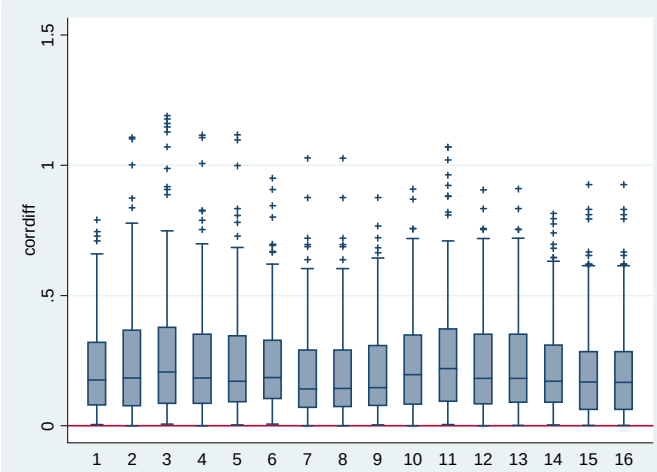



*Figure P11 Distributional accuracy: criteria 6*

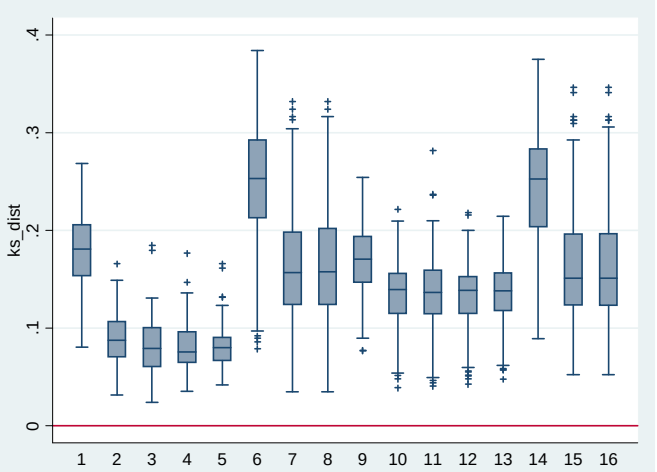



*Figure P12 Distributional accuracy: criteria 7*

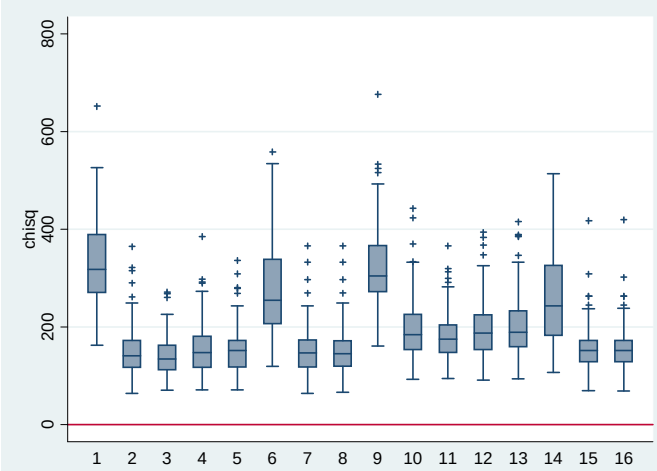



*Figure P13 Estimation accuracy: criteria 8*

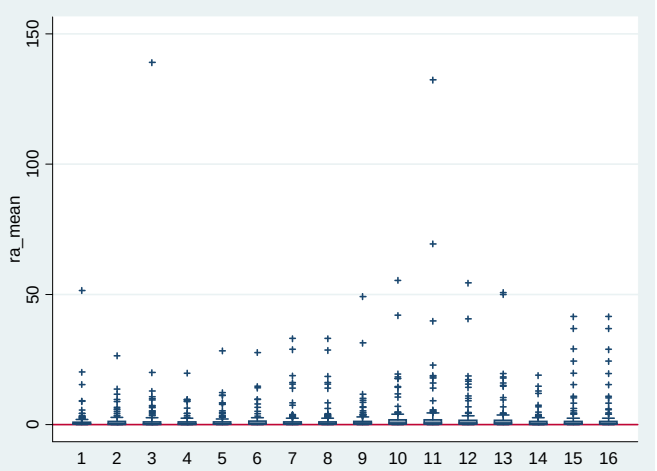


*Figure P14 Estimation accuracy: criteria 9*

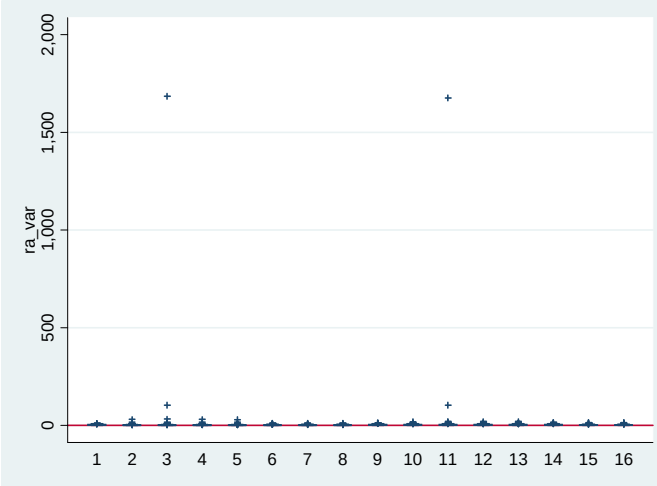
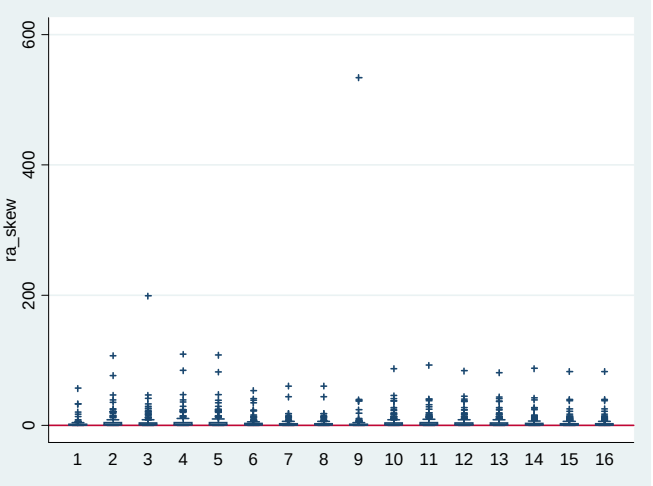



*Figure P15 Estimation accuracy: criteria 10*



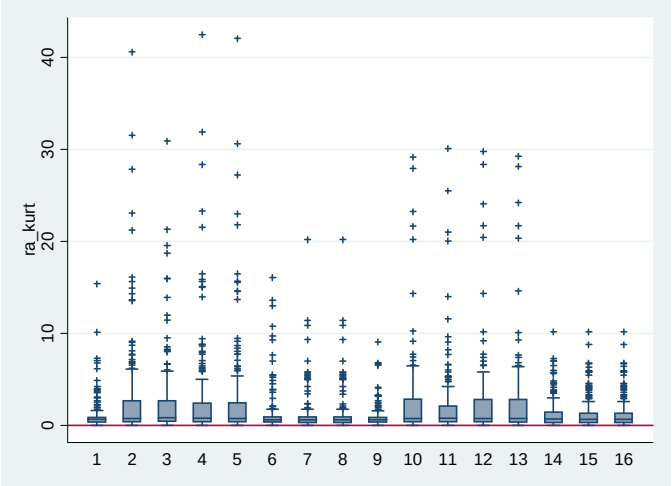


*Figure P16 Estimation accuracy: criteria 11*